

# Statistics for Data Science

D. Alex Hughes, Paul Laskowski & The 203 Teaching Team<sup>1</sup>

2024-10-15

<sup>1</sup>UC Berkeley, School of Information



# Contents

<b>Live Session</b>	<b>7</b>
<b>1 Probability Spaces</b>	<b>9</b>
1.1 Learning Objectives . . . . .	10
1.2 Course Learning Objectives . . . . .	10
1.3 Introductions . . . . .	12
1.4 Student Introductions [Breakout One] . . . . .	12
1.5 Student Introductions [Breakout Two] . . . . .	12
1.6 Probability Theory . . . . .	13
1.7 Axiomatic Probability . . . . .	14
1.8 Definition vs. Theorem . . . . .	15
1.9 Working with a Sample Space . . . . .	16
1.10 Independence . . . . .	17
1.11 A practice problem . . . . .	17
1.12 Student Tasks to Complete . . . . .	18
<b>2 Defining Random Variables</b>	<b>19</b>
2.1 Learning Objectives . . . . .	19
2.2 Introduction to the Materirals . . . . .	21
2.3 Class Announcements . . . . .	21
2.4 Using Definitions of Random Variables . . . . .	22
2.5 Pieces of a Random Variable . . . . .	22
2.6 Discrete & Continuous Random Variables . . . . .	25
2.7 Moving Between PDF and CDF . . . . .	25
2.8 Joint Density . . . . .	26
2.9 Computing Different Distributions. . . . .	28
2.10 Conditional Probability . . . . .	28
2.11 Visualizing Distributions Via Simulation . . . . .	29
2.12 Review of Terms . . . . .	34
<b>3 Summarizing Distributions</b>	<b>35</b>
3.1 Learning Objectives . . . . .	37
3.2 Class Announcements . . . . .	37

3.3	Discussion of Terms . . . . .	39
3.4	Expected Value . . . . .	39
3.5	Computing Examples . . . . .	40
3.6	Computing by Hand . . . . .	41
3.7	Expected Value by Code . . . . .	45
3.8	Practice Computing . . . . .	46
3.9	Write Code . . . . .	47
<b>4</b>	<b>Conditional Expectation and The BLP</b>	<b>53</b>
4.1	Thunder Struck . . . . .	54
4.2	Learning Objectives . . . . .	54
4.3	Class Announcements . . . . .	56
4.4	Roadmap . . . . .	56
4.5	Conditional Expectation Function (CEF), . . . . .	57
4.6	Computing the CEF . . . . .	57
4.7	Minimizing the MSE . . . . .	60
4.8	Working with the BLP . . . . .	61
4.9	Joint Distribution Practice . . . . .	61
<b>5</b>	<b>Learning from Random Samples</b>	<b>63</b>
5.1	Goals, Framework, and Learning Objectives . . . . .	64
5.2	Key Terms and Assumptions . . . . .	66
5.3	Estimators . . . . .	67
5.4	Estimator Property: Biased or Unbiased? . . . . .	67
5.5	Estimator Property: Consistency . . . . .	69
5.6	Understanding Sampling Distributions . . . . .	71
5.7	Write Code to Demo the Central Limit Theorem (CLT) . . . . .	74
5.8	Errors with Standard Errors . . . . .	75
<b>6</b>	<b>Hypothesis Testing</b>	<b>77</b>
6.1	Learning Objectives . . . . .	78
6.2	Class Announcements . . . . .	78
6.3	Roadmap . . . . .	79
6.4	What does a hypothesis test do? . . . . .	80
6.5	Madlib prompt . . . . .	80
6.6	Madlib completed . . . . .	80
6.7	“Accepting the Null” . . . . .	81
6.8	Manually Computing a t-Test . . . . .	81
6.9	Falling Ill (The General Form of a Hypothesis Test) . . . . .	83
6.10	Data Exercise . . . . .	84
6.11	Assumptions Behind the t-test . . . . .	87
<b>7</b>	<b>Comparing Two Groups</b>	<b>89</b>
7.1	Learning Objectives . . . . .	89
7.2	Class Announcements . . . . .	90
7.3	Roadmap . . . . .	90

<b>CONTENTS</b>	<b>5</b>
7.4 Teamwork Discussion . . . . .	91
7.5 Team Kick-Off . . . . .	93
7.6 A Quick Review . . . . .	93
7.7 Rank Based Tests . . . . .	93
7.8 Comparing Groups R Exercise . . . . .	94
7.9 The Questions . . . . .	95
7.10 Simulating the Effects of Test Choices . . . . .	100
7.11 . . . . .	100
<b>8 OLS Regression Estimates</b>	<b>109</b>
8.1 Learning Objectives . . . . .	110
8.2 Class Announcements . . . . .	110
8.3 Roadmap . . . . .	110
8.4 Discussion Questions . . . . .	110
8.5 Best Linear Predictor and OLS Regression as a Predictor . . . . .	111
8.6 The Regression Anatomy Formula . . . . .	837
8.7 Coding Activity:R Cheat Sheet . . . . .	842
8.8 R Exercise . . . . .	843
8.9 Regression Plots and Discussion . . . . .	846
<b>9 OLS Regression Inference</b>	<b>847</b>
9.1 Learning Objectives . . . . .	847
9.2 Class Announcements . . . . .	848
9.3 Roadmap . . . . .	848
9.4 Uncertainty in OLS . . . . .	848
9.5 Understanding Uncertainty . . . . .	849
9.6 Understanding Uncertainty . . . . .	853
9.7 R Exercise . . . . .	853
<b>10 Descriptive Model Building</b>	<b>859</b>
10.1 Learning Objectives . . . . .	861
10.2 Class Announcements . . . . .	861
10.3 Roadmap . . . . .	861
10.4 Discussion . . . . .	862
10.5 R Activity: Measuring the return to education . . . . .	862
<b>11 Explanatory Model Building</b>	<b>865</b>
11.1 Learning Objectives . . . . .	866
11.2 Class Announcements . . . . .	866
11.3 Roadmap . . . . .	867
11.4 Discussion . . . . .	868
11.5 An Interlude . . . . .	868
11.6 R Exercise . . . . .	869
11.7 Research Design Strategies . . . . .	872
11.8 Discussion . . . . .	872

<b>12 The Classical Linear Model</b>	<b>873</b>
12.1 Learning Objectives . . . . .	873
12.2 Class Announcements . . . . .	873
12.3 Roadmap . . . . .	873
12.4 The Classical Linear Model . . . . .	874
12.5 R Exercise . . . . .	876
<b>13 Reproducible Research</b>	<b>879</b>
13.1 Learning Objectives . . . . .	879
13.2 Class Announcements . . . . .	879
13.3 Roadmap . . . . .	879
13.4 What data science hopes to accomplish . . . . .	879
13.5 Learning from Data . . . . .	880
13.6 Data Science and Statistics . . . . .	880
13.7 Why Statistics?: A Closing Argument for Statistics . . . . .	880
13.8 Course Goals . . . . .	880
13.9 Reproducibility Discussion . . . . .	881
<b>14 Maximum Likelihood Estimation</b>	<b>883</b>
14.1 Learning Objectives . . . . .	884
14.2 Class Announcements . . . . .	884
14.3 Roadmap . . . . .	884
14.4 What is a model? . . . . .	884
14.5 Estimation . . . . .	884
14.6 Discussion of Maximum Likelihood Estimation . . . . .	885
14.7 Optimization in R . . . . .	885
14.8 MLE for Poisson Random Variables . . . . .	886
14.9 Confidence Intervals . . . . .	888
14.10 Maximum Likelihood Example: Printers . . . . .	890
<b>Appendix</b>	<b>893</b>
Bloom's Taxonomy . . . . .	893

# Live Session



This is the live session work space for the course. Our goal with this repository, is that we're able to communicate *ahead of time* our aims for each week, and that you can prepare accordingly.

```
# library(mids203)
```



# Chapter 1

## Probability Spaces

```
source('./src/blank_lines.R')
```

Probability is a system of reasoning about the world in the face of incomplete information. In this course, we're going to develop an understanding of the implications of core parts of this theory, how this theory was developed, and how these implications relate to every other part of the practice of data science.



Figure 1.1: probability, the final frontier

## 1.1 Learning Objectives

At the end of this week's learning, student will be able to:

1. **Find** and *access* all of the course materials;
2. **Develop** a course of study that is builds toward success;
3. **Apply** the axioms of probability to make a valid statement;
4. **Solve** word problems through the *application* of probability and math rules.

## 1.2 Course Learning Objectives

At this point in the course, there is so much that is before us! As we settle in to study for the semester, it is useful to have a point of view of where we're trying to go, and what we are going to see along the way.

Allow a justification by analogy:

Suppose that you decide that you would like to be a chef – all of the time watching cooking shows has revealed to you that this is your life's true calling – and so you enroll in a culinary program.

One does not begin such a program by baking croissants and souffle. They begin the program with knife skills, breaking down ingredients and the basic techniques that build up to produce someone who is not a *cook*, but a *chef* – someone who can combine ingredients and techniques to produce novel ideas.

At the same time, however, one has not gone to school just to become a cucumber slicer. The knife skills are instrumental to the eventual goal – of being a chef – but not the goal itself.

At the beginning of the program, we're teaching these core, fundamental skills. How to read and reason with mathematical objects, how to use conditional probability with the goal of producing a model, and eventually, **eventually** to create novel work as a data scientist.

At the end of this course, students will be able to:

### 1.2.1 Understand the building blocks of probability theory that prepare learners for the study of statistical models

1. Understand the mathematical objects of probability theory and be able to apply their properties.
2. Understand how high-level concepts from calculus and linear algebra are related to common procedures in data science.
3. Translate between problems that are defined in business or research terms into problems that can be solved with math.

**1.2.2 Understand and apply statistical models in common situations**

1. Understand the theory of statistics to prepare students for inferential statements.
2. Understand model parameters and high level strategies to estimate them: means, least squares, and maximum likelihood.
3. Choose an appropriate statistic, and conduct a hypothesis test in the Neyman-Pearson framework.
4. Interpret the results of a statistical test, including statistical significance and practical significance.
5. Recognize limitations of the Neyman-Pearson hypothesis testing framework and be a conscientious participant in the scientific process

**1.2.3 Analyze a research question using a linear regression framework**

1. Explore and wrangle data with the intention of understanding the information and relationships that are (and are not) present
2. Identify the goals of your analysis
3. Build a model that achieves the goals of an analysis

**1.2.4 Interpret the results of a model and communicate them in manner appropriate to the audience**

1. Identify their audience and report process and findings in a manner appropriate to that audience.
2. Construct regression oriented reports that provide insight for stakeholders.
3. Construct technical documents of process and code for collaboration and reproducability with peer data scientists.
4. Read, understand, and assess the claims that are made in technical, regression oriented reports

**1.2.5 Contribute proficient, basic work, using industry standard tools and coding practices to a modern data science team.**

Demonstrate programming proficiency by translating statistical problems into code.

1. Understand and incorporate best practices for coding style and data carpentry
2. Utilize industry standard tooling for collaboration

## 1.3 Introductions

### 1.3.1 Instructor Introductions

The instructors for the course come to the program, and to statistics from different backgrounds. Instructors hold PhDs in statistics, astrophysics, biology, political science, computer science, and information.

### 1.3.2 What does a statistician look like? You!

Identity shapes how people approach and understand their world.

We would like to acknowledge that we have limited diversity of identity among the instructors for this course. We each have been fortunate to be able to study, but we want to acknowledge that the education system in the US has systematically benefited the hegemonic groups and marginalized others voices.

Every one of the instructors shares a core identity as an empathetic educator that wants to understand your strengths, areas for growth, and unique point of view that is shaped by who you are. We want to see a field of data scientists who embrace each others voices, and respects people for the identities that they hold.

- It doesn't matter if you've never taken a stats class before, or if you're reviewing using this class. There will be challenges for everyone to overcome.
- It doesn't matter how old or young you are. We will all be learning frequentist statistics which is timeless.
- The color of your skin doesn't matter; nor does whether you identify as a woman or a man or trans or non-binary; neither does your sexual orientation. There are legacies of exclusion and discrimination against people due to these identities. We will not continue to propagate those legacies and instead will work to controvert those discriminations to build a diverse community of learning in line with the University's Principles of Community.

## 1.4 Student Introductions [Breakout One]

In a breakout room of between three and four students introduce yourself!

**Breakout One.** A *name story* is the unique, and individual story that describes how you came to have the name that you do. While there may be many people are called the same thing, each of their name stories is unique.

Please share: *What is your name story?*

## 1.5 Student Introductions [Breakout Two]

In the same breakout room:

**Breakout Two.** Like our names, the reasons that we joined this program, our goals and our histories are different.

Please share: *What is your data science story? How did you wind up here, in this room today?*

## 1.6 Probability Theory

### Probability

Probability is a system of reasoning that we use to model the world under incomplete information. This model underlies virtually *every* other model you'll ever use as a data scientist.

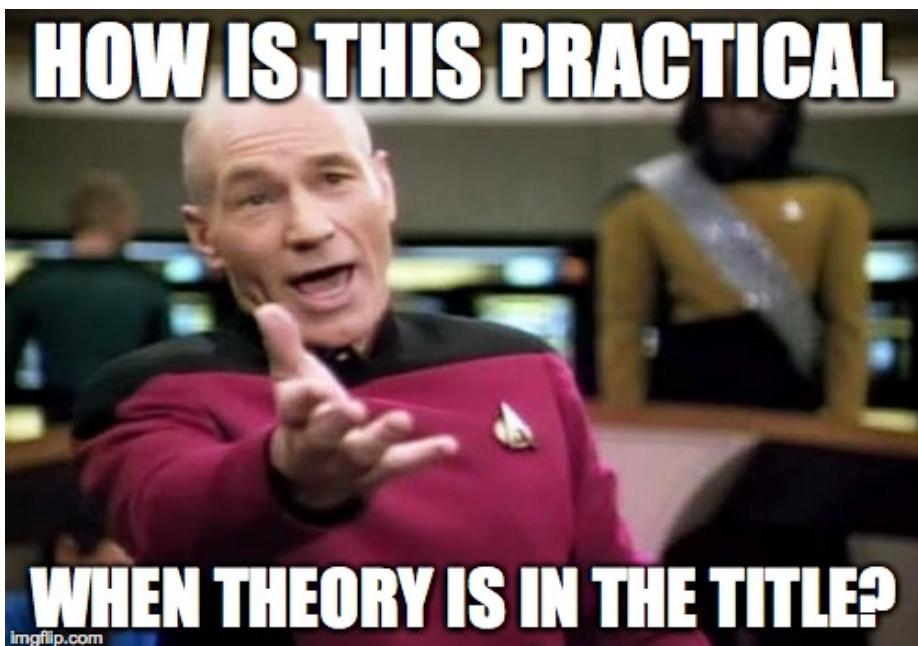


Figure 1.2: told you this would be spacey

In this course, probability theory builds out to random variables; when combined with sampling theory we are able to develop p-values (which are also random variables) and an inferential paradigm to communicate what we know and how certain a statement we can make about it.

In introduction to machine learning, literally the first model that you will train is a naive bayes classifier, which is an application of Bayes' Theorem, trained using an iterative fitting algorithm. Later in machine learning, you'll be fitting non-linear models, but at every point the input data that you are supplying to your models are generated from samples from random variables. That the

world can be represented by random variables (which we will cover in the coming weeks) means that you can transform – squeeze and smush, or stretch and pull – variables to heighten different aspects of the variables to produce the most useful *information* from your data.

As you move into NLP, you might think of generative text as a conditional probability problem: given some particular set of words as an input, what is the most likely *next* word or words that someone might type?

Beyond the direct instrumental value that we see working with probability, there are two additional aims that we have in starting the course in the manner.

First, because we are starting with the axioms of probability as they apply to data science statistics, students in this course develop a *much* fuller understanding of classical statistics than students in most other programs. Unfortunately, it is very common for students and then professionals to see statistics as a series of rules that have to be followed absolutely and without deviation. In this view of statistics, there are distributions to memorize; there are repeated problems to solve that require the rote application of some algebraic rule (i.e. compute the sample average and standard deviation of some vector); and, there are myriad, byzantine statistical tests to memorize and apply. In this view of statistics, if the real-world problem that comes to you as a data scientist doesn't clearly fit into a box, there's no way to move forward.

Statistics like this is not fun.

In the way that we are approaching this course, we hope that you're able to learn *why* certain distributions (like the normal distribution) arise repeatedly, and why we can use them. We also hope that because you know how sampling theory and random variables combine, that you can be more creative and inventive to solve problems that you haven't seen before.

The second additional aim that we have for this course is that it can serve as either an introduction or a re-introduction to reading and making arguments using the language of math. For some, this will be a new language; for others, it may have been some years since they have worked with the language; for some, this will feel quite familiar. New algorithms and data science model advancements *nearly always* developed in the math first, and then applied into algorithms second. In our view, being a literate reader of graduate- and professional-level math is a necessary skill for any data scientist that is going to keep astride of the field as it continues to develop and these first weeks of the course are designed to bring everyone back into reading and reasoning in the language.

## 1.7 Axiomatic Probability

The book makes a point of defining our axioms of probability, calling them them

**Definition 1.1.** *Kolmogorov Axioms*

Let  $\Omega$  be a sample space,  $S$  be an event space, and  $P$  be a probability measure. Then,  $(\Omega, S, P)$  is a *probability space* if it satisfies the following:

- Non-negativity:  $\forall A \in S, P(A) \geq 0$ , where  $P(A)$  is finite and real.
- Unitarity:  $P(\Omega) = 1$ .
- Countable additivity: if  $A_1, A_2, A_3, \dots \in S$  are pairwise disjoint, then

$$P(A_1 \cup A_2 \cup A_3 \cup \dots) = P(A_1) + P(A_2) + P(A_3) = \sum_i P(A_i)$$

There is a lot going on in this definition!

First things first, these are the **axioms of probability** (read aloud in the booming voice of a god).

This means that these are things that we begin from, sort of the foundational principles of the entire system of reasoning that we are going to use. In the style of argument that we're going to make, these are things that are sort of off-limits to question. Instead, these serve as the grounding assumptions, and we see what happens as we flow forward from these statements.

Second, and importantly, from these axioms there are a *very large* set of things that we can build. The first set of things that we will build are probability statements about atomic outcomes (Theorem 1.1.4 in the book), and collections of events. But, these statements, are not the only thing that we're limited to. We can also build *Frequentist Statistics*, and *Bayesian Statistics* and *Language Models*.

In many ways, these axioms are the fundamental particles that hold our system of probabilistic reasoning together. These are to probability what the *fermions* and *bosons* are to physics.

## 1.8 Definition vs. Theorem

What is the difference between a definition and a theorem? On pages 10 and 11 of the textbook, there is a rapid fire collection of pink boxes. We reproduce them here (notice that they may have different index numbers than the book – this live session book autoindexes and we're not including every theorem and definition in this live session discussion guide).

**Definition 1.2.** *Conditional Probability* For  $A, B \in S$  with  $P(B) > 0$ , the *conditional probability* of  $A$  given  $B$  is

$$P(A|B) = \frac{P(A \cap B)}{P(B)}.$$

**Theorem 1.1.** Multiplicative Law of Probability For  $A, B \in S$  with  $P(B) > 0$ ,

$$P(A|B)P(B) = P(A \cap B)$$

**Theorem 1.2.** Baye's Rule *For  $A, B \in S$  with  $P(A) > 0$  and  $P(B) > 0$ ,*

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}.$$

- What would happen to the statement of the *Multiplicative Law of Probability* if we did not have the definition of *Conditional Probability*?
- How does one get from the definition, to the law?
- Can one get to *Baye's Rule* without using the *Multiplicative Law of Probability*?

## 1.9 Working with a Sample Space

As a way to begin lets define terms that we will use for the next activities.

### Group Discussion Question

- What is the definition of a sample space?
- What is the definition of an event?
- How are sample spaces, and event spaces related?

#### 1.9.1 Working with a Sample Space, Part I

1. **You roll two six-sided dice:**
  1. How would you define an appropriate sample space,  $\Omega$ ?
  2. How many elements exist in  $\Omega$ ?
  3. What is an appropriate event space, and how many elements does it have?
  4. Give an example of an event.

#### 1.9.2 Working with a Sample Space, Part II

2. **For a random sample of 1,000 Berkeley students:**
  1. How would you define an appropriate sample space,  $\Omega$ ?
  2. How big is  $\Omega$ ? How many elements does it contain?

3. What is an example of an event for this scenario?
4. Can a single person be represented in the space twice? Why or why not?

## 1.10 Independence

The book provides a (characteristically) terse statement of what it means for two events to be independent of one another.

**Definition 1.3.** *Independence of Events* Events  $A, B \in S$  are *independent* if

$$P(A \cap B) = P(A)P(B)$$

In your own words:

- What does it mean for two events to be independent of one another?
- How do you **know** if two events are independent of one another?
- How do you **test** if two events are independent of one another?

Try using this idea of independent in two places:

1. Suppose that you are creating a model to predict an outcome. Further, suppose that two events  $A$  and  $B$  are independent of one another. *Can you use  $B$  to predict  $A$ ?*
2. If two events,  $A$  and  $B$  are independent, then what happens if you work through a statement of conditional probability,  $P(A|B)$ ?

## 1.11 A practice problem

The last task for us to complete today is working through a practice problem on the course practice problem website. Please, click the link below, and follow us over to the the course's practice problem website.

[link here](#)

## 1.12 Student Tasks to Complete

Before next live session, please complete the homework that builds on this unit. There are two parts, an *applied* and a *proof* part. You can submit these homework as many times as you like before the due date (you will not receive feedback), and you can access this homework through bCourses.

The *applied* homework will be marked either **Correct** or **Incorrect** without partial credit applied. These are meant to be problems that you solve, and that have a single straightforward solution concept. The *proof* homework will be marked for partial credit (out of three points) that evaluates your argument for your solution concept.

# Chapter 2

## Defining Random Variables

```
## -- Attaching core tidyverse packages -----
## v dplyr     1.1.3     v readr     2.1.4
## vforcats    1.0.0     v stringr   1.5.0
## v ggplot2   3.4.4     v tibble    3.2.1
## v lubridate 1.9.3     v tidyverse  1.3.0
## v purrr     1.0.2
## -- Conflicts -----
## x purrr::%||%()  masks base::%||%()
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()   masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become
```

### 2.1 Learning Objectives

At the end of this week's course of study (which includes the `async`, `sync`, and `homework`) students should be able to

1. **Remember** that random variable are neither random, or variables, but instead that they are a foundational object that we can use to reason about a world.
2. **Understand** that the intuition developed by the use of set-theory probability maps into the more expressive space of random variables
3. **Apply** the appropriate mathematical transformations to move between joint, marginal, and conditional distributions.

This week's materials are theoretical tooling to build toward one of the first notable results of the course, **conditional probability**. This is the idea that, if we know that one event has occurred, we can make a conditional statement about the probability distribution for another, dependent distribution.

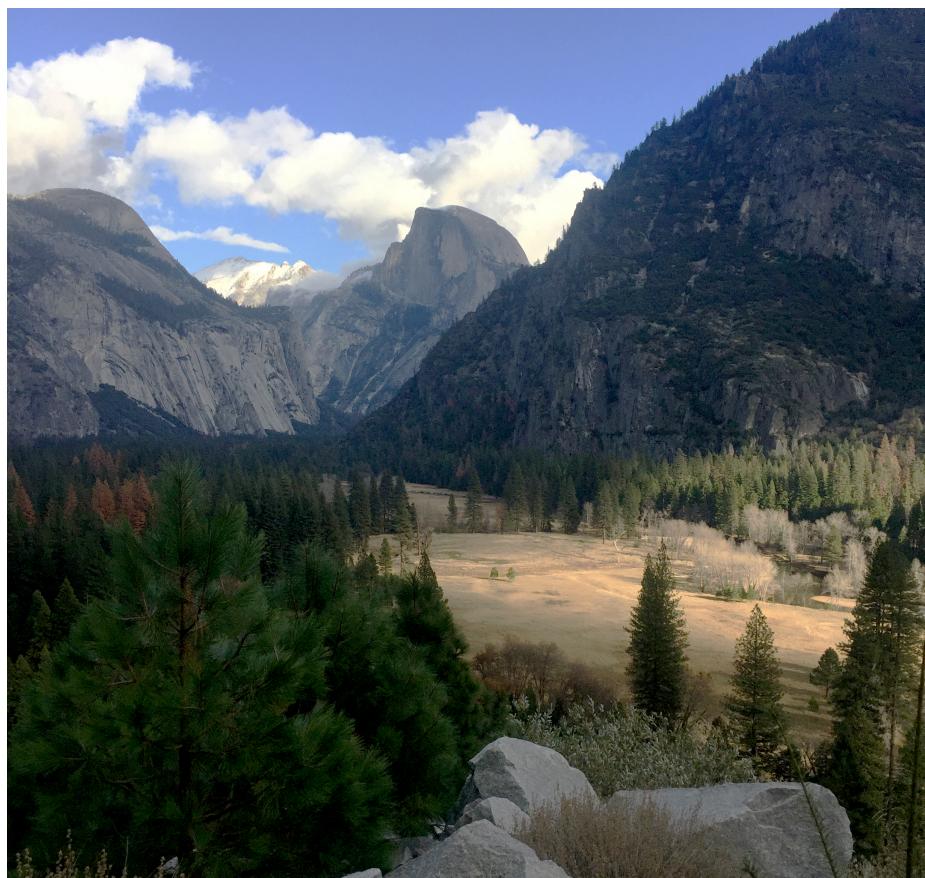


Figure 2.1: yosemite valley

## 2.2 Introduction to the Materirals

From the axioms of probability, it is possible to build a whole, expressive modeling system (that need not be grounded **at all** in the minutia of the world). With this probability model in place, we can describe how frequently events in the random variable will occur. When variable are dependent upon each other, we can utilize information that is encoded in this dependence in order to make predictions that are *closer to the truth* than predictions made without this information.

There is both a beauty and a tragedy when reasoning about random variables: we describe random variables using their joint density function.

The **beauty** is that by reasoning with such general objects – the definitions that we create, and the theorems that we derive in this section of the course – produce guarantees that hold in every case, no matter the function that stands in for the joint density function. We will compute several examples of *specific* functions to provide a chance to reason about these objects and how they “work”.

The **tragedy** is that in the “real world”, the world where we are going to eventually going to train and deploy our models, we are never provided with this joint density function. Perhaps this is the creation myth for probability theory: in a perfect world, we can produce a perfect result. But, in the “fallen” world of data, we will only be able to produce approximations.

## 2.3 Class Announcements

### Homework

1. You should have turned in your first homework. The solution set for this homework is scheduled to be released to you in two days. The solution set contains a full explanation of how we solved the questions posed to you. You can expect that feedback for this homework will be released back to you within seven days.
2. You can start working on your second homework when we are out of this class.

### Study Groups

It is a **very** good idea for you to create a recurring time to work with a set of your classmates. Working together will help you solve questions more effectively, quickly, and will also help you to learn how to communicate what you do and do not understand about a problem to a group of collaborating data scientists. And, working together with a group will help you to find people who share data science interests with you.

## Course Resources

There are several resources to support your learning. A learning object last week was that you would be introduced to each of these systems. Please continue to make sure that you have access to the:

- Library VPN to read all of the scholarly content in the known universe, including the course textbook.
- Course LMS Page

## 2.4 Using Definitions of Random Variables

### 2.4.1 Random Variable

What is a random variable? Does this definition help you?

**Definition 2.1** (Random Variable). A random variable is a function  $X : \Omega \rightarrow \mathbb{R}$ , such that  $\forall r \in \mathbb{R}, \{\omega \in \Omega : X(\omega) \leq r\} \in S$ .

Someone, please, read that without using a single “omega”,  $\mathbb{R}$ , or other jargon terminology. Instead, someone read this aloud and tell us what each of the concepts mean.

The goal of writing with math symbols like this is to be *absolutely* clear what concepts the author does and does not mean to invoke when they write a definition or a theorem. In a very real sense, this is a language that has specific meaning attached to specific symbols; there is a correspondence between the mathematical language and each of our home languages, but exactly what the relationship is needs to be defined into each student’s home language.

- What are the key things that random variables allow you to accomplish?
  - Suppose that you were going to try to make a model that predicts the probability of winning “big money” on a slot machine. Big money might be that you get :cherries: :cherries: :cherries:. Can you do *math* with :cherries:?
  - Suppose that you wanted to build a chatbot that uses a language model so that you don’t have to do your homework anymore. How would you go about it?
  - Suppose you want to direct class support to students in 203, but their grades are scored [A, A-, ..., ] and features include prior statistics classes grades, also scored A, A-, ...]

## 2.5 Pieces of a Random Variable

**Definition 2.2** (Random Variable, Suite). A random variable is a function  $X : \Omega \rightarrow \mathbb{R}$ , such that  $\forall r \in \mathbb{R}, \{\omega \in \Omega : X(\omega) \leq r\} \in S$ .

There are two key pieces that must exist for every random variable. What are these pieces? The first of these pieces is provided to us in **Definition 1.2.1 Random Variable** (on page 16). The second is provided to us in **Definition 1.2.5 Probability Mass Function** (on page 18).

- 1.
- 2.

Suppose that a random variable is simple and discrete. For concreteness, you could think of this random variable as the answer to the question, “Is the grass wet outside?”.

1. What is the sample space?
2. What is a sensible function that you might use to map from the sample space to real values?
3. What is an insensible function that you might use to map from the sample space to real values? (A student well-seasoned in Maths might use (and define for the rest of the class) the concept of a *bijective function*).
4. If you simply had the values that the random variable function maps to are you guaranteed to be able to describe the entire sample space? Why or why not?
5. How would you go about determining the probability mass function for this random variable?

### 2.5.1 Functions of Functions

Why do we say that random variables are functions? Is there some useful property of these being functions rather than any other quantity? What else *could* they be if not a function?

What about a function of a random variable, which is a function of a function.

**Definition 2.3** (Function of a Random Variable). Let  $g : U \rightarrow \mathbb{R}$  be some function, where  $X(\Omega) \subset U \subset \mathbb{R}$ . Then, if  $g \circ X : \Omega \rightarrow \mathbb{R}$  is a random variable, we say that  $g$  is a *function* of  $X$  and write  $g(X)$  to denote the random variable  $g \circ X$ .

If a random variable is a function from the real world, or the sample space, or the outcome space to a real number, then what does it mean to define a function of a random variable?

- At what point does this function work? Does this function change the sample space that is possible to observe? Or, does this function change the real-number that each outcome points to?

**Example 2.1** (MNIST). Suppose that you are doing some image processing work. To keep things simple, that you are doing image classification in the style of the MNIST dataset.

- Can someone describe what this task is trying to accomplish?

- Has anyone done work like this?

However, suppose that rather than having good clean indicators for whether a pixel is on or off, instead you have weak indicators – there’s a lot of grey. A lot of the cells are marked in the range  $0.2 - 0.3$ .

1. How might creating a function that re-maps this grey into more extreme values help your model?
2. Is it possible to “blur” events that are in the outcome space? Does this “blurring” meet the requirements of a function of a random variable, as provided above?

### 2.5.2 Probability Density Functions and Cumulative Distribution Functions

- What is a probability mass function?
- What do the **Kolmogorov Axioms** mean must be true about any probability mass function (*pmf*)?

**Example 2.2** (Berkeley Drivers, No Survivors). You should try driving in Berkeley some time. It is a **trip!** Without being deliberately ageist, the city is full of ageing hippies driving Subaru Outbacks and making what seem to be stochastic right-or-left turns to buy incense, pottery, or just sourdough bread.

Suppose that you are walking to campus, and you have to cross 10 crosswalks, each of which are spaced a block apart. Further, suppose that as you get closer to campus, there are fewer aging hippies, and therefore, there is decreasing risk that you’re hit by a Subaru as you cross the street. Specifically, and fortunately for our math, the risk of being hit decreases linearly with each block that you cross.

Finally, campus provides you with the safety reports from last year, and reports that there were 120 student-Subaru incidents last year, out of 10,000 student-crosswalk crossings.

1. What is the *pmf* for the probability that you are involved in a student-Subaru incident as you walk across these 10 blocks? What sample space,  $\Omega$  is appropriate to represent this scenario?
2. Suppose that you don’t leave your house – this is a remote program after all! What is your cumulative probability of being involved in a student-subaru incident?
3. What is the cumulative probability *cmf* for the probability that you are involved in a student-Subaru incident?
4. Suppose that you live three blocks from campus, but your classmate lives five blocks from campus. What is the difference in the cumulative probability?
5. How would you describe the cumulative probability of being hit as you walk closer to campus? That is, suppose that you start 10 blocks away

from campus, and are walking to get closer. Is your cumulative probability of being hit on your way to campus increasing or decreasing as you get closer to campus?

6. How would you describe the cumulative probability of being hit as you walk **further** from campus? That is, suppose that you start on campus, and you're walking to a bar after classes. Is your cumulative probability of being hit on your way away from campus increasing or decreasing as you get further from campus?

## 2.6 Discrete & Continuous Random Variables

What, if anything is fundamentally different between discrete and continuous random variables? As a way of starting the conversation, consider the following cases:

- Suppose  $X$  is a random variable that describes the time a student spends on w203 homework 1.
  - If you have only granular measurement – i.e. the number of nights spent working on the homework – is this discrete or continuous?
  - If you have the number of hours, is it discrete or continuous?
  - If you have the number of seconds? Or milliseconds?
- Is it possible that  $P(X = a) = 0$  for every point  $a$ ? For example, that  $P(X = 3600) = 0$ .
- Does one of these measures have more *information* in it than another?
  - How are measurement choices that we make as designers of information capture systems – i.e. the machine processes, human processes, or other processes that we are going to work with as data scientists – reflected in both the amount of information that is gathered, the type of information that is gathered, and the types of random variables that are manifest as a result?

## 2.7 Moving Between PDF and CDF

The book defines *pmf* and *cmf* first as a way of developing intuition and a way of reasoning about these concepts. It then moves to defining continuous density functions, which in many ways are easier to work with although they lack the means of reasoning about them intuitively. Continuous distributions are defined in the book, and more generally, in terms of the *cdf*, which is the cumulative distribution function. There are technical reasons for this choice of definition, some of which are signed in the footnotes on the page where the book presents it.

More importantly for this course, in **Definition 1.2.15** the book defines the relationship between *cdf* and *pdf* in the following way:

**Definition 2.4** (Probability Density Function (PDF)). For a continuous random

variable  $X$  with CDF  $F$ , the *probability density function* of  $X$  is

$$f(x) = \frac{dF(u)}{du} \Big|_{u=x}, \forall x \in \mathbb{R}.$$

- How does this definition, which relates *pdf* and *cdf* by a means of differentiation and integration, fit with the ideas that we just developed in the context of walking to and from campus?

**Example 2.3** (Working with a continuous pdf and cdf). Suppose that you learn than a particular random variable,  $X$  has the following function that describes its *pdf*,  $f_x(x) = \frac{1}{10}x$ . Also, suppose that you know that the smallest value that is possible for this random variable to obtain is 0.

1. What is the CDF of  $X$ ?
2. What is the maximum possible value that  $x$  can obtain? How did you develop this answer, using the Kolmogorov axioms of probability?
3. What is the cumulative probability of an outcome up to 0.5?
4. What is the probability of an outcome between 0.25 and 0.75? Produce an answer to this in two ways:
5. Using the *pdf*
6. Using the *cdf*

## 2.8 Joint Density

Working with a single random variable helps to develop our understanding of how to relate the different features of a *pdf* and a *cdf* through differentiation and integration. However, there's not really *that* much else that we can do; and, there is probably very little in our professional worlds that would look like a single random variable in isolation.

We really start to get to something useful when we consider joint density functions. Joint density functions describe the probability that *both* of two random variables. That is, if we are working with random variables  $X$  and  $Y$ , then the joint density function provides a probability statement for  $P(X \cap Y)$ .

In this course, we might typically write this joint density function as  $f_{X,Y}(x, y) = f(\cdot)$  where  $f(\cdot)$  is the actual function that represents the joint probability. The  $f(\cdot)$  means, essentially, “some function” where we just have not designated the specifics of the function; you might think of this as a generic function.

### 2.8.1 Example: Uniform Joint Density

Suppose that we know that two variables,  $X$  and  $Y$  are jointly uniformly distributed within the the *support*  $x \in [0, 4], y \in [0, 4]$ . We have a requirement, imposed by the *Kolmogorov Axioms* that all probabilities must be non-zero, and that the total probability across the whole support must be one.

- Can you use these facts to determine answers to the following:
  - What kind of shape does this joint *pdf* have?
  - What is the specific function that describes this shape?
  - If you draw this shape on three axes, and  $X$ , and  $Y$ , and a  $P(X, Y)$ , what does this plot look like?
  - How do you get from the joint density function, to a marginal density function for  $X$ ?
  - How do you get from the joint density function, to a marginal density function for  $Y$ ?
  - How do you get from these marginal density functions of  $X$  and  $Y$  back to the joint density? Is this always possible?

### 2.8.2 Examples: Thinking Through Many Plots

An alumni of the MIDS program, and a former instructor of this course, Todd Young built this nifty tool that lets us consider several different joint probability functions.

As a class, lets consider a few of these PDFs, beginning with this “triangle” distribution.

```
knitr:::include_app('http://www.statistics.wtf/PDF_Explorer/', height="1000px")
```

### 2.8.3 Triangle Math

After considering the intuition for the triangle distribution, do the following:  
Write down the function that accords with the figure that you’re seeing above.<sup>1</sup>

- What is a full statement of the PDF of this image?
- What is the marginal distribution of  $X$ ,  $f_X(x)$ ?
- What is the marginal distribution of  $Y$ ,  $f_Y(y)$ ?
- Using the definition of independence, are  $X$  and  $Y$  independent of each other?
- What is the CDF of  $X$ ,  $F_X(x)$ ?

### 2.8.4 Saddle Sores

Suppose that you know that two random variables,  $X$  and  $Y$  are jointly distributed with the following *pdf*:

$$f_{X,Y}(x,y) = \begin{cases} a * x^2 * y^2 & 0 < x < 1, 0 < y < 1 \\ 0 & otherwise \end{cases}$$

---

<sup>1</sup>Notice, that in general, this kind of *curve fitting* isn’t really a common data science task. Instead, this is just a learning task that lets the class assess their understanding of the definitions of random variables.

This joint pdf is similar to the pdf that you can visualize above, under the distribution called “saddle”. The difference between this function and the image above is that the function bounds the with support of  $x$  and  $y$  on the range  $[0, 1]$ . This is to make the math easier for us in the next step.

- Can you use these facts to determine the following?
  - What value of  $a$  makes this a valid joint pdf?
  - What is the marginal pdf of  $x$ ? That is, what is  $f_x(x)$ ?
  - What is the conditional pdf of  $X$  given  $Y$ ? That is, what is  $f_{x|y}(x, y)$ ?
  - Given these facts, would you say that  $X$  and  $Y$  are dependent or independent?
  - If the support for this joint distribution were instead  $[0, 4]$  (rather than  $[0, 1]$ ), how would the shape of the distribution change?

## 2.9 Computing Different Distributions.

Suppose that random variables  $X$  and  $Y$  are jointly continuous, with joint density function given by,

$$f(x, y) = \begin{cases} c, & 0 \leq x \leq 1, 0 \leq y \leq x \\ 0, & \text{otherwise} \end{cases}$$

where  $c$  is a constant.

1. Draw a graph showing the region of the X-Y plane with positive probability density.
2. What is the constant  $c$ ?
3. Compute the marginal density function for  $X$ . (Be sure to write a complete expression)
4. Compute the conditional density function for  $Y$ , conditional on  $X = x$ . (Be sure to specify for what values of  $x$  this is defined)

## 2.10 Conditional Probability

Conditional probability is **incredible**. In fact, without exaggeration, almost **all** of data science is an exercise in making statements about conditional probability distributions. *Don't believe us?*

- What is the goal of a “customer churn” model or a conversion model?
- What is the goal of a language-completion model?
- What is the goal of flight-departures model?

If we possessed the whole information about a process; if we had the CDF that governed probability of occurrences, what kinds of statements would we be able to make? Would we even need data?

Using the distribution above, produce a statement of conditional probability,  $f_{Y|X}(y|x)$ .

## 2.11 Visualizing Distributions Via Simulation

To this point in the course, we have focused on concepts in “the population” with no reference to samples. This is on purpose! We want to develop the theory that defines the **best possible** predictor if we knew **everything** (if we know formula of the function that maps from  $\omega \rightarrow \mathbb{R}$ , and we know the probability of each  $\omega \in \Omega$  then we know everything). Beginning in week 5 of the course, we will talk about “approximating” (which we will call estimating) this best possible predictor with a limited sample of data.

However, at this point, to help build your working understanding, or intuition, for what is happening, we are going to work on a way to *simulate* draws from a population. In some places, people might refer to these as *Monte Carlo* methods – this is because the method was developed by von Neumann & Ulam during World War II, and they needed a way to talk about it using a code name. They chose *Monte Carlo* after a famous casino in Monaco.

### 2.11.1 Example: The Uniform Distribution

You: “Gosh. There sure are a lot of examples that use the uniform distribution. That must be a really important statistical distribution.”

Instructor: “Nah. Not really. We’re just using the uniform a bunch so that we don’t get too lost in doing math while we’re working with these concepts.”

We’ll start with a simple uniform distribution, but then we’ll make it a little more complex in a moment.

We can use R to simulate draws from a probability distribution function by providing it with the name of the distribution that we’re considering, the support of that distribution, or other features of the distribution. In the case of the uniform, the entire distribution is can be described just from its support.

So, suppose that you had a uniform distribution that had positive probability on the range [1.1, 4.3]. Why these? No particular reason. That is, suppose

$$f_X(x) = \begin{cases} a & 1.1 \leq x \leq 4.3 \\ 0 & \text{otherwise} \end{cases}$$

What does this distribution “look like”? Because it is a uniform, you might have a sense that it will be a horizontal line. But, what is the height of that line? Aha! We could do the math to figure it out, or we could generate an approximation using a simulation.

In the code below, we are going to create an object called `samples_uniform` that stores the results of the `runif` function call.

```
samples_uniform <- runif(n=1000, min=1.1, max=4.3)
```

What is happening inside `runif`?

When you're writing your own code, you can pull up the documentation for this (and any) function using a question mark, i.e. `?`, followed by the function name – `?runif`.

But, we can speed this up slightly by simply telling you that `n` is the number of samples to take from the population; `min` is the low-end of the support, and `max` is the high-end of the support.

If we look into this object, we can see the results of the function call. Below, we will show the first 20 elements of the `samples_uniform` object.

```
samples_uniform[1:20]
```

```
## [1] 4.039019 2.340969 1.322251 2.326501 2.743992 1.506267 3.079550 3.078959
## [9] 2.015775 2.335843 3.088975 2.306920 2.042554 2.260558 3.007091 4.269235
## [17] 2.023638 2.265521 2.975168 3.977058
```

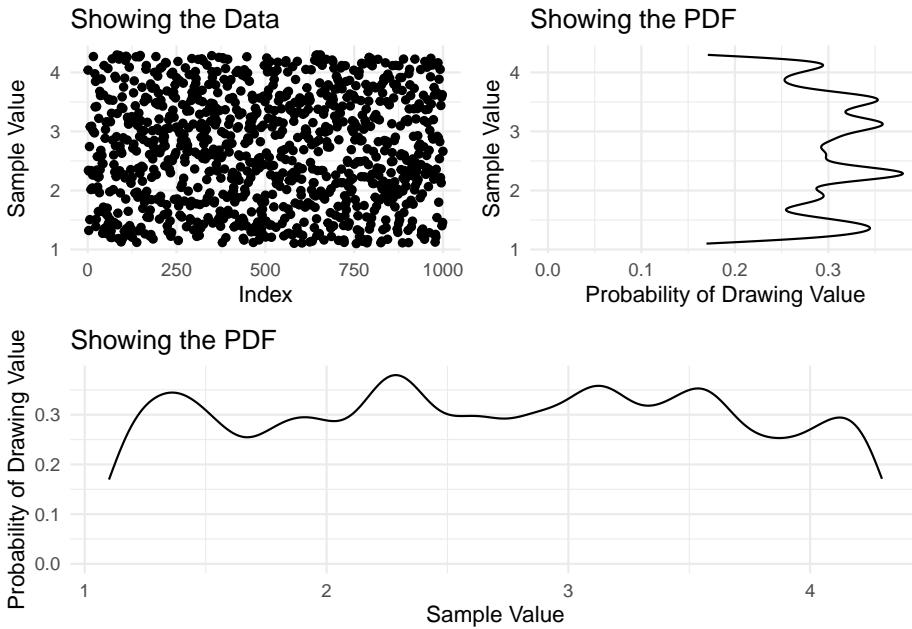
(Notice that R is a 1 index language (python is a zero-index language).)

With this object created, we can plot a density of the data and then learn from this histogram what the pdf looks like.

```
plot_full_data <- ggplot() +
  aes(x=1:length(samples_uniform), y=samples_uniform) +
  geom_point() +
  labs(
    title = 'Showing the Data',
    y      = 'Sample Value',
    x      = 'Index')

plot_density <- ggplot() +
  aes(x=samples_uniform) +
  geom_density(bw=0.1) +
  labs(
    title = 'Showing the PDF',
    y      = 'Probability of Drawing Value',
    x      = 'Sample Value')

(plot_full_data | (plot_density + coord_flip())) /
  plot_density
```



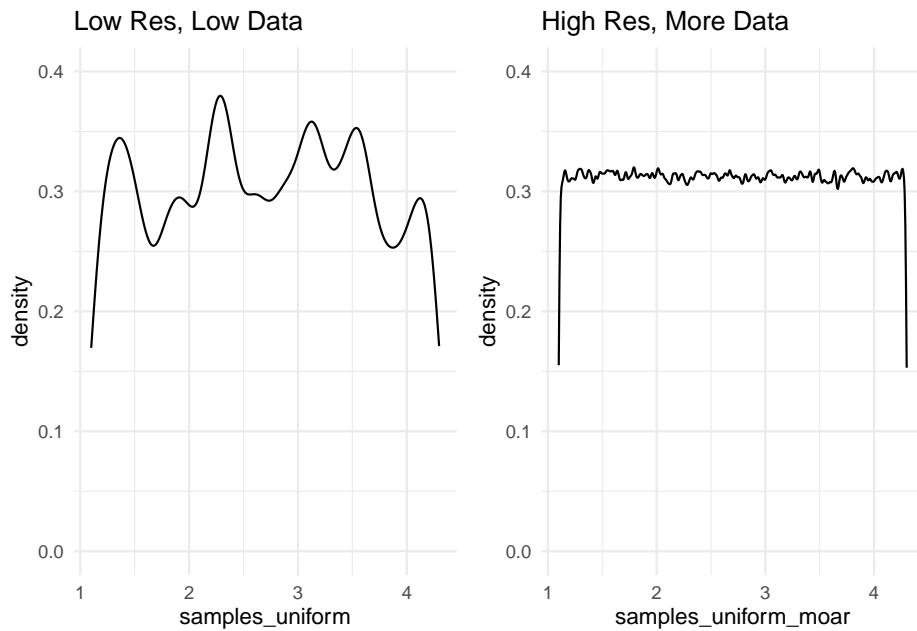
Interesting. From what we can see here, there does not appear to be any discernible pattern. This leaves us with two options: either, we might reduce the resolution that we're using to view this pattern, or we might take more samples and hold the resolution constant. Below, two different plots show these differing approaches, and are *very* explicit about the code that creates them.

```
samples_uniform_moar <- runif(n=1000000, min=1.1, max=4.3)

plot_low_res <- ggplot() +
  aes(x=samples_uniform) +
  geom_density(bw=0.1) +
  lims(y=c(0,0.4)) +
  labs(title = 'Low Res, Low Data')

plot_high_res <- ggplot() +
  aes(x=samples_uniform_moar) +
  geom_density(bw=0.01) +
  lims(y=c(0,0.4)) +
  labs(title = 'High Res, More Data')

plot_low_res | plot_high_res
```



### 2.11.2 Example: The Normal Distribution

Folks might have some prior beliefs about the Normal distribution. Don't worry, we'll cover this later in the course. But, this is the distribution that you have in mind when you're thinking of a "bell curve".

We can use the same method to visualize a normal distribution as we did for a uniform distribution. In this case, we would issue the call `rnorm`, together with the population parameters that define the population. At this point in the course, we do not expect that you will know these (and, actually memorizing these facts are not a core focus of the course), but you can look them up if you like. Truthfully, statistics wikipedia is *very* good.

Do do you notice anything about the `runif` and the `rnorm` calls that we have identified? Both seem to name the distribution: *unif*  $\approx$  *uniform* and *norm*  $\approx$  *normal*, but prepended with a `r`? This is for "random draw".

Base R is loaded with a *pile* of basic statistics distributions, which you can look into using `?distributions`.

```
samples_normal <- rnorm(n=100000, mean=18, sd=4)
```

Like before, we could look at the first 20 of these samples.

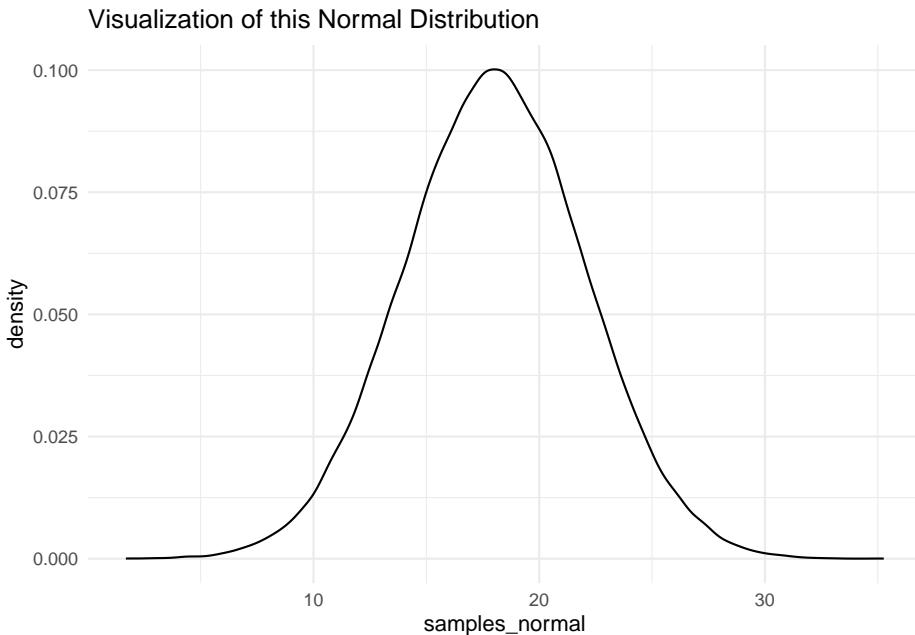
```
samples_normal[1:20]
```

```
## [1] 13.83945 18.15702 22.46769 21.79689 15.32109 17.52784 22.06918 22.76892
## [9] 16.42343 20.12172 10.01260 15.45145 15.23149 14.41678 17.06536 21.36521
```

```
## [17] 23.97421 16.29728 16.52398 19.94034
```

And, from here we could visualize this distribution.

```
ggplot() +
  aes(x=samples_normal) +
  geom_density() +
  labs(title='Visualization of this Normal Distribution')
```



### 2.11.2.1 Combining This Ability

Consider three random variables  $A, B, C$ . Suppose,

$$\begin{aligned} A &\sim \text{Uniform}(\min = 1.1, \max = 4.3) \\ B &\sim \text{Normal}(\text{mean} = 18, \text{sd} = 4) \\ C &= A + B \end{aligned}$$

And, suppose that  $B$  is a random variable that is described by the normal density that we considered earlier. Suppose that  $A$  and  $B$  are independent of each other.

Finally, suppose that  $C = A + 2B$ .

What does  $C$  look like?

Although this is a simple function applied to a random variable – a legal move – the math would be tedious. What if, instead, one used this simulation method to get a sense for the distribution?

```

samples_A <- runif(n=10000, min=1.1, max=4.3)
samples_B <- rnorm(n=10000, mean=18, sd=4)

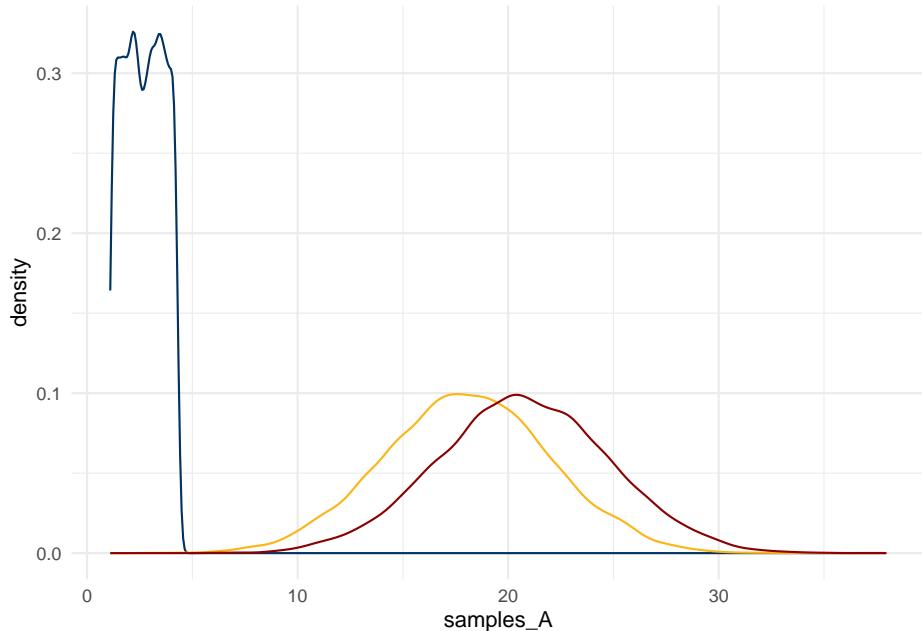
samples_C <- samples_A + samples_B

plot_C <- ggplot() +
  aes(x=samples_C) +
  geom_density()

plot_C_and_A_and_B <- ggplot() +
  geom_density(aes(x=samples_A), color = '#003262') +
  geom_density(aes(x=samples_B), color = '#FDB515') +
  geom_density(aes(x=samples_C), color = 'darkred')

plot_C_and_A_and_B

```



## 2.12 Review of Terms

Remember some of the key terms we learned in the async:

- Joint Density Function
- Conditional Distribution
- Marginal Distribution

Explain each of these three in terms of the cake metaphor.

## Chapter 3

# Summarizing Distributions

In the last live session, we introduced random variables; probability density and cumulative density; and, made the connection between joint, marginal, and conditional distributions. All of these concepts work with the **entire** distribution.

Take, for example, the idea of conditional probability. We noted that conditional probability is defined to be:

$$f_{Y|X}(y|x) = \frac{f_{Y,X}(y,x)}{f_X(x)}$$

This is a powerful concept that shows a lot of the range of the reasoning system that we've built to this point! The probability distribution of  $Y$  might change as a result of changes in  $X$ . If you unpack that just a little bit more, we might say that  $f_{Y|X}(y|x)$  – the probability density of  $Y$  – which is itself a function, is *also* a function of  $X$ . To say it again, to be very explicit: the function is a function of another input. That might sound wild, but it is all perfectly consistent with the world that we've built to this point.

This concept is **very** expressive. Knowing  $f_Y(y)$  gives a full information representation of a variable; knowing  $f_{Y|X}(y|x)$  lets you update that information to make an even more informative statement about  $Y$ . In *Foundations* and at this point in the class, we deal only with conditional probability conditioning on a single variable, but the process generalizes.

For example, if there were four random variables,  $A, B, C, D$ , we could make a statement about  $A$  that conditions on  $B, C, D$ :

$$f_{A|\{B,C,D\}}(a|\{b,c,d\}) = \frac{f_{A,B,C,D}(a,b,c,d)}{f_{B,C,D}(b,c,d)}$$

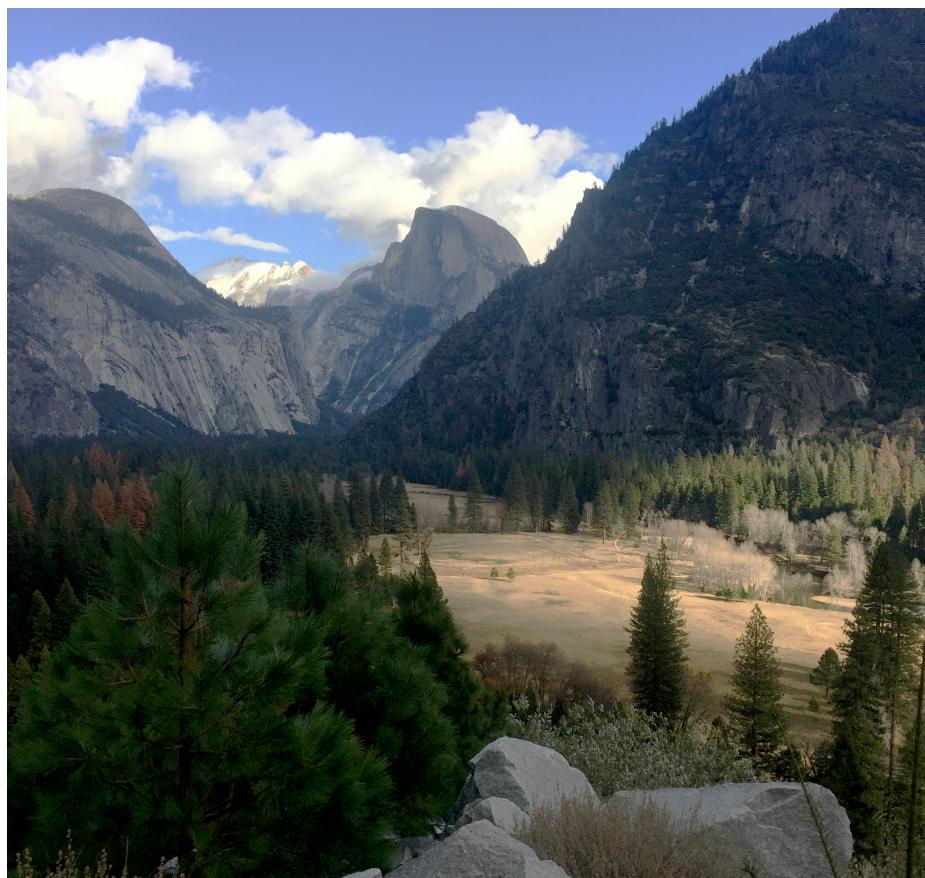


Figure 3.1: a majestic valley

In this week's materials we are going to go in the *opposite* direction: Rather than producing a very expressive system of probabilities, we're going to attempt to summarize all of the information contained in a pdf into lower-dimensional representations. Our first task will be summarizing a single random variable in two ways:

1. Where is the “center” of the random variable; and,
2. How dispersed, “on average” is the random variable from this center.

After developing the concepts of *expectation* and *variance* (which are 1 & 2 above, respectively), we will develop a summary of a joint distribution: the *covariance*. The particular definitions that we choose to call expectation, variance, and covariance require justification. Why should we use these *particular* formulae as measures of the “center” and “dispersion”?

We ground these summaries in the **Mean Squared Error** evaluative metric, as well as justifying this metric.

### 3.1 Learning Objectives

At the end of the live session and homework this week, students will be able to:

1. **Understand** the importance of thinking in terms of random variables, while;
2. Being able to **appreciate** that it is not typically possible to fully model the world with a single function.
3. **Articulate** why we need a target for a model, and propose several possible such targets.
4. **Justify** why expectation is a good model, why variance is a reasonable model, and how covariance relates two-random variables with a common joint distribution.
5. **Produce** summaries of location and relationship given a particular functional form for a random variable.

### 3.2 Class Announcements

Where have we come from, and where are we going?

#### 3.2.1 What is in the rearview mirror?

- Statisticians create a population model to represent the world; random variables are the building blocks of such a model.
- We can describe the distribution of a random variable using:
  - A *CDF* for all random variables
  - A *PMF* for discrete random variables
  - A *PDF* for continuous random variables
- When we have multiple random variables,

- The joint PMF/PDF describes how they behave together
- The marginal PMF/PDF describes one variable in isolation
- The conditional PMF/PDF describes one variable given the value of another

### 3.2.2 Today's Lesson

What might seem frustrating about this probability theory system of reasoning is that we are building a castle in the sky – a fiction. We're supposing that there is some function that describes the probability that values are generated. In reality, there is no such generative function; it is *extremely unlikely* (though we'll acknowledge that it is possible) that the physical reality we believe we exist within is just a complex simulation that has been programmed with functions by some unknown designer.

Especially frustrating is that we're supposing this function, and then we're further saying,

“If only we had this impossible function; and if only we also had the ability to take an impossible derivative of this impossible function, then we could...”

#### 3.2.2.1 Single number summaries of a single random variable

But, here's the upshot!

**What we are doing today is laying the baseline for models that we will introduce next week.** Here, we are going to suggest that there are radical simplifications that we can produce that hold specific guarantees, no matter how complex the function that we're reasoning about.

In particular, in one specific usage of the term *best* we will prove that the Expectation operation is the best one-number summary of any distribution. To do so, we will define a term, *variance*, which is the squared deviations from the expectation of a variable that describes how “spread out” is a variable. Then, we will define a concept that is the *mean squared error* that is the square of the distance between a model prediction and a random variable's realization. The key realization is that when the model predicts the expectation, then the MSE is equal to the variance of the random variable, which is the smallest possible value it could realize.

#### 3.2.2.2 Single number summaries of relationships between random variables

Although the single number summaries are **incredibly** powerful, that's not enough for today's lesson! We're also going to suggest that we can create a measure of linear dependence between two variables that we call the “covariance”, and a related, re-scaled version of this relationship that is called the correlation.

### 3.2.3 Future Attractions

- A predictor is a function that provides a value for one variable, given values of some others.
- Using our summary tools, we will define a predictor's error and then minimize it.
- This is a basis for linear regression

## 3.3 Discussion of Terms

### 3.3.1 Expected Value

We define the expected value to be the following for a continuous random variable:

**Definition 3.1.**

## 3.4 Expected Value

For a continuous random variable  $X$  with PDF  $f$ , the *expected value* of  $X$ , written  $E[X]$  is

$$E[X] = \int_{-\infty}^{\infty} xf_X(x)dx$$

Oh, ok. If you say so. (We do...).

There are two really important things to grasp here:

1. What does this mean about a particular PDF?
2. What is the justification for this *particular* definition?

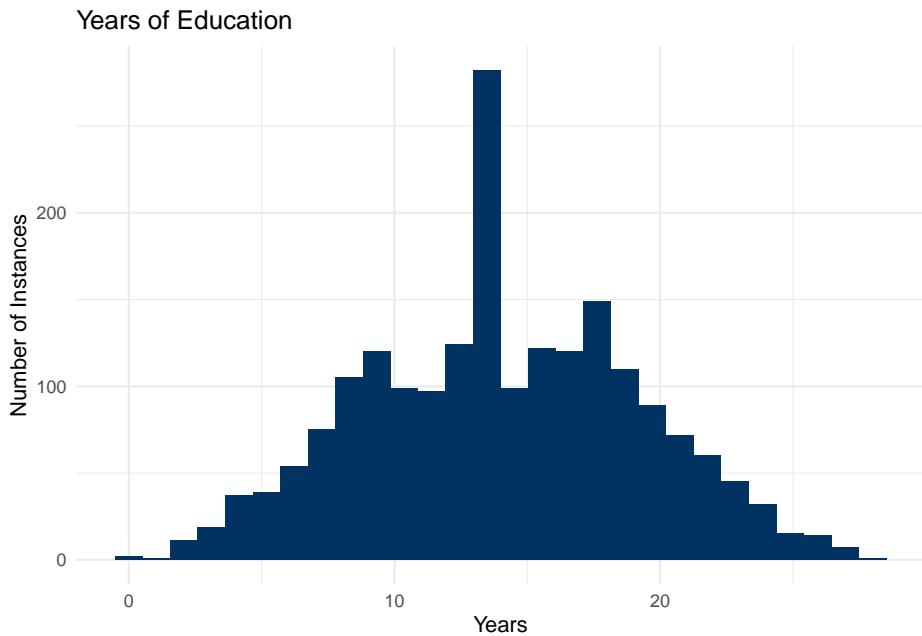
With your instructor, talk about what each of the following definitions mean in your own words. For key concepts, you might also formalize this intuition into a formula that can be computed.

- Expected Value, or Expectation
- Central Moments → Variance → Standard Deviation
- Set aside for later: Chebyshev's Inequality and the Normal Distribution
- Mean Squared Error and its alternative formula
- Covariance and Correlation

## 3.5 Computing Examples

### 3.5.1 Expected Value of Education [discrete random variable]

- The expected value of a discrete random variable  $X$  is the weighted average of the values in the range of  $X$ .
- Suppose that  $X$  represents the number of years of education that someone has completed, and so has a support that ranges from 0 years of education, up to 28 years of education. (Incidentally, Mark Labovitz has about 28 years of education.)
- You can then think of



- Without using specific numbers, describe the process you would use to calculate the expected value of this distribution.

### 3.5.2 Using a formula

- Does the following formula match with your intuitive description of the *expected value*? Why, or why not?

$$\begin{aligned} E[X] &= \sum_{x \in \{EDU\}} x \cdot f(x) \\ &= \sum_{x=0}^{x=28} x \cdot P(X = x) \end{aligned}$$

## 3.6 Computing by Hand

### 3.6.1 Compute the Expected Value

Let  $X$  represent the result of one roll of a 6 sided die where the events  $\omega \in \Omega$  are mapped using a straightforward function:  $X(\omega)$  : is a function that counts the number of spots that are showing, and maps the number of dots to the corresponding integer,  $\mathbb{Z}$ .

- Calculating by hand, what is the expected value  $X$ , which we write as  $E[X]$ ?
- After you have calculated  $E[X]$ : Is it possible that the result of a roll is this value?

`blank_lines(20)`

### 3.6.2 Playing a Gnome Game, Part 1

- Suppose that, out on a hike in the hills above campus, you happen across a gnome who asks you if you would like to play the following game:
  - You pay the gnome a dollar, and guess a number between 0 and 6.  
So, let  $g \in \mathbb{R} : 0 \leq g \leq 6$ .
  - After you make your guess, the gnome rolls a dice, which comes up with a value  $d \in \mathbb{Z} : d \in \{1, 2, 3, 4, 5, 6\}$ .
  - The gnome pays you  $p = 0.25 \times |d - g|$ .
  - **First question:** What is the best guess you can make?
  - **Second Question:** Should you play this game?

Fill this in by hand.

`blank_lines(20)`

### 3.6.3 Compute the Variance

Let  $X$  represent the result of one roll of a 6 sided die.

- Calculating by hand, what is the variance of  $X$ ?

[blank\\_lines\(20\)](#)

### 3.6.4 Playing a Gnome Game, Part 2

- How much do you expect to make on any particular time that you play the game with the best strategy?

`blank_lines(20)`

## 3.7 Expected Value by Code

### 3.7.1 Expected Value of a Six-Sided Die

Let  $X$  represent the result of one roll of a 6 sided die.

- Build an object to represent the whole sample space,  $\Omega$  of a six sided die.
- Determine what probabilities to assign to each value of that object.
- Write the code to run the expectation algorithm that you just performed by hand.

```
die <- data.frame(
  value = 'fill this in',
  prob = 'fill this in'
)
```

### 3.7.2 Variance of a Six-Sided Die

Let  $X$  represent the result of one roll of a 6 sided die. Using what you know about the definition of variance, write a function that will compute the variance of your `die` object.

```
variance_function <- function(die) {
  ## fill this in
  mu = 'fill this in'    ## you should index to the correct column
  var = 'fill this in'   ## for each, and use the correct function

  return(var)
}

variance_function(die)

## [1] "fill this in"
```

Suppose that you had to keep the values the same on the die (that is the domain of the outcome still had to be the countable set of integers from one to six), but that you could modify the actual random process. Maybe you could sand off some of the corners on the die, or you could place weights on one side so that the side is less likely to come up. In this case,  $\omega \in \{1, 2, 3, 4, 5, 6\}$ , but you're able to make a new  $f_D(d)$ .

- How would you change the probability distribution to decrease the variance of this random variable?
- What is the smallest value that you can generate for this random variable? Use the `variance_function` from above to actually compute this variance.
- What is the largest value of variance that you can generate for this random variable? Use the `variance_function` from above to actually compute this variance.

Now suppose that you again had an equal probability of every outcome, but you were to apply a function to the number of spots that are showing on the die. Rather than each dot contributing one value to the random variable, instead the random variable's outcome is the square of the number of spots.

- How would this change the mean?
- How would this change the variance?

## 3.8 Practice Computing

### 3.8.1 Single Variable

Suppose that  $X$  has the following density function:

$$f_X(x) = \begin{cases} 6x(1-x), & 0 < x < 1 \\ 0, & \text{otherwise} \end{cases}$$

- Find  $E[X]$ .
- Find  $E[X^2]$ .
- Find  $V[X]$ .

### 3.8.2 Joint Density

#### 3.8.2.1 Discrete Case: Calculate Covariance

In the reading, you saw that we define **covariance** to be:

$$\begin{aligned} Cov[X, Y] &= E[(E[X] - X)^2(E[Y] - Y)^2] \\ &= E[XY] - E[X]E[Y] \end{aligned}$$

And, **correlation** to be a rescaled version of *covariance*:

$$\begin{aligned} Cor[X, Y] &\equiv \rho[X, Y] \\ &= \frac{Cov[X, Y]}{\sigma_X \sigma_Y} \end{aligned}$$

Suppose that  $X$  and  $Y$  are discrete random variables, where  $X$  represents number of office hours attended, and  $Y$  represents owning a cat. Furthermore, suppose that  $X$  and  $Y$  have the joint pmf,

f(x,y)	y=0	y=1
x=0	0.10	0.35
x=1	0.05	0.05
x=2	0.10	0.35

1. Calculate the covariance of  $X$  and  $Y$ .
2. Are  $X$  and  $Y$  independent? Why or why not?

### 3.8.2.2 Continuous Case: Calculate Covariance

Suppose that  $X$  and  $Y$  have joint density  $f_{X,Y}(x,y) = 8xy, 0 \leq y < x \leq 1$ .

- Break into groups to find  $\text{Cov}[X, Y]$

Suppose that  $X$  and  $Y$  are random variables with joint density

$$f_{X,Y}(x,y) = \begin{cases} 1, & -y < x < y, 0 < y < 1 \\ 0, & \text{elsewhere} \end{cases}$$

Show that  $\text{Cov}[X, Y] = 0$  but that  $X$  and  $Y$  are dependent.

## 3.9 Write Code

Suppose that you have a random variable with a **gnarly** probability distribution function:

$$f_X(x) = \frac{3 * (x - 2x^2 + x^3)}{2}, 0 \leq x \leq 2$$

If you had to pick a single value that minimizes the *MSE* of this function, what would it be?

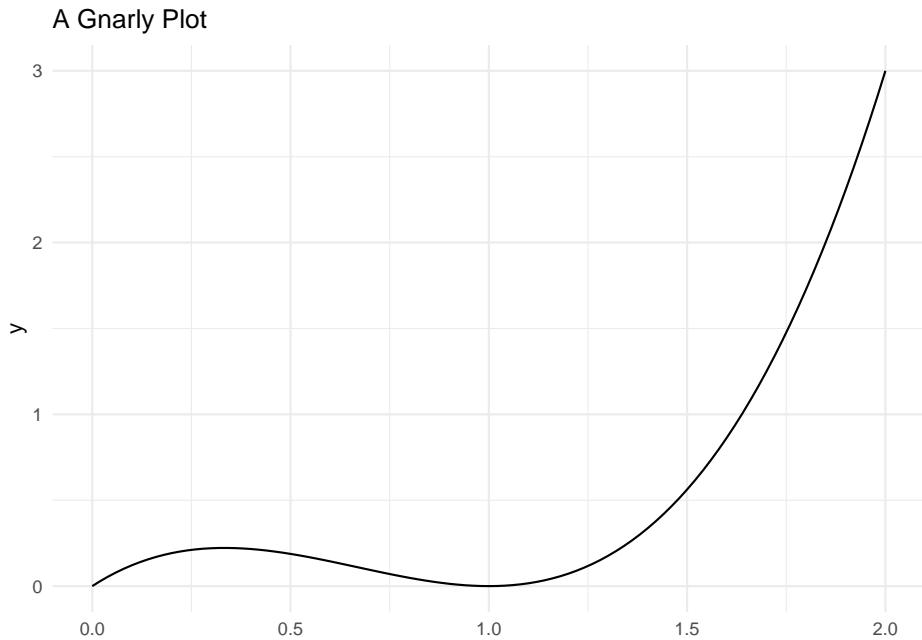
- First, how would you approach this problem *analytically*. By this, we mean, “how would you solve this with the closed form answer?”
- Second, how might you approach this problem *computationally*. By this, we mean, “how might you write code that would produce a numeric approximation of the closed form solution?” Don’t worry about actually writing the code – we’ll have done that for you, but what is the *process* (called in our world, *algorithm*) that you would use to determine the value that produces the smallest *MSE*?

```
pdf_fun <- function(x) {
  (3/2)*(x - (2*x^2) + x^3)
}

support <- seq(from=0, to=2, by=0.01)

ggplot() +
  geom_function(fun = pdf_fun) +
  xlim(min(support), max(support)) +
  labs(
```

```
    title = "A Gnarly Plot"
  )
```



```
expected_value <- function(value, prob){
  sum(value * prob)
}

mse <- function(c) {
  expected_value(
    value = (support - c)^2,
    prob = pdf_fun(support)
  )
}

mpe <- function(c, power) {
  expected_value(
    value = (support - c)^power,
    prob = pdf_fun(support)
  )
}

mean_absolute_error <- function(c) {
  x_values <- pdf_fun(support)
  mae_     <- mean(abs(x_values - c))
}
```

```
mean_square_error <- function(c) {  
  x_values <- pdf_fun(support)  
  mse_ <- sum(((x_values - c)^2) * x_values)  
  return(mse_)  
}  
  
mean_cubic_error <- function(c) {  
  x_values <- pdf_fun(support)  
  mce_ <- mean((x_values - c)^3)  
}  
  
mean_quadratic_error <- function(c) {  
  x_values <- pdf_fun(support)  
  mqe_ <- mean((x_values - c)^4)  
  return(mqe_)  
}  
  
mean_power_error <- function(c, power) {  
  x_values <- pdf_fun(support)  
  m_power_e_ <- mean((x_values - c)^power)  
  return(m_power_e_)  
}  
  
mean_absolute_error <- Vectorize(mean_absolute_error)  
mean_square_error <- Vectorize(mean_square_error)  
mean_cubic_error <- Vectorize(mean_cubic_error)  
mean_quadratic_error <- Vectorize(mean_quadratic_error)  
mean_power_error <- Vectorize(mean_power_error)  
  
mae_ <- mean_absolute_error(  
  c = support  
)  
mse_ <- mean_square_error(  
  c = support  
)  
mce_ <- mean_cubic_error(  
  c = support  
)  
mqe_ <- mean_quadratic_error(  
  c = support  
)  
  
absolute_error_ <- optim(  
  par = 0,  
  fn = mean_absolute_error,
```

```

method = 'Brent',
lower = 0, upper = 2
)$.par

squared_error_ <- optim(
  par = 0,
  fn = mean_square_error,
  method = "Brent",
  lower = 0, upper = 2
)$.par
cubic_error_ <- optim(
  par = 0,
  fn = mean_cubic_error,
  method = "Brent",
  lower = 0, upper = 2
)$.par
quadratic_error_ <- optim(
  par = 0,
  fn = mean_quadratic_error,
  method = "Brent",
  lower = 0, upper = 2
)$.par

all_plots <- ggplot() +
  ## add lines
  geom_line(aes(x=support, y=scale(mse_)), color = "#003262") +
  geom_line(aes(x=support, y=scale(mae_)), color = "#FDB515") +
  geom_line(aes(x=support, y=scale(mce_)), color = "seagreen") +
  geom_line(aes(x=support, y=scale(mqe_)), color = "darkred") +
  ## add optimal solution indicators
  geom_segment(
    aes(x = squared_error_,
        xend = squared_error_,
        y = -2,
        yend = -1),
    arrow = arrow(length = unit(0.25, "cm")),
    color = "#003262") +
  geom_segment(
    aes(x = absolute_error_,
        xend = absolute_error_,
        y = -.2,
        yend = -1.2),
    arrow = arrow(length = unit(0.25, "cm")),
    color = "#FDB515") +
  geom_segment(

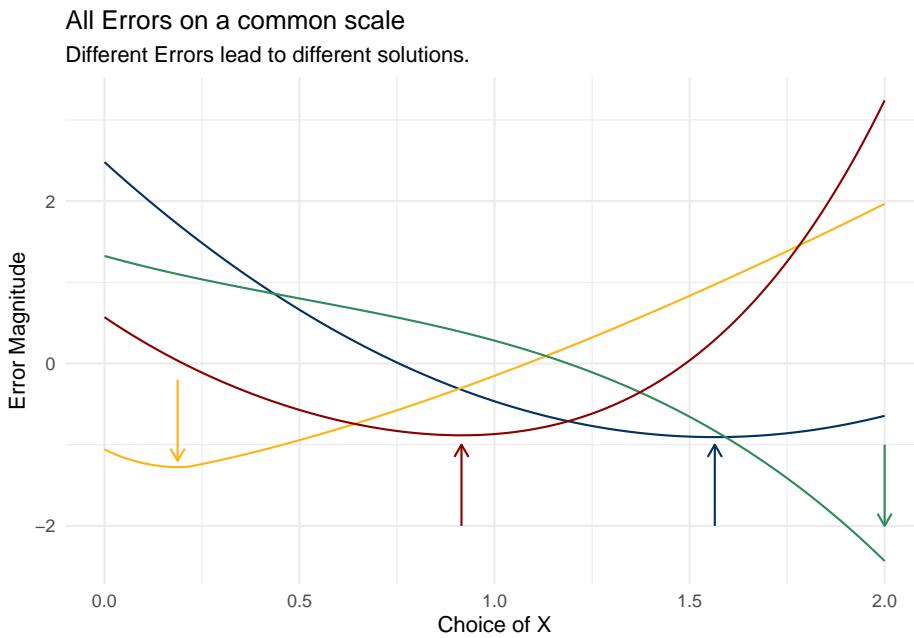
```

```

aes(x = cubic_error_,
xend = cubic_error_,
y = -1,
yend = -2),
arrow = arrow(length = unit(0.25, "cm")),
color = "seagreen") +
geom_segment(
  aes(x = quadratic_error_,
xend = quadratic_error_,
y = -2,
yend = -1),
arrow = arrow(length = unit(0.25, "cm")),
color = "darkred") +
labs(
  title    = "All Errors on a common scale",
  subtitle = "Different Errors lead to different solutions.",
  y        = "Error Magnitude",
  x        = "Choice of X"
)

all_plots

```





## Chapter 4

# Conditional Expectation and The BLP



Figure 4.1: mt. tamalpais

One of our most fundamental goals as data scientists is to produce predictions that are *good*. In this week's async, we make a statement of performance that we

can use to evaluate how good a job a predictor is doing, choosing Mean Squared Error.

With the goal of minimizing  $MSE$ , then we then present, justify, and prove that the conditional expectation function (*the CEF*) is the globally best possible predictor. This is an incredibly powerful result, and one that serves as the backstop for **every** other predictor that you will ever fit, whether that predictor is a “simple” regression, or that predictor is a machine learning algorithms (e.g. a random forest) or a deep learning algorithm. Read that again:

Even the most technologically advanced machine learning algorithms  
*cannot possibly* perform better than the conditional expectation  
 function at making a prediction.

Why does the CEF do so well? Because it can contain a *vast* amount of complex information and relationships; in fact, the complexity of the CEF is a product of the complexity of the underlying probability space. If that is the case, then why don’t we just use the CEF as our predictor every time?

Well, this is one of the core problems of applied data science work: we are never given the function that describes the behavior of the random variable. And so, we’re left in a world where we are forced to produce predictions from simplifications of the CEF. A very strong simplification, but one that is useful for our puny human brains, is to restrict ourselves to predictors that make predictions from a linear combination of input variables.

Why should we make such a strong restriction? After all, the conditional expectation function might be a fantastically complex combination of input features, why should we entertain functions that are only linear combinations? Essentially, this is because we’re limited in our ability to reason about anything more complex than a linear combination.

## 4.1 Thunder Struck

## 4.2 Learning Objectives

At the end of this weeks learning, which includes the asynchronous lectures, reading the textbook, this live session, and the homework associated with the concepts, student should be able to

1. **Recognize** that the conditional expectation function, the *CEF*, is a the pure-form, best-possible predictor of a target variable given information about other variables.
2. **Recall** that all other predictors, be they linear predictors, non-linear predictors, branching predictors, or deep learning predictors, are an attempt to approximate the CEF.
3. **Produce** the conditional expectation function as a predictor, given joint densities of random variables.

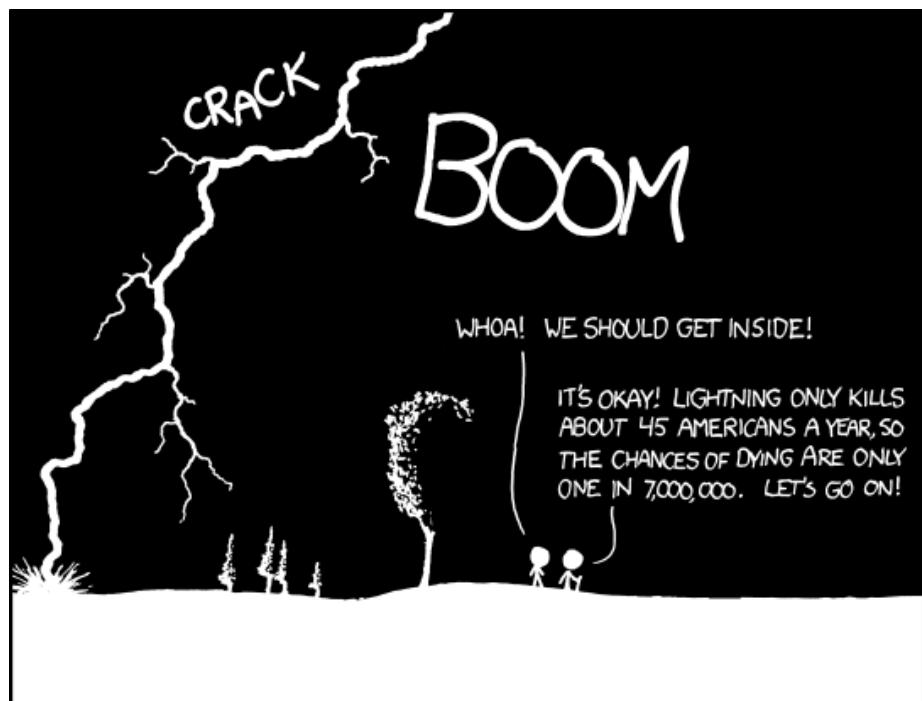


Figure 4.2: thunder struck

4. **Appreciate** that the best linear predictor, which is a restriction of predictors to include only those that are linear combinations of variables, can produce reasonable predictions, and **anticipate** that the BLP forms the target of inquiry for regression.

## 4.3 Class Announcements

### 4.3.1 Test 1 is releasing to you today.

The first test is releasing today. There are review sessions scheduled for this week, practice tests available, and practice problems available. The format for the test is posted in the course discussion channel. In addition to your test, your instructor will describe your responsibilities that are due next week.

## 4.4 Roadmap

### 4.4.1 Rearview Mirror

- Statisticians create a population model to represent the world.
- $E[X]$ ,  $V[X]$ ,  $Cov[X, Y]$  are “simple” summaries of complex joint distributions, which are hooks for our analyses.
- They also have useful properties – for example,  $E[X + Y] = E[X] + E[Y]$ .

### 4.4.2 This week

- We look at situations with one or more “input” random variables, and one “output.”
- Conditional expectation summarizes the output, given values for the inputs.
- The conditional expectation function (CEF) is a predictor – a function that yields a value for the output, given values for the inputs.
- The best linear predictor (BLP) summarizes a relationship using a line / linear function.

### 4.4.3 Coming Attractions

- OLS regression is a workhorse of modern statistics, causal analysis, etc
  - It is also the basis for many other models in classical stats and machine learning
- The target that OLS estimates is exactly the BLP, which we’re learning about this week.

## 4.5 Conditional Expectation Function (CEF),

### 4.5.1 Part I

Think back to remember the definition of the expectation of  $Y$ :

$$E[Y] = \int_{-\infty}^{\infty} y \cdot f_Y(y) dy$$

This week, in the async reading and lectures we added a new concept, the conditional expectation of  $Y$  given  $X = x \in \text{Supp}[X]$ :

$$E[Y|X = x] = \int_{-\infty}^{\infty} y \cdot f_{Y|X}(y|x) dy$$

### 4.5.2 Part II

1. What desirable properties of a predictor does the expectation possess (note, this is thinking *back* by a week)? What makes these properties desirable?
2. Turning to the content from this week, how, if at all, does the conditional expectation improve on these desirable properties?

### 4.5.3 Part III

- Compare and contrast  $E[Y]$  and  $E[Y|X]$ . For example, when you look at how these operators are “shaped”, how are their components similar or different?<sup>1</sup>
- What is  $E[Y|X]$  a function of? What are “input” variables to this function?
- What, if anything, is  $E[E[Y|X]]$  a function of?

## 4.6 Computing the CEF

- Suppose that random variables  $X$  and  $Y$  are jointly continuous, with joint density function given by,

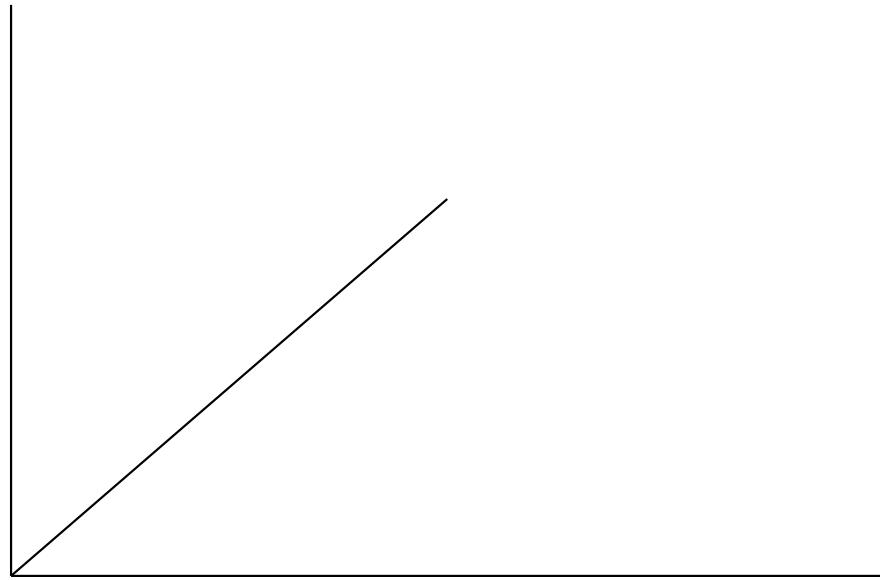
$$f(x, y) = \begin{cases} 2, & 0 \leq x \leq 1, 0 \leq y \leq x \\ 0, & \text{otherwise} \end{cases}$$

What does the joint PDF of this function look like?

---

<sup>1</sup>Note, when we say “shaped” here, we’re referring to the deeper concept of a statistical functional. A statistical functional is a function of a function that maps to a real number. So, if  $T$  is the functional that we’re thinking of,  $\mathcal{F}$  is a family of functions that it might operate on, and  $\mathbb{R}$  is the set of real numbers, a statistical functional is just  $T : \mathcal{F} \rightarrow \mathbb{R}$ . The Expectation statistical functional,  $E[X]$  always has the form  $\int xf_X(x)dx$ .)

Joint PDF of  $X, Y$



### 4.6.1 Simple Quantities

To begin with, let's compute the simplest quantities:

- What is the expectation of  $X$ ?
- What is the expectation of  $Y$ ?
- How would you compute the variance of  $X$ ? (We're not going to do it live).

### 4.6.2 Conditional Quantities

#### 4.6.2.1 Conditional Expectation

And then, let's think about how to compute the conditional quantities. To get started, you can use the fact that in week two, we already computed the conditional probability density function:

$$f_{Y|X}(y|x) = \begin{cases} \frac{1}{x}, & 0 \leq y \leq x \\ 0, & \text{otherwise.} \end{cases}$$

With this knowledge on hand, compute the  $CEF[Y|X]$ .

Once you have computed the  $CEF[Y|X]$ , use this function to answer the following questions:

- What is the conditional expectation of  $Y$ , given that  $X = x = 0$ ?
- What is the conditional expectation of  $Y$ , given that  $X = x = 0.5$ ?
- What is the conditional expectation of  $X$ , given that  $Y = y = 0.5$ ?

#### 4.6.2.2 Conditional Variance

- What is the conditional variance function?<sup>2</sup>

---

<sup>2</sup>Take a moment to strategize just a little bit before you get going on this one. There is a way to compute this value that is easier than another way to compute this value.

- Which of the two of these has a lower conditional variances?
  - $V[Y|X = 0.25]$ ; or,
  - $V[Y|X = 0.75]$ .
- How does  $V[Y]$  compare to  $V[Y|X = 1]$ ? Which is larger?

### 4.6.3 Conditional Expectation

## 4.7 Minimizing the MSE

### 4.7.1 Minimizing MSE

Theorem 2.2.20 states,

The CEF  $E[Y|X]$  is the “best” predictor of  $Y$  given  $X$ , where “best” means it has the smallest mean squared error (MSE).

Oh yeah? As a breakout group, *ride shotgun* with us as we prove that the conditional expectation is the function that produces the smallest possible Mean Squared Error.

Specifically, **you group’s task** is to justify every transition from one line to the next using concepts that we have learned in the course: definitions, theorems, calculus, and algebraic operations.

### 4.7.2 The pudding (aka: “Where the proof is”)

We need to find such function  $g(X) : \mathbb{R} \rightarrow \mathbb{R}$  that gives the smallest mean squared error.

First, let MSE be defined as it is in **Definition 2.1.22**.

For a random variable  $X$  and constant  $c \in \mathbb{R}$ , the *mean squared error* of  $X$  about  $c$  is  $E[(x - c)^2]$ .

Second, let us note that since  $g(X)$  is just a function that maps onto  $\mathbb{R}$ , that for some particular value of  $X = x$ ,  $g(X)$  maps onto a constant value.

- Deriving a Function to Minimize MSE

$$\begin{aligned}
 E[(Y - g(X))^2|X] &= E[Y^2 - 2Yg(X) + g^2(X)|X] \\
 &= E[Y^2|X] + E[-2Yg(X)|X] + E[g^2(X)|X] \\
 &= E[Y^2|X] - 2g(X)E[Y|X] + g^2(X)E[1|X] \\
 &= (E[Y^2|X] - E^2[Y|X]) + (E^2[Y|X] - 2g(X)E[Y|X] + g^2(X)) \\
 &= V[Y|X] + (E^2[Y|X] - 2g(X)E[Y|X] + g^2(X)) \\
 &= V[Y|X] + (E[Y|X] - g(X))^2
 \end{aligned}$$

Notice too that we can use the *Law of Iterated Expectations* to do something useful. (This is a good point to talk about how this theorem works in your breakout groups.)

$$\begin{aligned} E[(Y - g(X))^2] &= E[E[(Y - g(X))^2 | X]] \\ &= E[V[Y|X] + (E[Y|X] - g(X))^2] \\ &= E[V[Y|X]] + E[(E[Y|X] - g(X))^2] \end{aligned}$$

- $E[V[Y|X]]$  doesn't depend on  $g$ ; and,
  - $E[(E[Y|X] - g(X))^2] \geq 0$ .
- $\therefore g(X) = E[Y|X]$  gives the smallest  $E[(Y - g(X))^2]$

### 4.7.3 The Implication

If you are choosing some  $g$ , you can't do better than  $g(x) = E[Y|X = x]$ .

## 4.8 Working with the BLP

Why Linear?

- In some cases, we might try to estimate the CEF. More commonly, however, we work with linear predictors. Why?
- We don't know joint density function of  $Y$ . So, it is "difficult" to derive a suitable CEF.
- To estimate *flexible* functions requires considerably more data. Assumptions about distribution (e.g. a linear form) allow you to leverage those assumptions to learn 'more' from the same amount of data.
- Other times, the CEF, even if we *could* produce an estimate, might be so complex that it isn't useful or would be difficult to work with.
- And, many times, linear predictors (which might seem trivially simple) actually do a very good job of producing predictions that are 'close' or useful.

## 4.9 Joint Distribution Practice

### 4.9.1 Professorial Mistakes (Discrete RVs)

- Let the number of questions that students ask be a RV,  $X$ .
- Let  $X$  take on values:  $\{1, 2, 3\}$ , each with probability  $1/3$ .

- Every time a student asks a question, the instructor answers incorrectly with probability  $1/4$ , independently of other questions.

- Let the RV  $Y$  be number of incorrect responses.

- **Questions:**

- Compute the expectation of  $Y$ , conditional on  $X$ ,  $E[Y|X]$
- Using the law of iterated expectations, compute  $E[Y] = E[E[Y|X]]$ .

#### 4.9.2 Continuous BLP

- Recall the PDF that we worked with earlier to produce the \$CEF[Y|X].

$$f(x, y) = \begin{cases} 2, & 0 \leq x \leq 1, 0 \leq y \leq x \\ 0, & \text{otherwise} \end{cases}$$

Find the *BLP* for  $Y$  as a function of  $X$ . What, if anything, do you notice about this *BLP* and the *CEF*?

## Chapter 5

# Learning from Random Samples



Figure 5.1: south hall

This week, we're coming into the big turn in the class, from probability theory to sampling theory.

In the probability theory section of the course, we developed the *theoretically best* possible set of models. Namely, we said that if our goal is to produce a

model that minimizes the Mean Squared Error that *expectation* and *conditional expectation* are as good as it gets. That is, if we only have the outcome series,  $Y$ , we cannot possibly improve upon  $E[Y]$ , the expectation of the random variable  $Y$ . If we have additional data on hand, say  $X$  and  $Y$ , then the best model of  $Y$  given  $X$  is the conditional expectation,  $E[Y|X]$ .

We have also said that because this conditional expectation function might be complex, and hard to inform with data, that we might also be interested in a principled simplification of the conditional expectation function – the simplification that requires our model be a line.

With this simplification in mind, we derived the linear system that produces the minimum MSE: the ratio of covariance between variables to variance of the predictor:

$$\beta_{BLP} = \frac{Cov[Y, X]}{V[X]}.$$

We noted, quickly, that the simple case of only two variables – an outcome and a single predictor – generalizes nicely into the (potentially very) many dimensional case. If the many-dimensional  $BLP$  is denoted as  $g(\mathbf{X}) = b_0 + b_1 X_1 + \dots + b_k X_k$ , then we can arrive at the slope between one particular predictor,  $X_k$ , and the outcome,  $Y$ , as:

$$b_k = \frac{\partial g(\mathbf{X})}{\partial X_k}.$$

## 5.1 Goals, Framework, and Learning Objectives

### 5.1.1 Class Announcements

- You're done with probability theory. **Yay!**
- You're also done with your first test. **Double Yay!**
- We're going to have a second test in a few weeks. Then we're done testing for the semester **Yay?**

### 5.1.2 Learning Objectives

At the end of this week, students will be able to

1. **Understand** what iid sampling is, and evaluate whether the assumption of iid sampling is sufficiently plausible to engage in frequentist modeling.
2. **Appreciate** that with iid sampling, summarizing functions of random variables are, themselves, random variables with probability distributions and values that they obtain.
3. **Recall** the definition of an estimator,

4. Recall definition of an estimator, **state** and **understand** the desirable properties of estimators, and **evaluate** whether an estimator possesses those desirable properties.
5. **Distinguish** between the concepts of {expectation & sample mean}, {variance & unbiased sample variance estimator, sampling-based variance in the sample mean}.

### 5.1.3 Roadmap

#### 5.1.3.1 Where We're Going – Coming Attractions

- We're going to start bringing data into our work
- First, we're going to develop a testing framework that is built on sampling theory and reference distributions: these are the **frequentist tests**.
- Second, we're going to show that OLS regression is the sample estimator of the BLP. This means that OLS regression produces estimates of the BLP that have known convergence properties.
- Third, we're going combine the frequentist testing framework with OLS estimation to produce a full regression testing framework.

#### 5.1.3.2 Where We've Been – Random Variables and Probability Theory

Statisticians create a model (also known as the population model) to represent the world. This model exists as joint probability densities that govern the probabilities that any series of events occurs at the same time. This joint probability of outcomes can be summarized and described with lower-dimensional summaries like the expectation, variance, covariance. While the expectation is a summary that contains information on about one marginal distribution (i.e. the outcome we are interested in) we can produce predictive models that update, or *condition* the expectation based on other random variables. This summary, the **conditional expectation** is the best possible (measured in terms of minimizing mean squared error) predictor of an outcome. We might simplify this conditional expectation predictor in many ways; the most common is to simplify to the point that the predictor is constrained to be a line or plane. This is known as the Best Linear Predictor.

#### 5.1.3.3 Where we Are

- We want to fit models – use data to set their parameter values.
- A sample is a set of random variables
- Sample statistics are functions of a sample, and they are random variables
- Under iid and other assumptions, we get useful properties:
  - Statistics may be consistent estimators for population parameters
  - The distribution of sample statistics may be asymptotically normal

## 5.2 Key Terms and Assumptions

### 5.2.1 IID

We use an abbreviation for the sampling process that under girds our frequentist statistics. That abbreviation, **IID**, while short, contains two powerful requirements of our data sampling process.

**Definition 5.1.** IID sampling is:

1. **Independent.** The first **I** in the abbreviation, this independence requirement is similar to the independence concept that we've used in the probability theory section of the course. When samples are independent, the result of any one sample is not informative about the value of any of the other samples.
2. **Identically Distributed.** The **ID** in the abbreviation, this requirement means that all samples are drawn from the same distribution.

It might be tempting to imagine that IID samples are just “*random samples*”, but it is worth noting that IID sampling has the two specific requirements noted above, and that these requirements are more stringent than a “randomness” criteria.

When we are thinking about IID samples, and evaluating whether the sample do, in point of fact, meet both of the requirements, it is *crucial* to make an explicit statement about the reference population that is under consideration.

For example, suppose that you were interested in learning about life-satisfaction and your reference population are the peoples who live in the United States. Further, suppose that you decide to produce an estimate of this using a sample drawn from UC Berkeley undergraduate students during RRR week? There are several flaws in this design:

1. There is a key **research design** issue: a sample drawn from Berkeley undergraduates is going to be *essentially* uninformative of a US resident reference population!
2. There is a key **statistical** issue: the population of Berkeley undergraduates are not really an independent sample from the entire US resident reference population. Once you learn the age of someone from the Berkeley student population, you can make an conditional guess about the age of the next sample that will be closer than was possible before the first sample. The same goes for life-satisfaction: When you learn about the life-satisfaction from the first undergrad (who is miserable because they have their Stat 140 final coming up) while they are studying for their finals) you can make a conditionally better guess about the satisfaction of the next undergrad.

Notice that these violations of the IID requirements only arise because our reference population is the US resident population. If, instead, the reference population were “Berkeley undergrads” then the sampling process *would* satisfy

the requirements of an IID process.

- How, or why, can a change in the reference population make an identical sampling process move from one that we can consider IID to one that we cannot consider IID?

#### 5.2.1.1 Is this IID?

For each of the following scenarios, is the IID assumption plausible?

1. Call a random phone number. If someone answers, interview all persons in the household. Repeat until you have data on 100 people.
2. Call a random phone number, interview the person if they are over 30. Repeat until you have data on 100 people.
3. Record year-to-date price change for 20 largest car manufacturers.
4. Measure net exports per GDP for all 195 countries recognized by the UN.

### 5.3 Estimators

In our presentation of this week's materials, we choose to switch the presentation of statistics and estimators, electing to discuss properties that we would like estimators to possess, before we actually introduce any specific estimators.

#### 5.3.1 Three properties of estimators

What are the three desirable properties of estimators?

- 1.
- 2.
- 3.

Is one of these properties *more* important than another? If you had to force-rank these properties in terms of their importance, which is the most, and which the least important? Why?

### 5.4 Estimator Property: Biased or Unbiased?

1. First, for a general case: Suppose that you have chosen some particular estimator,  $\hat{\theta}$  to estimate some characteristic,  $\theta$  of a random variable. How do you know if this estimator is unbiased?
2. Second, for a specific case: Define the "sample average" to be the following:  $\frac{1}{n} \sum_{i=1}^N x_i$ . Prove that this sample average estimator is an unbiased estimator of  $E[X]$ .
3. Third (easier), for a different specific case: Define the "sample average" to be the following  $\frac{1}{n^2} \sum_{i=1}^N x_i$ . Prove that the sample average is a biased estimator of  $E[X]$ .

4. Fourth (harder): Define the geometric mean to be

$$\left( \prod_{i=1}^N x_i \right)^{\frac{1}{N}}$$

. Prove that the geometric mean is a biased estimator of  $E[X]$ .

### 5.4.1 Is it unbiased, with data?

Suppose that you're getting data from the following process:

```
random_distribution <- function(number_samples) {

  d1 <- c(1.0, 2.0)
  d2 <- c(1.1, 2.1)
  d3 <- c(1.5, 2.5)

  distribution_chooser = sample(x=1:3, size=1)

  if(distribution_chooser == 1) {
    x_ <- runif(n=number_samples, min=d1[1], max=d1[2])
  } else if(distribution_chooser == 2) {
    x_ <- runif(n=number_samples, min=d2[1], max=d2[2])
  } else if(distribution_chooser == 3) {
    x_ <- runif(n=number_samples, min=d3[1], max=d3[2])
  }
  return(x_)
}

random_distribution(number_samples=10)

## [1] 2.467197 2.366916 1.937715 1.691938 1.582294 2.083452 1.570361 2.027663
## [9] 1.972288 1.548191
mean(random_distribution(number_samples=10000))

## [1] 1.501582
```

Notice that, there are two forms of inherent uncertainty in this function:

1. There is uncertainty about the distribution that we are getting draws from; and,
2. Within a distribution, we're getting draws at random from a population distribution.

This class of function, the `r*` functions, are the implementation of random generative processes within the R language. Look into `?distributions` as a class to see more about this process.

Suppose that you chose to use the same sample average estimator as a means of producing an estimate of the population expected value,  $E[X]$ . Suppose that you get the following draws:

```
draws <- random_distribution(number_samples=10)
draws

## [1] 1.946123 1.913084 1.711113 1.768129 1.573630 1.916366 1.149307 1.556135
## [9] 1.358160 1.889717

mean(draws)

## [1] 1.678176
```

Is this sample average an unbiased estimator for the population expected value? How do you know?

## 5.5 Estimator Property: Consistency

*Foundations* makes another of their jokes when they write, on page 105,

“Consistency is a simple notion: if we had enough data, the probability that our estimate  $\hat{\theta}$  would be far from the truth,  $\theta$ , would be small.”

**How do we determine if a particular estimator,  $\hat{\theta}$  is a consistent estimator for our parameter of interest?**

There are at least two ways:

1. The estimator is unbiased, and has a sampling variance that decreases as we add data; or,
2. We can use Chebyshev’s to place a bound on the estimator, showing that as we add data, the estimator converges in probability to  $\theta$ .

The first notion of convergence requires an understanding of sampling variance:

The sampling variance of an estimator is a statement about how much dispersion due to random sampling, is present in the estimator. We defined the variance of a random variable to be  $E[(X - E[X])^2]$ , The sampling variance uses this same definition, but we work with it slightly differently when we are considering sampling variance.

In particular, when we are considering sampling variance, we do not typically got as far as actually computing the variance of the underlying random variable? *Why?* Because, if we’re working in a sampling scenario, it is unlikely that we have access to the underlying function that governs the PDF of the random variable.

Instead, we typically start from a statement of the estimator that is under consideration, and apply the variance operator against that estimator. Consider,

for example, forming a statement about the sampling variance of the sample average.

Let  $\bar{X} \equiv$  “sample average”  $\equiv \frac{1}{n} \sum_{i=1}^n X_i$  be the normal form of the sample average.

Earlier, we proved that  $\bar{X}$  is an unbiased estimator of  $E[X]$ .

What is the sampling variance of the sample average?

Using the statement that you have just produced, would you say that the sample average is a consistent estimator for the population expectation of a random variable?

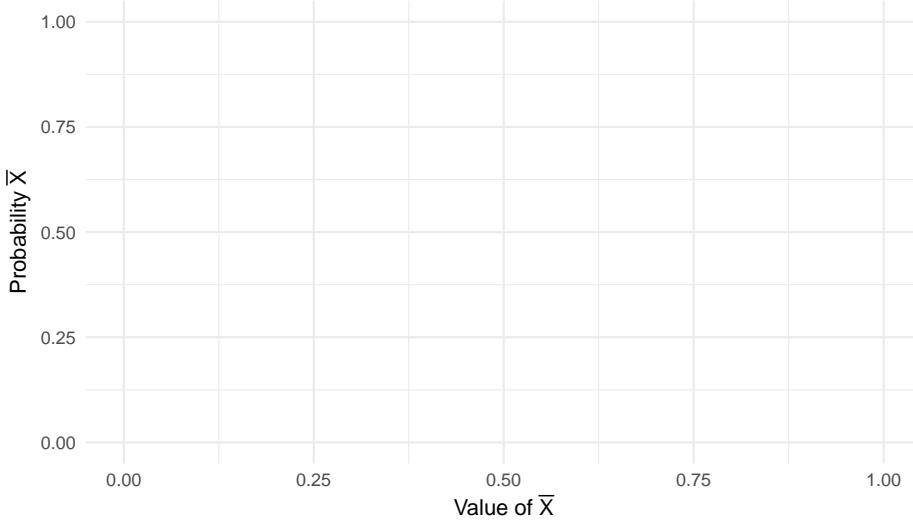
## 5.6 Understanding Sampling Distributions

How do sampling distributions change as we add data to them? This is going to both motivate convergence, and also play forward into the Central Limit Theorem. Let's work through an example that begins with a case that we can think through and draw ourselves. Once we feel pretty good about the *very* small sample, then we will rely on R to do the work when we expand the example beyond what we can draw ourselves.

Suppose that  $X$  is a Bernoulli random variable representing an unfair coin. Suppose that the coin has a 70% chance of coming up heads:  $P(X = 1) = 0.7$ .

- To begin, suppose that you take that coin, and you toss it two times: you have an iid sample of size 2,  $(X_1, X_2)$ .
- *What is the sampling distribution of the sample average, of this sample of size two?*
- On the axes below, draw the probability distribution of  $\bar{X} = \frac{X_1+X_2}{2}$ .

Distribution of Bernoulli RV



- What if you took four samples? What would the sampling distribution of  $\bar{X}$  look like? *Draw this onto the axis above.*
- Explain the difference between a population distribution and the sampling distribution of a statistic.
- Why do we want to know things about the sampling distribution of a statistic?

We are going to write a function that, essentially, just wraps a built-in function with a new name and new function arguments. This is, generally, bad coding practice – because it is changing the default lexicon than a collaborator needs to be aware of – but it is useful for teaching purposes here.

- The `number_of_simulations` argument to the `toss_coin` function basically just adjusts the precision of our simulation study.
- Let's set, and keep this at 1000 simulations. But, if you're curious, you could set this to be 5, or 10 and evaluate what happens.

```
toss_coin <- function(
  number_of_simulations=1000,
  number_of_tosses=2,
  prob_heads=0.7) {

  ## number of simulations is just how many times we want to re-run the experiment
  ## number of tosses is the number of coins we're going to toss.
  number_of_heads <- rbinom(n=number_of_simulations, size=number_of_tosses, prob=prob_heads)
  sample_average <- number_of_heads / number_of_tosses
  return(sample_average)
}

toss_coin(number_of_simulations=10, number_of_tosses=2, prob_heads=0.7)

## [1] 1.0 0.5 1.0 0.5 0.5 0.5 0.5 0.5 1.0 1.0
ncoins <- 10

coin_result_005 <- toss_coin(
  number_of_simulations = 10000,
  number_of_tosses = ncoins,
  prob_heads = 0.005
)

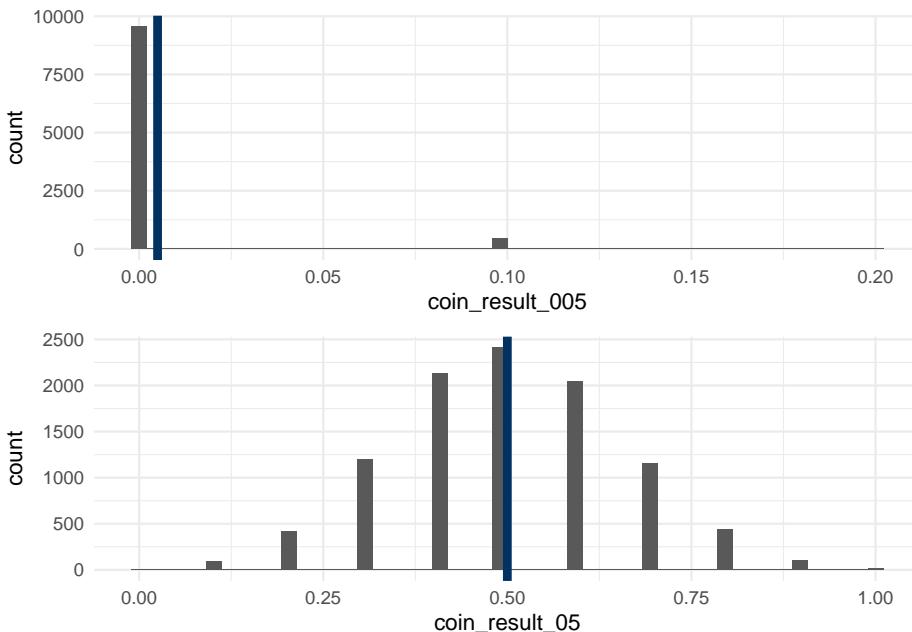
coin_result_05 <- toss_coin(
  number_of_simulations = 10000,
  number_of_tosses = ncoins,
  prob_heads = 0.5
)

plot_005 <- ggplot() +
  aes(x=coin_result_005) +
  geom_histogram(bins=50) +
  geom_vline(xintercept=0.005, color="#003262", linewidth=2)

plot_05 <- ggplot() +
  aes(x=coin_result_05) +
```

```
geom_histogram(bins=50) +
  geom_vline(xintercept=0.5, color='#003262', linewidth=2)

plot_005 /
  plot_05
```



In the plot that you have drawn above, pick some value,  $\epsilon$  that is the distance away from the true expected value of this distribution.

- What proportion of the sampling distribution is further away than  $E[X] \pm \epsilon$ ?
- When we toss the coin only two times, we can quickly draw out the distribution of  $\bar{X}$ , and can form a statement about the  $P(E[X] - \epsilon \leq \bar{X} \leq E[X] + \epsilon)$ .
- What if we toss the coin ten times? We can still use the IID nature of the coin to figure out the *true*  $P(\bar{X} = 0), P(\bar{X} = 1), \dots, P(\bar{X} = 10)$ , but it is going to start to take some time. This is where we rely on the simulation to start speeding up our learning.
- As we toss more and more coins,  $\bar{X}_{(100)} \rightarrow \bar{X}_{(10000)}$  what will the value of  $\bar{X}$  get closer to? What law generates this, and why does this law generate this result?

## 5.7 Write Code to Demo the Central Limit Theorem (CLT)

When you were reading for this week, did you sense the palpable *joy* of the authors when they were writing about the central limit theorem?

We now preset what is often considered the most profound and important theorem in statistics.

Wow. What excitement.

On its own, the result that *across a broad range of generative functions the distribution of sample averages converges in distribution to follow a normal distribution* would be a statistical curiosity. Along the lines of “did you know that dinosaurs might have had feathers,” or, “avocado trees reproduce using ‘protogynous dichogamy’”. While these factoids might be useful on your quiz-bowl team, they don’t get us very far down the line as practicing data scientists.

However, there is a **very** useful consequence of this convergence in distribution that we will explore in detail over the coming two weeks: because *so many* distributions produce sample averages that converge in distribution to a normal distribution, we can put together a testing framework for sample averages that works for an *agnostic* set of random variables. Wait for that next week, but know that there’s a reason that we’re as excited about this statement as we are.

### 5.7.1 Part 1

To begin with, we will use fair coins that have an equal probability landing heads and tails.

1. Modify the function argument below so that it conduct **one** simulations, and in each simulation tosses **ten** coins, each with an **equal** probability of landing heads and tails. Look into the `toss_coin` function: is there a point that this function is producing a sample average? If so, where?
2. Save values from the `toss_coin` function into an object, called `sample_mean`.

```
# toss_coin()
```

The sample mean is a random variable – it is a function that maps from a random generative process’ sample space (the number of heads shown on dice) to the real numbers. To try to make this clear, visualize a larger number of simulations on the `toss_coin` function. That is, increase the `number_of_simulations` to be 10, or 100. and plot a histogram of the results. This is quite similar to what we have done earlier.

```
# toss_coin()
```

If you replicate the simulation with **ten** coins enough times, will the distribution

ever look normal? Why or why not?

### 5.7.2 Part 2

For this part, we'll continue to study a fair coin.

What happens if you change the number of coins that you're tossing? Here, set `number_of_simulations=1000`, and examine what happens if you alter the number of coins that you're tossing? Is there a point where this distribution starts to "look normal" to you? (Later in the semester, we'll formalize a test for this "looks normal" concept).

### 5.7.3 Part 3

What would happen if the coin was very, very unfair? For this part, study a coin that has a `prob_heads=0.01`. This is an example of a highly skewed random variable.

Start your study here tossing three coins, `number_of_coins=3`. What does this distribution look like?

What happens as you increase the number of coins that you're tossing? Is there a point that the distribution starts to look normal?

### 5.7.4 Discussion Questions About the CLT

1. How does the skewness of the population distribution affect the applicability of the Central Limit Theorem? What lesson can you take for your practice of statistics?
2. Name a variable you would be interested in measuring that has a substantially skewed distribution.
3. One definition of a heavy tailed distribution is one with infinite variance. For example, you can use the `rcauchy` command in R to take draws from a Cauchy distribution, which has heavy tails. Do you think a "heavy tails" distribution will follow the CLT? What leads you to this intuition?

## 5.8 Errors with Standard Errors

Talking about variance and sampling variance is hard, because the terms sound **very** similar, but have important distinctions in what they mean. For example, the "variance" is not the same as the "unbiased sample variance" which is also not the same as the "sampling variance of the sample average". :sob:

Standard errors are a statement about the sampling variance of the sample average. But, related to this concept are the ideas of the *Population Variance*, the *Plug-In Estimator for the Sample Variance*, the *Unbiased Sample Variance*, and, finally, the *Sampling Variance of the Sample Average* (i.e the *Standard Error*).

How are each of these concepts related to one another, and how can we keep them all straight? As a group, fill out the following columns?

For the **Estimator Properties** column, here we're considering, principally biased/unbiased and consistent/inconsistent.

Population Concept	Pop Nota- tion	Sample Estima- tor	Sample Nota- tion	Estimator Properties	Sampling Variance of Sample Estimator
Expected Value					
Population Variance					
Population Covariance					
CEF					
BLP					

## Chapter 6

# Hypothesis Testing



Figure 6.1: more lake

Frequentist Hypothesis testing is a very well established framework in the applied practice, and scientific literature. Sometimes (often, currently) referred to as Null Hypothesis Significance Testing (NHST), this framework essentially makes an absurd assertion and asks the data to overturn that assertion.

Like a petulant child, NHST essentially proclaims,

“If you really loved me, you would let me watch this screen one-

hundred hours every day.”

Here the absurdity is that a parent might not love their child, and the criteria to overturn that assertion is noted to be “buy me an iPad”.

### What is Frequentist testing doing?

This testing framework works on **samples** of data, and applies **estimators** to produce **estimates** of **population parameters** that are fundamentally unknown and unknowable. Despite this unknown and unknowable population target, with some carefully written down estimators we can rely on the convergence characteristics of some estimators to produce *useful, reliable* results.

We begin with the one-sample t-test. The one-sample t-test relies on the sample average as an estimator of a population expectation. In doing so, it relies on the effectiveness of the **Weak Law of Large Numbers** and the **Central Limit Theorem** to guarantee that the estimator that **converges in probability** to the population expectation, while also **converging in distribution** to a Gaussian distribution.

These two convergence concepts permit a data scientist to make several **inferences** based on data:

1. The probability of generating data that “*looks like what is observed*”, if the null-hypothesis were true. This is often referred to as the **p-value** of a test, and is the petulant statement identified above.
2. An interval of values that, with some stated probability (e.g. 95%), contains the true population parameter.

This framework begins a **exceedingly important** task that we must understand, and undertake when we are working as data scientists: Producing our best-estimate, communicating how we arrived at that estimate, what (if any) guarantees that estimate provides, and *crucially* all **limitations** of our estimate.

## 6.1 Learning Objectives

1. **Understand** the connection between random variables, sampling, and statistical tests.
2. **Apply** the Frequentist testing framework in a simple test – the one-sample t-test.
3. **Anticipate** that every additional Frequentist test is a closely related variant of this test.

## 6.2 Class Announcements

1. You will be taking your second test this week. The test follows the same format as the first test, which we will discuss in live session. The test will

cover:

1. **Unit 4: Conditional Expectation and the Best Linear Predictor**; and,
2. **Unit 5: Learning from Random Samples**.

- Like the first test, our goal is to communicate to you what concepts we think are important, and then to test those concepts directly, and fairly. The purpose of the test is to give you an incentive to review what you have learned through probability theory, and then to demonstrate that you can produce work based on that knowledge.
  - There is another practice test on Gradescope, and in the GitHub repository.
2. In rosier news, we're moving out of the *only* pencil and paper section of this course, and bringing what we have learned out into the dirty world of data. This means a few things:
    - If you haven't yet worked through the **R Bridge Course** that is available to you, working on this bridge course will be useful for you (after you complete your test). The goal of the course is to get you up and running with reasonably successful code and workflows for the data-based portion of the course.
  3. We will assign teams, and begin our work on **Lab 1** in Live Session next week. This is a two-week, group lab that you will work on with three total team-mates. The lab will cover some of the fundamentals of hypothesis tests,

## 6.3 Roadmap

### Looking Backwards

- Statisticians create a model to represent the world
- We saw examples of estimators, which approximate model parameters we're interested in.
- By itself, an estimate isn't much good; we need to capture the uncertainty in the estimate.
- We've seen two ways to express uncertainty in an estimator: standard errors and confidence intervals.

### Today

- We introduce hypothesis testing
  - A hypothesis test also captures uncertainty, but in relation to a specific hypothesis.

### Looking Ahead

- We'll build on the one-sample t-test, to introduce several other statistical tests.

- We'll see how to choose a test from different alternatives, with an eye on meeting the required assumptions, and maximizing power.

## 6.4 What does a hypothesis test do?

- What are the two possible outcomes of a hypothesis test?
- What are the four-possible combinations of (a) hypothesis test result; and (b) state of the world?
- Does a hypothesis test always have to report a result that is consistent with the state of the world? What does it mean if it *does*, and what does it mean if it *does not*.
- What if you made up your own testing framework, called the {Your Last Name's} Groundhog test. Which is literally a groundhog looking to see its shadow. Because you made the test, suppose that you know that it is *totally random* whether a groundhog sees its shadow. *How useful would this test be at separating states of the world?*
- What guarantee do you get if you follow the decision rules properly?
- Why do we standardize the mean to create a test statistic?

$$t = \frac{\bar{X}_n - \mu}{\sqrt{\frac{s^2}{n}}}$$

## 6.5 Madlib prompt

```
tone_of_voice      <- ''
mode_of_speech    <- ''
superlative       <- ''
score_on_test     <- 'percent' # should end with percent
name_of_classmate <- ''
emotion           <- ''
eating_verb        <- '' #slurp
vessel             <- ''
thing_found_in_compost <- ''
```

## 6.6 Madlib completed

Suppose that a classmate comes to you, and, in a voice , “Hey, I’ve got something that is for statistics test preperation. All you’ve got to do to get percent on Test 2 and make is to this of .

You’re skeptical, but also curious because that last test was tough. Good.

## 6.7 “Accepting the Null”

(For the purposes of this class, and while you’re talking about testing after the class: the preferred language is to either (a) *Reject the null hypothesis*, or (b) *Fail to reject the null hypothesis*.

Acknowledging that we’re only 40% of the way through the course, you decide to hire a hungry, underpaid PhD student the School to conduct the experiment to evaluate this claim. They report back, no details about the test, but they do tell you, “We’re sure there’s no effect of .”

- Do you believe them?
- What, if any, reasons can you imagine not to believe this conclusion?

## 6.8 Manually Computing a t-Test

In a warehouse full of power packs labeled as 12 volts we randomly measure the voltage of 7. Here is the data:

```
voltage <- c(11.77, 11.90, 11.64, 11.84, 12.13, 11.99, 11.77)
voltage
```

```
## [1] 11.77 11.90 11.64 11.84 12.13 11.99 11.77
```

1. Find the mean and the standard deviation.

```
sample_mean <- mean(voltage)
sample_sd   <- sd(voltage)
n           <- length(voltage)

test_statistic <- (sample_mean - 12) / (sample_sd / sqrt(n))
test_statistic
```

```
## [1] -2.247806
```

2. Using `qt()`, compute the t critical value for a hypothesis test for this sample.

```
qt(0.025, df=n-1)
```

```
## [1] -2.446912
```

3. Define a test statistic,  $t$ , for testing whether the population mean is 12.

```
test_statistic
```

```
## [1] -2.247806
```

4. Calculate the p-value using the t statistic.

```
pt(test_statistic, df=n-1)
```

```
## [1] 0.03281943
```

5. Should you reject the null? Argue this in two different ways. (Following convention, set  $\alpha = .05$ .)

```
test_stat_function <- function(data, null_hypothesis) {
  sample_mean <- mean(data)
  sample_sd   <- sd(data)
  n           <- length(data)

  test_statistic <- (sample_mean - null_hypothesis) / (sample_sd / sqrt(n))
  return(test_statistic)
}

test_stat_function(data=voltage, null_hypothesis=12) %>%
  pt(df=length(voltage)-1) * 2
```

```
## [1] 0.06563885
```

```
t.test(
  x          = voltage,
  alternative = 'two.sided',
  mu         = 12)
```

```
##
##  One Sample t-test
##
## data:  voltage
## t = -2.2478, df = 6, p-value = 0.06564
## alternative hypothesis: true mean is not equal to 12
## 95 percent confidence interval:
##  11.71357 12.01215
## sample estimates:
## mean of x
## 11.86286
```

6. Suppose you were to use a normal distribution instead of a t-distribution to test your hypothesis. What would your p-value be for the z-test?
7. Without actually computing it, say whether a 95% confidence interval for the mean would include 12 volts.
8. Compute a 95% confidence interval for the mean.

## 6.9 Falling Ill (The General Form of a Hypothesis Test)

In the async content for the week, we're really, *really* clear that we're only working with the *t-distribution*. But, the general "form" of a frequentist hypothesis test is always the same: produce a test statistic; produce a distribution of that test statistic if the null hypothesis *were* true; then compare the two. Let's stretch this application a little bit.

There is a theory that upcoming tests cause students to fall ill. We have been collecting wellness data from our students for several years (not really...) and we have found the following distribution of illnesses (Notice that this does not tell you anything about how many students we have enrolled over the years):

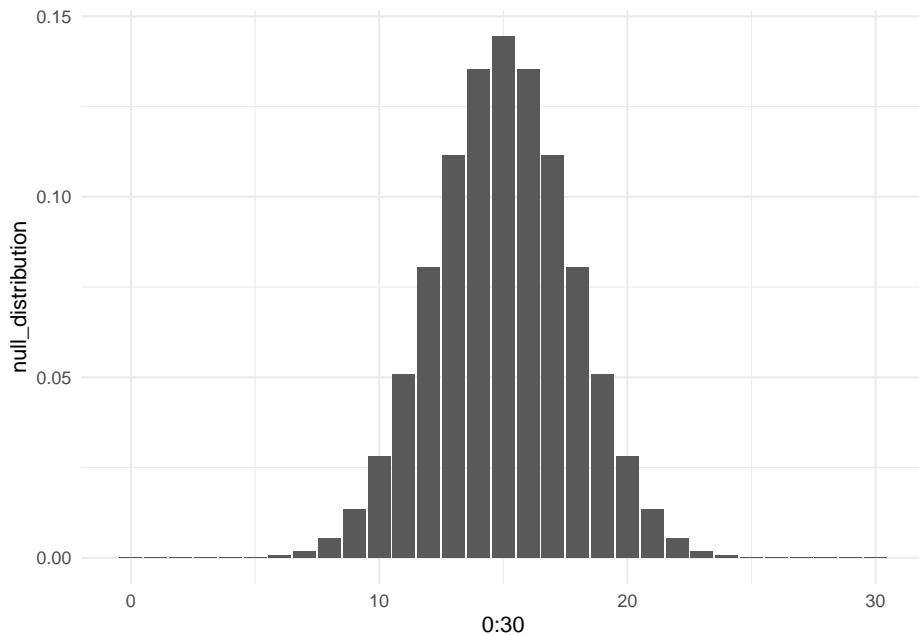
- 20 students have reported being ill in the week *before* Test 2
- 10 students have reported being ill in the week *after* Test 2

Think of wellness/illness as a dichotomous statement.

- **State an appropriate null hypothesis.** After you have stated this null hypothesis, can you think about (or, even better) can you produce a distribution of the probability of {0, 1, 2, 3, ..., 30} of the illnesses reported before the test?

```
null_distribution <- dbinom(0:30, 30, prob = 0.5)

ggplot() +
  aes(x=0:30, y=null_distribution) +
  geom_col()
```



- **State a rejection criteria.** What occurrence in the data would cause you to doubt the plausibility of your null hypothesis?
- **What do you conclude?** Given the data that is presented to you and the null hypothesis, what do you conclude?

## 6.10 Data Exercise

### t-Test Micro Cheat Sheet

In order for a t-test to produce valid results, a set of conditions must be satisfied. While the literature refers to these as *assumptions*, you might do better to refer to these for yourselves as *requirements*. Meaning, if these requirements for the data generating process are not satisfied, the test does not produce results that hold any statistical guarantees.

- **Metric variable:** The data needs to be numeric
- **IID:** The data needs to be sampled using an independent, identically distributed sampling process.
- **Well-behaved:** The data need to demonstrate no major deviations from normality, considering sample size

### Testing the Home Team Advantage

The file `./data/home_team.csv` contains data on college football games. The data is provided by Wooldridge and was collected by Paul Anderson, an MSU

economics major, for a term project. Football records and scores are from 1993 football season.

```
home_team <- read.csv('./data/home_team.csv') %>%
  select(dscore, dinstt, doutstt) %>%
  rename(
    score_diff      = dscore,
    in_state_tuition_diff = dinstt,
    out_state_tuition_diff = doutstt
  )

glimpse(home_team, width = 80)

## Rows: 30
## Columns: 3
## $ score_diff      <int> 10, -14, 23, 8, -12, 7, -21, -5, -3, -32, 9, 1, ~
## $ in_state_tuition_diff <int> -409, NA, -654, -222, -10, 494, 2, 96, 223, -20~
## $ out_state_tuition_diff <int> -4679, -66, -637, 456, 208, 17, 2, -333, 2526, ~
```

We are especially interested in the variable, `score_diff`, which represents the score differential, home team score - visiting team score. We would like to test whether a home team really has an advantage over the visiting team.

1. The instructor will assign you to one of two teams. Team 1 will argue that the t-test is appropriate to this scenario. Team 2 will argue that the t-test is invalid. Take a few minutes to examine the data, then formulate your best argument.
2. Should you perform a one-tailed test or a two-tailed test? What is the strongest argument for your answer?

```
## I'm going two-tailed.
## H0 : No effect of being home or away
## HA : There IS some effect.
```

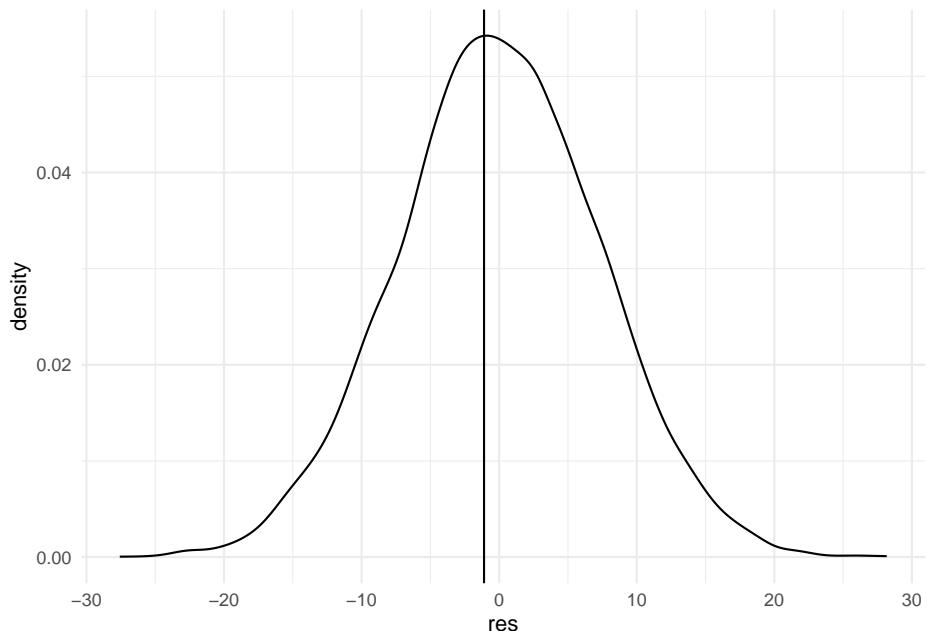
3. Execute the t-test and interpret every component of the output.

```
t.test(x=home_team$score_diff, mu=0, alternative = 'two.sided')

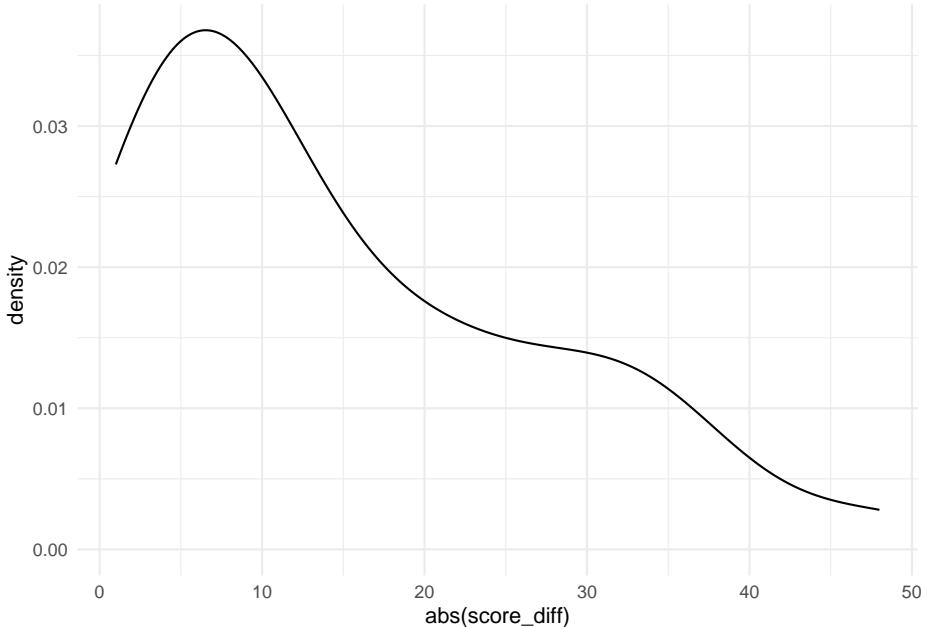
##
## One Sample t-test
##
## data: home_team$score_diff
## t = -0.30781, df = 29, p-value = 0.7604
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
## -8.408919 6.208919
## sample estimates:
## mean of x
## -1.1
```

```
res <- NA
for(i in 1:10000) {
  res[i] <- mean(rnorm(n=7, sd=sd(home_team$score_diff)))
}

ggplot() +
  aes(x=res) +
  geom_density() +
  geom_vline(xintercept=mean(home_team$score_diff))
```



```
home_team %>%
  ggplot() +
  aes(x=abs(score_diff)) +
  geom_density()
```



```
mean(home_team$score_diff)
## [1] -1.1
mean((res < mean(home_team$score_diff))) + mean(res > abs(mean(home_team$score_diff)))
## [1] 0.881
```

4. Based on your output, suggest a different hypothesis that would have led to a different test result. Try executing the test to confirm that you are correct.

## 6.11 Assumptions Behind the t-test

For the following scenarios, what is the strongest argument against the validity of a t-test?

- You have a sample of 50 CEO salaries, and you want to know whether the mean salary is greater than \$1 million.
- A nonprofit organization measures the percentage of students that pass an 8th grade reading test in 40 neighboring California counties. You are interested in whether the percentage of students that pass in California is over 80%
- You have survey data in which respondents assess their own opinion of corgis, with options ranging from “1 - extreme disgust” to “5 - affection so

intense it threatens my career.” You want to know whether people on the average like corgis more than 3, representing neutrality.

# Chapter 7

## Comparing Two Groups



### 7.1 Learning Objectives

This week, we introduce the idea of comparing two groups to evaluate whether the data that we have sampled lead us to believe that the population distribution of the random variables are different. Of course, because we don't get access to the function that describes the random variable, we can't *actually* know if the populations are different. It is for this reason that we call it statistical inference – we are inferring from a sample some belief about the populations.

At the conclusion of this week, students will be able to:

1. *Recognize* the similarities between all frequentist hypothesis tests.
2. *Evaluate* the conditions that surround the data, and choose a test that is best-powered and justifiable.
3. *Perform* and *Interpret* the results of the most common statistical tests.

## 7.2 Class Announcements

- Great work completing your final w203 test!
- Unit 7 Homework is Group Homework, due next week.
- The Hypothesis Testing Lab is released today!
  - Lab is due at Unit 09 Live Session (two weeks): Apply these fundamentals to analyze 2022 election data and write a single, three-page analysis

## 7.3 Roadmap

### 7.3.1 Rearview Mirror

- Statisticians create a population model to represent the world
- A population model has parameters we are interested in
  - Ex: A parameter might represent the effect that a vitamin has on test performance
- A null hypothesis is a specific statement about a parameter
  - Ex: The vitamin has zero effect on performance
- A hypothesis test is a procedure for rejecting or not rejecting a null, such the probability of a type 1 error is constrained.

### 7.3.2 Today

- There are often multiple hypothesis tests you can apply to a scenario.
- Our primary concern is choosing a test with assumptions we can defend.
- Secondarily, we want to maximize power.

### 7.3.3 Looking ahead

- Next week, we start working with models for linear regression
- We will see how hypothesis testing is also used for regression parameters.

## 7.4 Teamwork Discussion

### 7.4.1 Working on Data Science Teams

Data science is a *beautiful* combination of team-work and individual-work. It provides the opportunity to work together on a data pipeline with people from all over the organization, to deal with technical, statistical, and social questions that are always interesting. While we expect that everyone on a team will be a professional, there is so much range within the pursuit of data science that projects are nearly always collaborative exercises.

Together as teams, we

- Define research ambitions and scope
- Imagine/envision the landscape of what is possible
- Support, discuss, review and integrate individual contributions

Together as individuals we conduct the heads-down work that moves question answering forward. This might be reading papers to determine the most appropriate method to bring to bear on the question, or researching the data that is available, or understanding the technical requirements that we have to meet for this answer to be useful to our organization in real time.

What is your instructor *uniquely* capable of? Let them tell you! But, at the same time, what would they acknowledge that others are better than them?

See, the thing is, because there is so much that has to be done, there literally are very, very few people who are one-stop data science shops. Instead, teams rely on collaboration and joint expertise in order to get good work done.

### 7.4.2 The Problematic Psychology of Data Science

People talk about the *impostor syndrome*: a feeling of inadequacy or interloping that is sometimes also associated with a fear of under-performing relative to the expectation of others on the team. These emotions are common through data science, academics, computer science. But, these types of emotions are also commonplace in journalism, film-making, and public speaking.

Has anybody ever had the dream that they're late to a test? Or, that that they've got to give a speech that they're unprepared for? Does anybody remember playing an instrument as a kid and having to go to recitals? Or, play for a championship on a youth sports team? Or, go into a test two?

What are the feelings associated with those events? What might be generating these feelings?



#### 7.4.3 What Makes an Effective Team?

- This reading on *effective* teams summarizes academic research to argue:

What really matters to creating an effective team is less about who is on the team, and more about how the team works together.

In your live session, your section might take 7 minutes to read this brief. If so, please read the following sections:

- The problem statement;
- The proposed solution;
- The framework for team effectiveness, stopping at the section titled “*Tool: Help teams determine their own needs.*”

“Psychological safety refers to an individual’s perception of the consequences of taking an interpersonal risk. It is a belief that a team is safe for risk taking in the face of being seen as ignorant, incompetent, negative, or disruptive.”

“In a team with high psychological safety, teammates feel safe to take risks around their team members. They feel confident that no one on the team will embarrass or punish anyone else for admitting a mistake, asking a question, or offering a new idea.”

#### 7.4.4 We All Belong

- From your experience, can you give an example of taking a personal risk as part of a team?
  - Can you describe your emotions when contemplating this risk?
  - If you did take the risk, how did the reactions of your teammates affect you?
- Knowing the circumstances that generate feelings of anxiety – what steps can we take as a section, or a team, to recognize and respond to these circumstances?

How can you add to the psychological safety of your peers in the section and lab teammates?

## 7.5 Team Kick-Off

### Lab 1 Teams

- Here are teams for Lab 1!

### Team Kick-Off Conversation

- In a 10 minute breakout with your team, please discuss the following questions:
  1. How much time will you invest in the lab each week?
  2. How often will you meet and for how long?
  3. How will you discuss, review, and integrate individual work into the team deliverable?
  4. What do you see as the biggest risks when working on a team? How can you contribute to an effective team dynamic?

## 7.6 A Quick Review

### Review of Key Terms

- Define each of the following:
  - Population Parameter
  - Null Hypothesis
  - Test Statistic
  - Null Distribution

### Comparing Groups Review

Take a moment to recall the tests you learned this week. Here is a quick cheat-sheet to their key assumptions.

	paired/unpaired/metric	non-parametric
unpaired	<b>unpaired t-test</b> - metric var - i.i.d. - (not too un-)normal	<b>Wilcoxon rank-sum</b> ordinal var i.i.d.
paired	<b>paired t-test</b> metric var i.i.d. (not too un-)normal	<b>Wilcoxon signed-rank</b> metric var i.i.d. difference is symmetric <b>sign test</b> ordinal var i.i.d.

## 7.7 Rank Based Tests

Darrin Speegle has a nice talk-through, walk through of rank based testing procedures, linked here. We'll talk through a few examples of this, and then move to estimating against data for the class.

## 7.8 Comparing Groups R Exercise

The General Social Survey (GSS) is one of the longest running and extensive survey projects in the US. The full dataset includes over 1000 variables spanning demographics, attitudes, and behaviors. The file `GSS_w203.RData` contains a small selection of variables from the 2018 GSS.

To learn about each variable, you can enter it into the search bar at the GSS data explorer

```
load('data/GSS_w203.RData')
summary(GSS)

##          rincome          happy           sexnow
## $25000 or more: 851   very happy : 701   women      :758
## $20000 - 24999: 107   pretty happy :1307   man        :640
## $10000 - 14999:  94   not too happy: 336   transgender :  2
## $15000 - 19999:  61   DK          :  0   a gender not listed here:  1
## lt $1000       : 33   IAP         :  0   Don't know    :  0
## (Other)        : 169   NA          :  0   (Other)      :  0
## NA's          :1033   NA's        :  4   NA's        :947
##          wwwhr          emailhr          socrel
## Min.   : 0.00   Min.   : 0.000   sev times a week:382
## 1st Qu.: 3.00   1st Qu.: 0.000   sev times a mnth:287
## Median : 8.00   Median : 2.000   once a month   :259
## Mean   :13.91   Mean   : 7.152   sev times a year:240
## 3rd Qu.:20.00   3rd Qu.:10.000   almost daily    :217
## Max.   :140.00  Max.   :100.000  (Other)        :171
## NA's   :986     NA's   :929     NA's        :792
##          socommun          numpets          tvhours
## never       :510   Min.   : 0.000   Min.   : 0.000
## once a month :243   1st Qu.: 0.000   1st Qu.: 1.000
## sev times a week:219   Median : 1.000   Median : 2.000
## sev times a year:196   Mean   : 1.718   Mean   : 2.938
## sev times a mnth:174   3rd Qu.: 2.000   3rd Qu.: 4.000
## (Other)       :215   Max.   :20.000   Max.   :24.000
## NA's         :791   NA's   :1201    NA's   :793
##          major1          owngun
## business administration: 138   yes    :537
## education        : 79    no     :993
## engineering      : 54    refused: 39
## nursing          : 51    DK     :  0
## health           : 42    IAP    :  0
## (Other)          : 546   NA     :  0
## NA's            :1438   NA's   :779
```

You have a set of questions that you would like to answer with a statistical test.

**For each question:**

1. Choose the most appropriate test.
2. List and evaluate the assumptions for your test.
3. Conduct your test.
4. Discuss statistical and practical significance.

## 7.9 The Questions

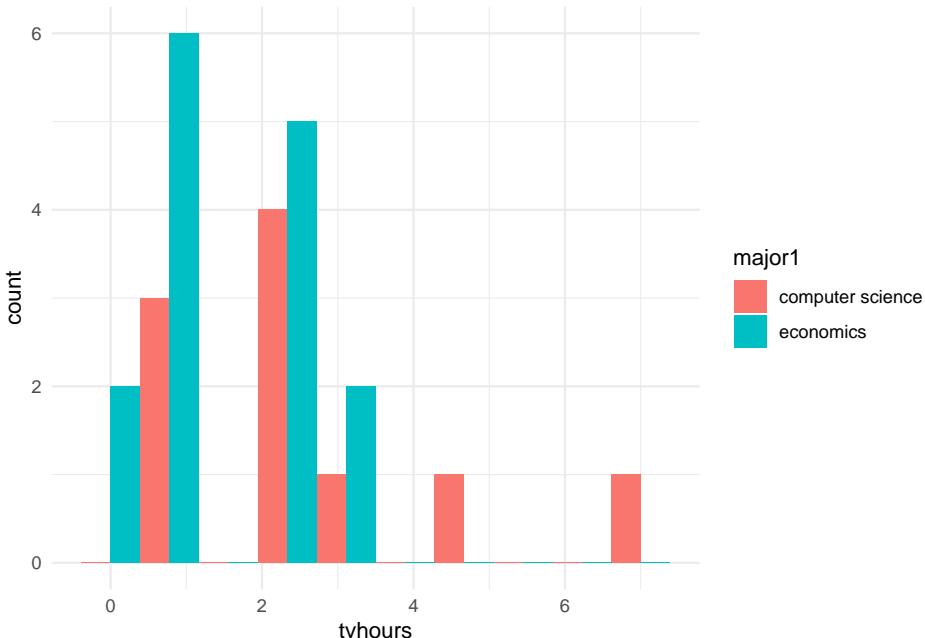
### 7.9.1 Set 1

- Do economics majors watch more or less TV than computer science majors?

GSS %>%

```
filter(major1 %in% c('computer science', 'economics')) %>%
  ggplot() +
  aes(x = tvhours, fill = major1) +
  geom_histogram(bins = 10, position = 'dodge')
```

```
## Warning: Removed 11 rows containing non-finite values (`stat_bin()`).
```



What kinds of tests *could* be reasonable to conduct? For what part of the data would we conduct these tests?

```
## The assumptions about the data drive us to the correct test.
## But, let's ask all the tests that could *possibly* make sense, and see how
##     matching or mis-matching assumptions changes what we learn.
```

```
## Answers are in the next chunk... but don't jump to them right away.
```

- Do Americans with pets watch more or less TV than Americans without pets?

### 7.9.2 Set 2

- Do Americans spend more time emailing or using the web?

```
GSS %>%
  select(wwwhr, emailhr) %>%
  drop_na() %$%
  t.test(x = wwwhr, y = emailhr, paired = TRUE)

## 
##  Paired t-test
##
##  data:  wwwhr and emailhr
##  t = 13.44, df = 1360, p-value < 2.2e-16
##  alternative hypothesis: true mean difference is not equal to 0
##  95 percent confidence interval:
##  5.530219 7.420553
##  sample estimates:
##  mean difference
##                  6.475386

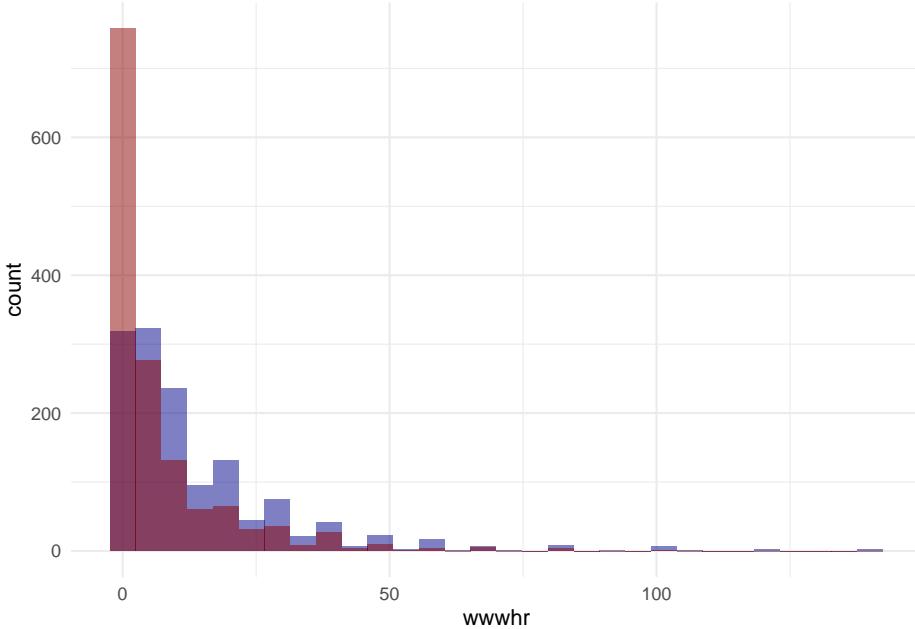
GSS %>%
  ggplot() +
  geom_histogram(aes(x = wwwhr), fill = 'darkblue', alpha = 0.5) +
  geom_histogram(aes(x = emailhr), fill = 'darkred', alpha = 0.5)

## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.

## Warning: Removed 986 rows containing non-finite values (`stat_bin()`).

## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.

## Warning: Removed 929 rows containing non-finite values (`stat_bin()`).
```



```
t.test(
  x = GSS$wwwhr,
  y = GSS$emailhr,
  paired = FALSE
)

## Welch Two Sample t-test
##
## data: GSS$wwwhr and GSS$emailhr
## t = 12.073, df = 2398.5, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  5.657397 7.851614
## sample estimates:
## mean of x mean of y
## 13.906021 7.151515
```

- Do Americans spend more evenings with neighbors or with relatives?

```
wilcox_test_data <- GSS %>%
  select(socrel, soccommun) %>%
  mutate(
    family_ordered = factor(
      x      = socrel,
      levels = c('almost daily', 'sev times a week',
```

```

'sev times a mnth', 'once a month',
'sev times a year', 'once a year', 'never')),
friends_ordered = factor(
  x      = soccommun,
  levels = c('almost daily', 'sev times a week',
            'sev times a mnth', 'once a month',
            'sev times a year', 'once a year', 'never'))
```

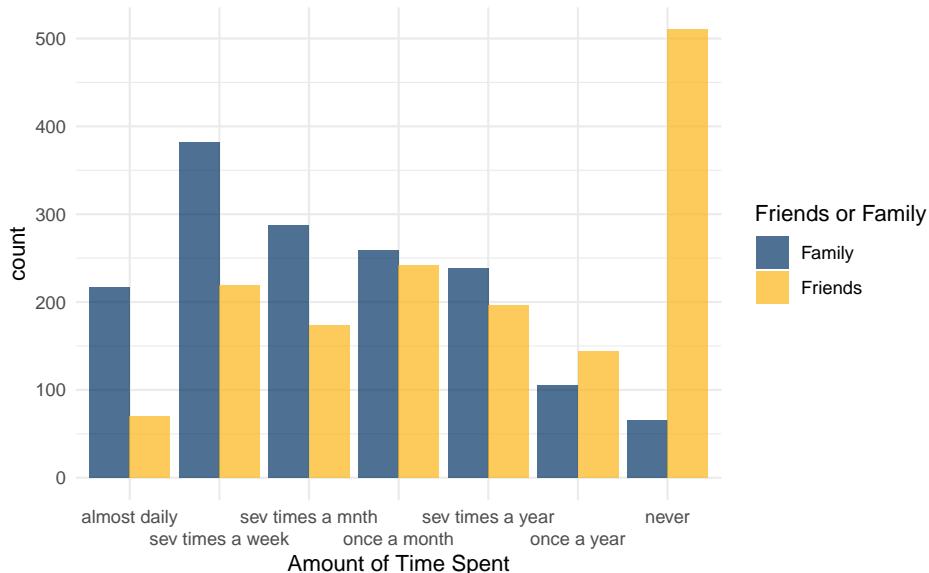
To begin this investigation, we've got to look at the data and see what is in it. If you look below, you'll note that it sure seems that people are spending more time with their family... erp, actually no. They're "hanging out" with their friends rather than taking their mother out to dinner.

```
wilcox_test_data %>%
  select(friends_ordered, family_ordered) %>%
  rename(
    Friends = friends_ordered,
    Family  = family_ordered
  ) %>%
  drop_na() %>%
  pivot_longer(cols = c(Friends, Family)) %>%
  ggplot() +
  aes(x=value, fill=name) +
  geom_histogram(stat='count', position='dodge', alpha=0.7) +
  scale_fill_manual(values = c('#003262', '#FDB515')) +
  labs(
    title     = 'Do Americans Spend Times With Friends or Family?',
    subtitle  = 'A cutting analysis.',
    fill      = 'Friends or Family',
    x         = 'Amount of Time Spent') +
  scale_x_discrete(guide = guide_axis(n.dodge = 2)) +
  theme_minimal()

## Warning in geom_histogram(stat = "count", position = "dodge", alpha = 0.7):
## Ignoring unknown parameters: `binwidth`, `bins`, and `pad`
```

### Do Americans Spend Times With Friends or Family?

A cutting analysis.



With this plot created, we can ask if what we observe in the plot is the produce of what could just be sampling error, or if this is something that was unlikely to arise due if the null hypothesis were true. What is the null hypothesis? Well, lets suppose that if we didn't know anything about the data that we would expect there to be no difference between the amount of time spent with friends or families.

```
## risky choice -- casting the factor to a numeric without checking what happens.
wilcox_test_data %$%
  wilcox.test(
    x = as.numeric(family_ordered),
    y = as.numeric(friends_ordered),
    paired = FALSE
  )

##
## Wilcoxon rank sum test with continuity correction
##
## data: as.numeric(family_ordered) and as.numeric(friends_ordered)
## W = 716676, p-value < 2.2e-16
## alternative hypothesis: true location shift is not equal to 0
```

#### 7.9.3 Set 3

- Are Americans that own guns or Americans that don't own guns more likely to have pets?

- Are Americans with pets happier than Americans without pets?

#### 7.9.4 Apply to a New Type of Data

- Is there a relationship between college major and gun ownership?

### 7.10 Simulating the Effects of Test Choices

```
theme_set(theme_minimal())

berkeley_blue    <- '#003262'
berkeley_gold   <- '#FDB515'
berkeley_sather <- '#B9D3B6'
```

#### 7.10.1 Should we use a t-test or a wilcox sign-rank?

There is some open discussion in the applied statistics literature about whether we should *ever* be using a t-test. In particular, if the underlying distribution that generates the data is **not** normal, than the assumptions of a t-test are not, technically satisfied and the test does not produce results that have nominal p-value coverage. This is both *technically* and *theoretically* true; and yet, researchers, data scientists, your instructors, and the entire world runs t-tests as “test of first recourse.”

What is the alternative to conducting a t-test as the test of first recourse? It might be the Wilcox test. The Wilcox test makes a weaker assumption – of symmetry around the mean or median – which is weaker than the assumption of normality.

Additional points of argument, which you will investigate in this worksheet:

- If the underlying data **is** normal, then the Wilcox test is *nearly* as well powered as the t-test.
- If the underlying data **is not** normal, then the Wilcox test still maintains nominal p-value coverage, whereas the t-test might lose this guarantee.

### 7.11

#### 7.11.1 The Poisson Distribution

The poisson distribution has the following PDF:

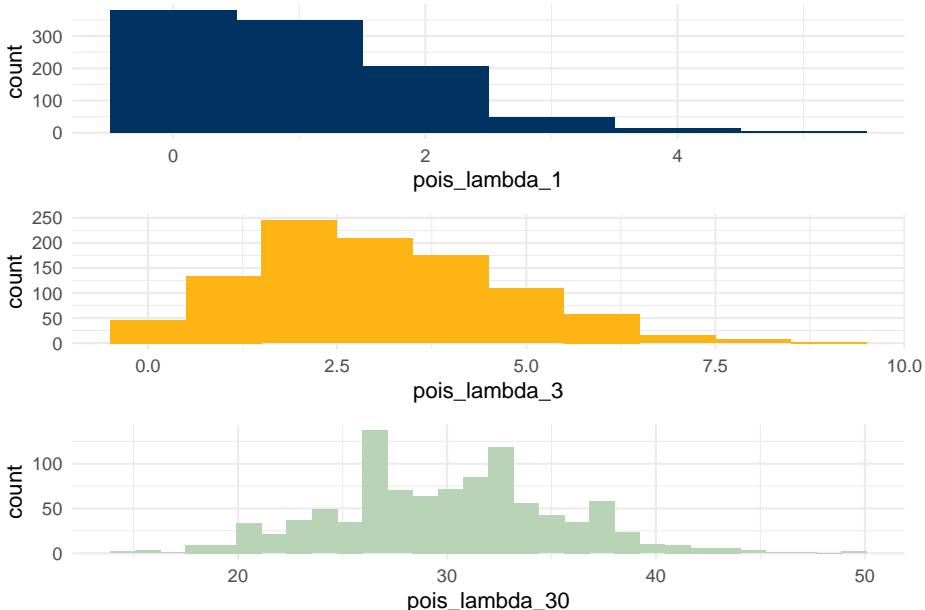
$$f_X(x) = \frac{\lambda^n e^{-\lambda}}{n!}$$

The key shape parameter for a poisson function is  $\lambda$ ; we show three different distributions, setting this shape parameter to be 1, 3, and 30 respectively. Notice that the limits on these plots are not set to be the same; for example, the range in the third plot is considerably larger than the first.

```
pois_lambda_1 <- rpois(n=1000, lambda=1)
pois_lambda_3 <- rpois(n=1000, lambda=3)
pois_lambda_30 <- rpois(n=1000, lambda=30)

plot_1 <- ggplot() + aes(x=pois_lambda_1) + geom_histogram(bins=6, fill = berkeley_blue)
plot_3 <- ggplot() + aes(x=pois_lambda_3) + geom_histogram(bins=10, fill = berkeley_gold)
plot_30 <- ggplot() + aes(x=pois_lambda_30) + geom_histogram(bins=30, fill = berkeley_sather)

plot_1 / plot_3 / plot_30
```



What does this changing distribution do to the p-values?

### 7.11.2 Write a Simulation

```
pois_sim <- function(num_observations, lambda_one, lambda_two) {
  t_test_result <- rep(NA, 10000)
  wilcox_result <- rep(NA, 10000)

  for(i in 1:10000) {
    group_one <- rpois(n=num_observations, lambda=lambda_one)
```

```

group_two <- rpois(n=num_observations, lambda=lambda_two)

t_test_result[i] <- t.test(group_one, group_two)$p.value
wilcox_result[i] <- wilcox.test(x=group_one, y=group_two)$p.value
}

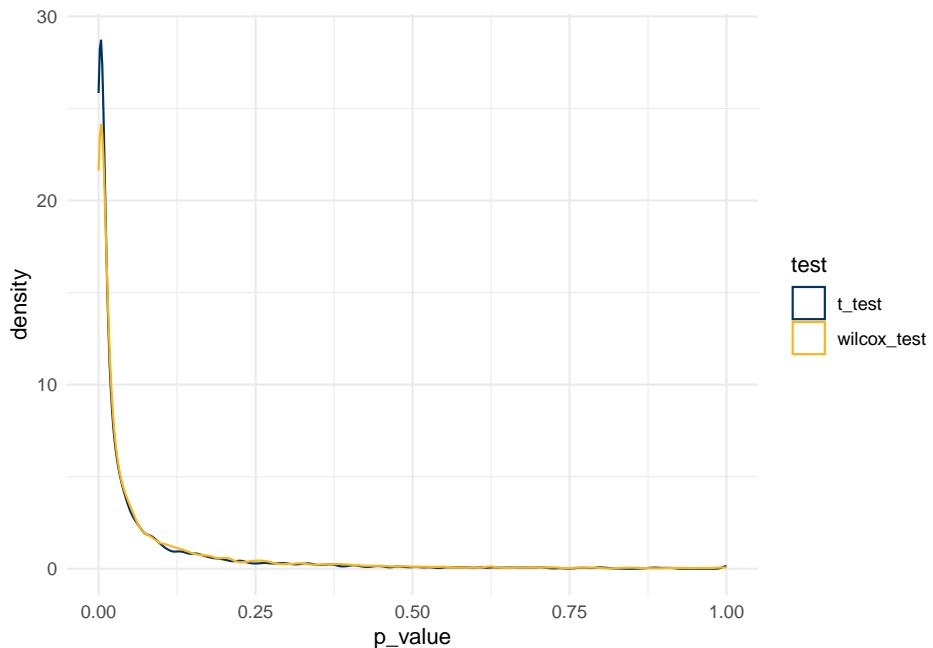
df <- data.table(
  p_value = c(t_test_result, wilcox_result),
  test     = rep(c('t_test', 'wilcox_test'), each = 10000)
)

return(df)
}

foo <- pois_sim(20, 1, 2.0)

foo %>%
  ggplot() +
  geom_density(aes(x=p_value, color = test)) +
  scale_color_manual(values = c(berkeley_blue, berkeley_gold))

```



And so, the simulation rejects the null at the following rates:

- For the t-test, at a rate of 0.0650033
- For the Wilcoxon test, at a rate of 0.0748107

```

skewed_sim <- function(num_sims=1000, num_observations, alpha_1, beta_1, alpha_2, beta_2) {

  t_test_result <- rep(NA, num_sims)
  wilcox_result <- rep(NA, num_sims)

  for(i in 1:num_sims) {
    group_one <- rbeta(n=num_observations, shape1 = alpha_1, shape2 = beta_1)
    group_two <- rbeta(n=num_observations, shape1 = alpha_2, shape2 = beta_2)

    t_test_result[i] <- t.test(group_one, group_two)$p.value
    wilcox_result[i] <- wilcox.test(x=group_one, y=group_two)$p.value
  }

  dt <- data.table(
    p_value = c(t_test_result, wilcox_result),
    test    = rep(c('t_test', 'wilcox_test'), each = num_sims)
  )
}

return(dt)
}

```

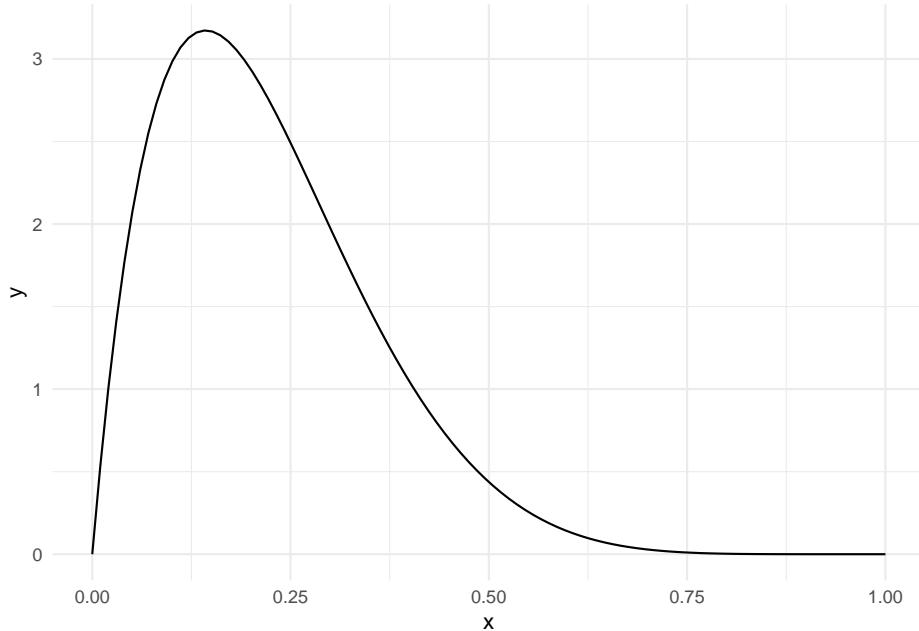
#### 7.11.4 False Rejection Rates

Start with a distribution that has parameters `alpha=2, beta=7`.

```

ggplot(data.frame(x=c(0,1)), aes(x)) +
  stat_function(fun = dbeta, n=100, args=list(shape1=2, shape2=7))

```



```

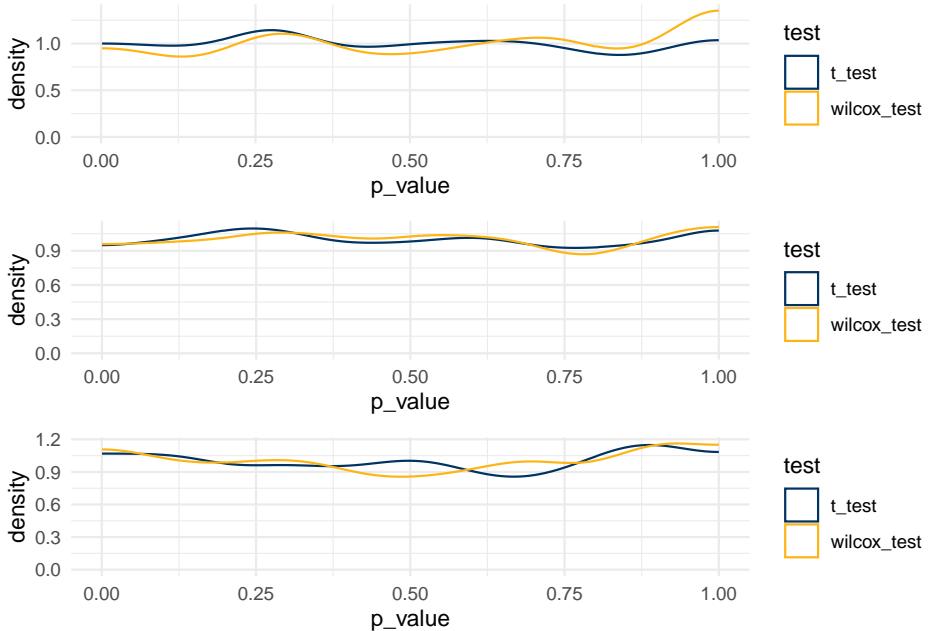
same_dist_small_data <- skewed_sim(
  num_observations=10,
  alpha_1=2, beta_1=7,
  alpha_2=2, beta_2=7
)
same_dist_med_data <- skewed_sim(
  num_observations=50,
  alpha_1=2, beta_1=7,
  alpha_2=2, beta_2=7
)
same_dist_big_data <- skewed_sim( # haha, "big data"
  num_observations=100,
  alpha_1=2, beta_1=7,
  alpha_2=2, beta_2=7
)

plot_1 <- same_dist_small_data %>%
  ggplot() +
  geom_density(aes(x=p_value, color = test), bounds=c(0,1)) +
  scale_color_manual(values = c(berkeley_blue, berkeley_gold))
plot_2 <- same_dist_med_data %>%
  ggplot() +
  geom_density(aes(x=p_value, color = test), bounds=c(0,1)) +
  scale_color_manual(values = c(berkeley_blue, berkeley_gold))
plot_3 <- same_dist_big_data %>%

```

```
ggplot() +
  geom_density(aes(x=p_value, color = test), bounds=c(0,1)) +
  scale_color_manual(values = c(berkeley_blue, berkeley_gold))
```

plot\_1 / plot\_2 / plot\_3



- T-tests
  - 0.055
  - 0.046
  - 0.056
- Wilcox Tests
  - 0.046
  - 0.048
  - 0.061

#### 7.11.5 What about Power to Reject

```
small_diff_small_data <- skewed_sim(
  num_observations=10,
  alpha_1=2, beta_1=7,
  alpha_2=2, beta_2=5
)
small_diff_med_data <- skewed_sim(
  num_observations=50,
```

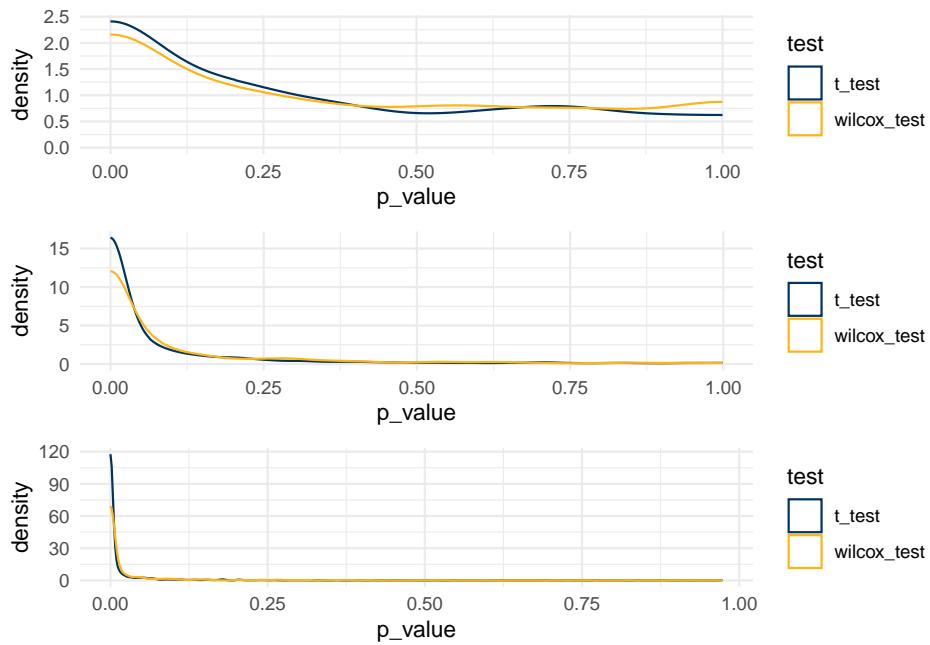
```

alpha_1=2, beta_1=7,
alpha_2=2, beta_2=5
)
small_diff_big_data <- skewed_sim( # haha, "big data"
  num_observations=100,
  alpha_1=2, beta_1=7,
  alpha_2=2, beta_2=5
)

plot_1 <- small_diff_small_data %>%
  ggplot() +
  geom_density(aes(x=p_value, color = test), bounds=c(0,1)) +
  scale_color_manual(values = c(berkeley_blue, berkeley_gold))
plot_2 <- small_diff_med_data %>%
  ggplot() +
  geom_density(aes(x=p_value, color = test), bounds=c(0,1)) +
  scale_color_manual(values = c(berkeley_blue, berkeley_gold))
plot_3 <- small_diff_big_data %>%
  ggplot() +
  geom_density(aes(x=p_value, color = test), bounds=c(0,1)) +
  scale_color_manual(values = c(berkeley_blue, berkeley_gold))

plot_1 / plot_2 / plot_3

```



### 7.11.6 Paired compared to unpaired tests

```

paired_sim <- function(num_sims=10000, num_observations, mean_one, mean_two, paired_diff, sd_one, sd_two) {
  unpaired_test_unpaired_data <- rep(NA, num_sims)
  unpaired_test_paired_data <- rep(NA, num_sims)
  paired_test_unpaired_data <- rep(NA, num_sims)
  paired_test_paired_data <- rep(NA, num_sims)

  for(i in 1:num_sims) {
    observation_a1 <- rnorm(n = num_observations, mean = mean_one, sd = sd_one)
    ## first create unpaired data
    observation_b <- rnorm(n = num_observations, mean = mean_two, sd = sd_two)
    ## then, create paired data
    observation_a2 <- observation_a1 + rnorm(n = num_observations, mean = paired_diff, sd=sd_two)

    ## run tests
    unpaired_test_unpaired_data[i] <- t.test(x=observation_a1, y=observation_b, paired=FALSE)$p.value
    unpaired_test_paired_data[i] <- t.test(x=observation_a1, y=observation_a2, paired=FALSE)$p.value
    paired_test_unpaired_data[i] <- t.test(x=observation_a1, y=observation_b, paired=TRUE)$p.value
    paired_test_paired_data[i] <- t.test(x=observation_a1, y=observation_a2, paired=TRUE)$p.value
  }

  dt <- data.table(
    p_value = c(unpaired_test_unpaired_data, unpaired_test_paired_data,
                paired_test_unpaired_data, paired_test_paired_data),
    test     = rep(c('unpaired data', 'unpaired test', 'paired data', 'unpaired test',
                   'unpaired data', 'paired test', 'paired data', 'paired test'), each = num_sims)
  )
}

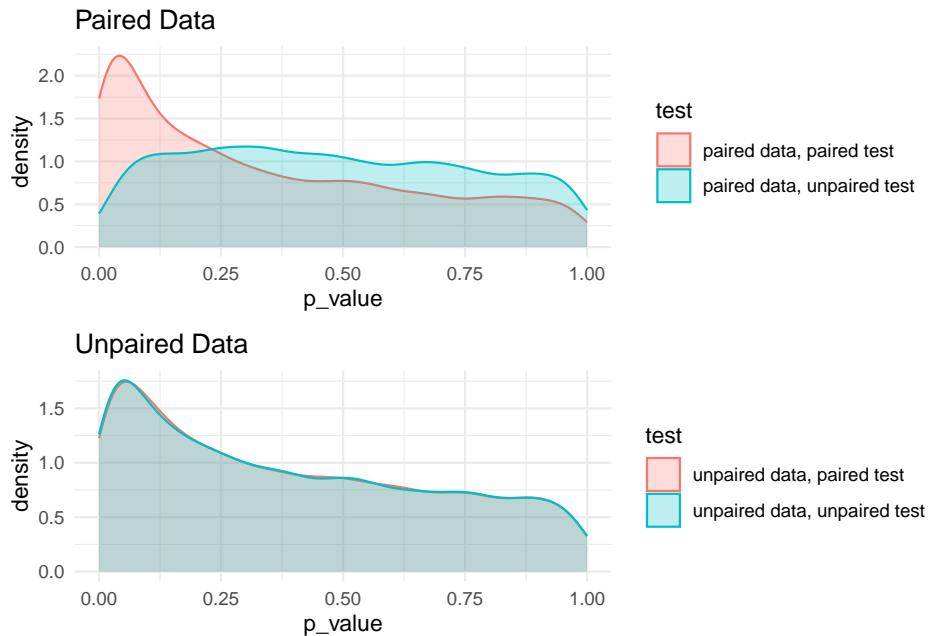
return(dt)
}

bar <- paired_sim(num_observations = 30, mean_one = 10, mean_two = 11, paired_diff = 1, sd_one = 2, sd_two = 3)

paired_data_plot <- bar[grep('unpaired data', test, invert=TRUE)] %>%
  ggplot() +
  aes(x=p_value, color = test, fill = test) +
  geom_density(alpha=0.25) +
  labs(title = 'Paired Data')
unpaired_data_plot <- bar[grep('unpaired data', test, invert=FALSE)] %>%
  ggplot() +
  aes(x=p_value, color = test, fill = test) +
  geom_density(alpha=0.25) +
  labs(title = 'Unpaired Data')

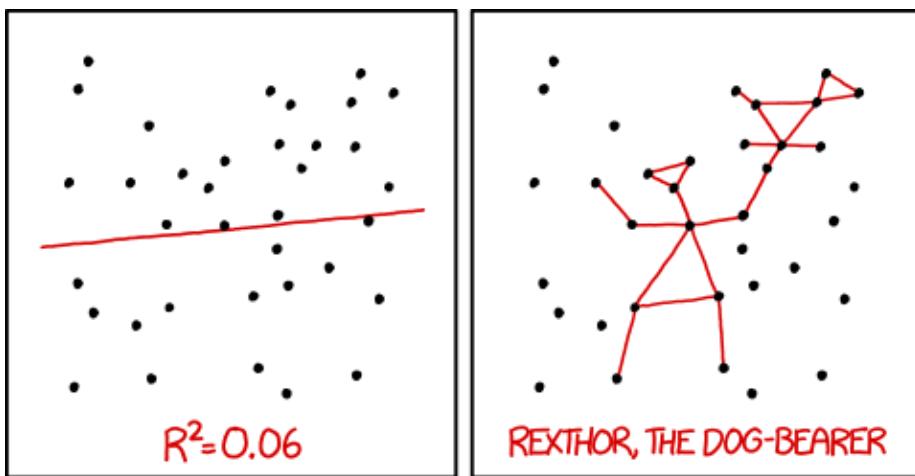
```

```
paired_data_plot / unpaired_data_plot
```



# Chapter 8

## OLS Regression Estimates



I DON'T TRUST LINEAR REGRESSIONS WHEN IT'S HARDER  
TO GUESS THE DIRECTION OF THE CORRELATION FROM THE  
SCATTER PLOT THAN TO FIND NEW CONSTELLATIONS ON IT.

```
library(tidyverse)
library(broom)
library(testthat)
library(patchwork)

theme_set(theme_minimal())
```

## 8.1 Learning Objectives

At the end of this week, students will be able to:

1. **Understand** the algorithm that produces the OLS regression estimates.
2. **Fit** regressions to produce estimates from a best linear predictor.
3. **Produce** predictions from this OLS regression that are informative about the population.

## 8.2 Class Announcements

1. Lab 1 is due next week!
2. There is not a “homework” assignment this week – instead you’re working on your group’s lab
3. You’re doing great - keep it up!

## 8.3 Roadmap

### Rear-View Mirror

- Statisticians create a population model to represent the world.
- Sometimes, the model includes an “outcome” random variable  $Y$  and “input” random variables  $X_1, X_2, \dots, X_k$ .
- The joint distribution of  $Y$  and  $X_1, X_2, \dots, X_k$  is complicated.
- The best linear predictor (BLP) is the canonical way to summarize the relationship.

### Today

- OLS regression is an estimator for the BLP
- We’ll discuss the *mechanics* of OLS

### Looking Ahead

- To make regression estimates useful, we need measures of uncertainty (standard errors, tests...).
- The process of building a regression model looks different, depending on whether the goal is prediction, description, or explanation.

## 8.4 Discussion Questions

Suppose we have random variables  $X$  and  $Y$ .

- Why do we care about the BLP?
- What assumptions are needed for OLS to consistently estimate the BLP?

## 8.5 Best Linear Predictor and OLS Regression as a Predictor

We've worked with this function last week: Suppose that random variables  $X$  and  $Y$  are jointly continuous, with joint density function given by,

$$f_{X,Y}(x,y) = \begin{cases} 2 - x - y, & 0 \leq x \leq 1; 0 \leq y \leq 1 \\ 0, & \text{otherwise} \end{cases}$$

With this function we have previously been able to calculate some quantities that we care about, specifically:

1. The covariance between  $X$  and  $Y$ , which we calculated to be:  $-1/144$ .
2. The variance of  $X$ , which we calculated to be  $11/144$ .

With the two of these, we were able to also write down the best linear predictor,

3. The  $\beta_{BLP} = Cov[X, Y]/Var[X] = (-1/144)/(11/144) = -1/11$ .
4.  $\alpha_{BLP} = E[Y] - \beta_{BLP}E[X] = (5/12) - (-1/11)(5/12) = 71/132$ . (Sorry for the ugly math...)

We wrote code that would sample from this PDF:

```
joint_pdf_1 <- function(x_input, y_input) {
  probs = 2 - x_input - y_input
  return(probs)
}
joint_pdf_1(x_input = .5, y_input = 0.5)

## [1] 1
```

This next step is the part that requires us to squint a little bit. We're going to create a "population" that has 1,000,000 observations in it, and we're going to sample from this population in a way that is governed by the joint pdf.

```
d <- data.frame(
  expand.grid(
    x = seq(from = 0, to = 1, length.out = 1000),
    y = seq(from = 0, to = 1, length.out = 1000))) |>
  mutate(prob = joint_pdf_1(x_input = x, y_input = y))
d

##           x         y     prob
## 1 0.000000000 0.000000000 2.000000
## 2 0.001001001 0.000000000 1.998999
## 3 0.002002002 0.000000000 1.997998
## 4 0.003003003 0.000000000 1.996997
## 5 0.004004004 0.000000000 1.995996
## 6 0.005005005 0.000000000 1.994995
```

```

## 7 0.006006006 0.000000000 1.993994
## 8 0.007007007 0.000000000 1.992993
## 9 0.008008008 0.000000000 1.991992
## 10 0.009009009 0.000000000 1.990991
## 11 0.010010010 0.000000000 1.989990
## 12 0.011011011 0.000000000 1.988989
## 13 0.012012012 0.000000000 1.987988
## 14 0.013013013 0.000000000 1.986987
## 15 0.014014014 0.000000000 1.985986
## 16 0.015015015 0.000000000 1.984985
## 17 0.016016016 0.000000000 1.983984
## 18 0.017017017 0.000000000 1.982983
## 19 0.018018018 0.000000000 1.981982
## 20 0.019019019 0.000000000 1.980981
## 21 0.020020020 0.000000000 1.979980
## 22 0.021021021 0.000000000 1.978979
## 23 0.022022022 0.000000000 1.977978
## 24 0.023023023 0.000000000 1.976977
## 25 0.024024024 0.000000000 1.975976
## 26 0.025025025 0.000000000 1.974975
## 27 0.026026026 0.000000000 1.973974
## 28 0.027027027 0.000000000 1.972973
## 29 0.028028028 0.000000000 1.971972
## 30 0.029029029 0.000000000 1.970971
## 31 0.030030030 0.000000000 1.969970
## 32 0.031031031 0.000000000 1.968969
## 33 0.032032032 0.000000000 1.967968
## 34 0.033033033 0.000000000 1.966967
## 35 0.034034034 0.000000000 1.965966
## 36 0.035035035 0.000000000 1.964965
## 37 0.036036036 0.000000000 1.963964
## 38 0.037037037 0.000000000 1.962963
## 39 0.038038038 0.000000000 1.961962
## 40 0.039039039 0.000000000 1.960961
## 41 0.040040040 0.000000000 1.959960
## 42 0.041041041 0.000000000 1.958959
## 43 0.042042042 0.000000000 1.957958
## 44 0.043043043 0.000000000 1.956957
## 45 0.044044044 0.000000000 1.955956
## 46 0.045045045 0.000000000 1.954955
## 47 0.046046046 0.000000000 1.953954
## 48 0.047047047 0.000000000 1.952953
## 49 0.048048048 0.000000000 1.951952
## 50 0.049049049 0.000000000 1.950951
## 51 0.050050050 0.000000000 1.949950
## 52 0.051051051 0.000000000 1.948949

```

```

## 53 0.052052052 0.000000000 1.947948
## 54 0.053053053 0.000000000 1.946947
## 55 0.054054054 0.000000000 1.945946
## 56 0.055055055 0.000000000 1.944945
## 57 0.056056056 0.000000000 1.943944
## 58 0.057057057 0.000000000 1.942943
## 59 0.058058058 0.000000000 1.941942
## 60 0.059059059 0.000000000 1.940941
## 61 0.060060060 0.000000000 1.939940
## 62 0.061061061 0.000000000 1.938939
## 63 0.062062062 0.000000000 1.937938
## 64 0.063063063 0.000000000 1.936937
## 65 0.064064064 0.000000000 1.935936
## 66 0.065065065 0.000000000 1.934935
## 67 0.066066066 0.000000000 1.933934
## 68 0.067067067 0.000000000 1.932933
## 69 0.068068068 0.000000000 1.931932
## 70 0.069069069 0.000000000 1.930931
## 71 0.070070070 0.000000000 1.929930
## 72 0.071071071 0.000000000 1.928929
## 73 0.072072072 0.000000000 1.927928
## 74 0.073073073 0.000000000 1.926927
## 75 0.074074074 0.000000000 1.925926
## 76 0.075075075 0.000000000 1.924925
## 77 0.076076076 0.000000000 1.923924
## 78 0.077077077 0.000000000 1.922923
## 79 0.078078078 0.000000000 1.921922
## 80 0.079079079 0.000000000 1.920921
## 81 0.080080080 0.000000000 1.919920
## 82 0.081081081 0.000000000 1.918919
## 83 0.082082082 0.000000000 1.917918
## 84 0.083083083 0.000000000 1.916917
## 85 0.084084084 0.000000000 1.915916
## 86 0.085085085 0.000000000 1.914915
## 87 0.086086086 0.000000000 1.913914
## 88 0.087087087 0.000000000 1.912913
## 89 0.088088088 0.000000000 1.911912
## 90 0.089089089 0.000000000 1.910911
## 91 0.090090090 0.000000000 1.909910
## 92 0.091091091 0.000000000 1.908909
## 93 0.092092092 0.000000000 1.907908
## 94 0.093093093 0.000000000 1.906907
## 95 0.094094094 0.000000000 1.905906
## 96 0.095095095 0.000000000 1.904905
## 97 0.096096096 0.000000000 1.903904
## 98 0.097097097 0.000000000 1.902903

```

```
## 99    0.098098098 0.000000000 1.901902
## 100   0.099099099 0.000000000 1.900901
## 101   0.100100100 0.000000000 1.899900
## 102   0.101101101 0.000000000 1.898899
## 103   0.102102102 0.000000000 1.897898
## 104   0.103103103 0.000000000 1.896897
## 105   0.104104104 0.000000000 1.895896
## 106   0.105105105 0.000000000 1.894895
## 107   0.106106106 0.000000000 1.893894
## 108   0.107107107 0.000000000 1.892893
## 109   0.108108108 0.000000000 1.891892
## 110   0.109109109 0.000000000 1.890891
## 111   0.110110110 0.000000000 1.889890
## 112   0.111111111 0.000000000 1.888889
## 113   0.112112112 0.000000000 1.887888
## 114   0.113113113 0.000000000 1.886887
## 115   0.114114114 0.000000000 1.885886
## 116   0.115115115 0.000000000 1.884885
## 117   0.116116116 0.000000000 1.883884
## 118   0.117117117 0.000000000 1.882883
## 119   0.118118118 0.000000000 1.881882
## 120   0.119119119 0.000000000 1.880881
## 121   0.120120120 0.000000000 1.879880
## 122   0.121121121 0.000000000 1.878879
## 123   0.122122122 0.000000000 1.877878
## 124   0.123123123 0.000000000 1.876877
## 125   0.124124124 0.000000000 1.875876
## 126   0.125125125 0.000000000 1.874875
## 127   0.126126126 0.000000000 1.873874
## 128   0.127127127 0.000000000 1.872873
## 129   0.128128128 0.000000000 1.871872
## 130   0.129129129 0.000000000 1.870871
## 131   0.130130130 0.000000000 1.869870
## 132   0.131131131 0.000000000 1.868869
## 133   0.132132132 0.000000000 1.867868
## 134   0.133133133 0.000000000 1.866867
## 135   0.134134134 0.000000000 1.865866
## 136   0.135135135 0.000000000 1.864865
## 137   0.136136136 0.000000000 1.863864
## 138   0.137137137 0.000000000 1.862863
## 139   0.138138138 0.000000000 1.861862
## 140   0.139139139 0.000000000 1.860861
## 141   0.140140140 0.000000000 1.859860
## 142   0.141141141 0.000000000 1.858859
## 143   0.142142142 0.000000000 1.857858
## 144   0.143143143 0.000000000 1.856857
```

```

## 145 0.144144144 0.000000000 1.855856
## 146 0.145145145 0.000000000 1.854855
## 147 0.146146146 0.000000000 1.853854
## 148 0.147147147 0.000000000 1.852853
## 149 0.148148148 0.000000000 1.851852
## 150 0.149149149 0.000000000 1.850851
## 151 0.150150150 0.000000000 1.849850
## 152 0.151151151 0.000000000 1.848849
## 153 0.152152152 0.000000000 1.847848
## 154 0.153153153 0.000000000 1.846847
## 155 0.154154154 0.000000000 1.845846
## 156 0.155155155 0.000000000 1.844845
## 157 0.156156156 0.000000000 1.843844
## 158 0.157157157 0.000000000 1.842843
## 159 0.158158158 0.000000000 1.841842
## 160 0.159159159 0.000000000 1.840841
## 161 0.160160160 0.000000000 1.839840
## 162 0.161161161 0.000000000 1.838839
## 163 0.162162162 0.000000000 1.837838
## 164 0.163163163 0.000000000 1.836837
## 165 0.164164164 0.000000000 1.835836
## 166 0.165165165 0.000000000 1.834835
## 167 0.166166166 0.000000000 1.833834
## 168 0.167167167 0.000000000 1.832833
## 169 0.168168168 0.000000000 1.831832
## 170 0.169169169 0.000000000 1.830831
## 171 0.170170170 0.000000000 1.829830
## 172 0.171171171 0.000000000 1.828829
## 173 0.172172172 0.000000000 1.827828
## 174 0.173173173 0.000000000 1.826827
## 175 0.174174174 0.000000000 1.825826
## 176 0.175175175 0.000000000 1.824825
## 177 0.176176176 0.000000000 1.823824
## 178 0.177177177 0.000000000 1.822823
## 179 0.178178178 0.000000000 1.821822
## 180 0.179179179 0.000000000 1.820821
## 181 0.180180180 0.000000000 1.819820
## 182 0.181181181 0.000000000 1.818819
## 183 0.182182182 0.000000000 1.817818
## 184 0.183183183 0.000000000 1.816817
## 185 0.184184184 0.000000000 1.815816
## 186 0.185185185 0.000000000 1.814815
## 187 0.186186186 0.000000000 1.813814
## 188 0.187187187 0.000000000 1.812813
## 189 0.188188188 0.000000000 1.811812
## 190 0.189189189 0.000000000 1.810811

```

```
## 191 0.190190190 0.000000000 1.809810
## 192 0.191191191 0.000000000 1.808809
## 193 0.192192192 0.000000000 1.807808
## 194 0.193193193 0.000000000 1.806807
## 195 0.194194194 0.000000000 1.805806
## 196 0.195195195 0.000000000 1.804805
## 197 0.196196196 0.000000000 1.803804
## 198 0.197197197 0.000000000 1.802803
## 199 0.198198198 0.000000000 1.801802
## 200 0.199199199 0.000000000 1.800801
## 201 0.200200200 0.000000000 1.799800
## 202 0.201201201 0.000000000 1.798799
## 203 0.202202202 0.000000000 1.797798
## 204 0.203203203 0.000000000 1.796797
## 205 0.204204204 0.000000000 1.795796
## 206 0.205205205 0.000000000 1.794795
## 207 0.206206206 0.000000000 1.793794
## 208 0.207207207 0.000000000 1.792793
## 209 0.208208208 0.000000000 1.791792
## 210 0.209209209 0.000000000 1.790791
## 211 0.210210210 0.000000000 1.789790
## 212 0.211211211 0.000000000 1.788789
## 213 0.212212212 0.000000000 1.787788
## 214 0.213213213 0.000000000 1.786787
## 215 0.214214214 0.000000000 1.785786
## 216 0.215215215 0.000000000 1.784785
## 217 0.216216216 0.000000000 1.783784
## 218 0.217217217 0.000000000 1.782783
## 219 0.218218218 0.000000000 1.781782
## 220 0.219219219 0.000000000 1.780781
## 221 0.220220220 0.000000000 1.779780
## 222 0.221221221 0.000000000 1.778779
## 223 0.222222222 0.000000000 1.777778
## 224 0.223223223 0.000000000 1.776777
## 225 0.224224224 0.000000000 1.775776
## 226 0.225225225 0.000000000 1.774775
## 227 0.226226226 0.000000000 1.773774
## 228 0.227227227 0.000000000 1.772773
## 229 0.228228228 0.000000000 1.771772
## 230 0.229229229 0.000000000 1.770771
## 231 0.230230230 0.000000000 1.769770
## 232 0.231231231 0.000000000 1.768769
## 233 0.232232232 0.000000000 1.767768
## 234 0.233233233 0.000000000 1.766767
## 235 0.234234234 0.000000000 1.765766
## 236 0.235235235 0.000000000 1.764765
```

```

## 237 0.236236236 0.000000000 1.763764
## 238 0.237237237 0.000000000 1.762763
## 239 0.238238238 0.000000000 1.761762
## 240 0.239239239 0.000000000 1.760761
## 241 0.240240240 0.000000000 1.759760
## 242 0.241241241 0.000000000 1.758759
## 243 0.242242242 0.000000000 1.757758
## 244 0.243243243 0.000000000 1.756757
## 245 0.244244244 0.000000000 1.755756
## 246 0.245245245 0.000000000 1.754755
## 247 0.246246246 0.000000000 1.753754
## 248 0.247247247 0.000000000 1.752753
## 249 0.248248248 0.000000000 1.751752
## 250 0.249249249 0.000000000 1.750751
## 251 0.250250250 0.000000000 1.749750
## 252 0.251251251 0.000000000 1.748749
## 253 0.252252252 0.000000000 1.747748
## 254 0.253253253 0.000000000 1.746747
## 255 0.254254254 0.000000000 1.745746
## 256 0.255255255 0.000000000 1.744745
## 257 0.256256256 0.000000000 1.743744
## 258 0.257257257 0.000000000 1.742743
## 259 0.258258258 0.000000000 1.741742
## 260 0.259259259 0.000000000 1.740741
## 261 0.260260260 0.000000000 1.739740
## 262 0.261261261 0.000000000 1.738739
## 263 0.262262262 0.000000000 1.737738
## 264 0.263263263 0.000000000 1.736737
## 265 0.264264264 0.000000000 1.735736
## 266 0.265265265 0.000000000 1.734735
## 267 0.266266266 0.000000000 1.733734
## 268 0.267267267 0.000000000 1.732733
## 269 0.268268268 0.000000000 1.731732
## 270 0.269269269 0.000000000 1.730731
## 271 0.270270270 0.000000000 1.729730
## 272 0.271271271 0.000000000 1.728729
## 273 0.272272272 0.000000000 1.727728
## 274 0.273273273 0.000000000 1.726727
## 275 0.274274274 0.000000000 1.725726
## 276 0.275275275 0.000000000 1.724725
## 277 0.276276276 0.000000000 1.723724
## 278 0.277277277 0.000000000 1.722723
## 279 0.278278278 0.000000000 1.721722
## 280 0.279279279 0.000000000 1.720721
## 281 0.280280280 0.000000000 1.719720
## 282 0.281281281 0.000000000 1.718719

```

```

## 283 0.282282282 0.000000000 1.717718
## 284 0.283283283 0.000000000 1.716717
## 285 0.284284284 0.000000000 1.715716
## 286 0.285285285 0.000000000 1.714715
## 287 0.286286286 0.000000000 1.713714
## 288 0.287287287 0.000000000 1.712713
## 289 0.288288288 0.000000000 1.711712
## 290 0.289289289 0.000000000 1.710711
## 291 0.290290290 0.000000000 1.709710
## 292 0.291291291 0.000000000 1.708709
## 293 0.292292292 0.000000000 1.707708
## 294 0.293293293 0.000000000 1.706707
## 295 0.294294294 0.000000000 1.705706
## 296 0.295295295 0.000000000 1.704705
## 297 0.296296296 0.000000000 1.703704
## 298 0.297297297 0.000000000 1.702703
## 299 0.298298298 0.000000000 1.701702
## 300 0.299299299 0.000000000 1.700701
## 301 0.300300300 0.000000000 1.699700
## 302 0.301301301 0.000000000 1.698699
## 303 0.302302302 0.000000000 1.697698
## 304 0.303303303 0.000000000 1.696697
## 305 0.304304304 0.000000000 1.695696
## 306 0.305305305 0.000000000 1.694695
## 307 0.306306306 0.000000000 1.693694
## 308 0.307307307 0.000000000 1.692693
## 309 0.308308308 0.000000000 1.691692
## 310 0.309309309 0.000000000 1.690691
## 311 0.310310310 0.000000000 1.689690
## 312 0.311311311 0.000000000 1.688689
## 313 0.312312312 0.000000000 1.687688
## 314 0.313313313 0.000000000 1.686687
## 315 0.314314314 0.000000000 1.685686
## 316 0.315315315 0.000000000 1.684685
## 317 0.316316316 0.000000000 1.683684
## 318 0.317317317 0.000000000 1.682683
## 319 0.318318318 0.000000000 1.681682
## 320 0.319319319 0.000000000 1.680681
## 321 0.320320320 0.000000000 1.679680
## 322 0.321321321 0.000000000 1.678679
## 323 0.322322322 0.000000000 1.677678
## 324 0.323323323 0.000000000 1.676677
## 325 0.324324324 0.000000000 1.675676
## 326 0.325325325 0.000000000 1.674675
## 327 0.326326326 0.000000000 1.673674
## 328 0.327327327 0.000000000 1.672673

```

```

## 329  0.328328328 0.000000000 1.671672
## 330  0.329329329 0.000000000 1.670671
## 331  0.330330330 0.000000000 1.669670
## 332  0.331331331 0.000000000 1.668669
## 333  0.332332332 0.000000000 1.667668
## 334  0.333333333 0.000000000 1.666667
## 335  0.334334334 0.000000000 1.665666
## 336  0.335335335 0.000000000 1.664665
## 337  0.336336336 0.000000000 1.663664
## 338  0.337337337 0.000000000 1.662663
## 339  0.338338338 0.000000000 1.661662
## 340  0.339339339 0.000000000 1.660661
## 341  0.340340340 0.000000000 1.659660
## 342  0.341341341 0.000000000 1.658659
## 343  0.342342342 0.000000000 1.657658
## 344  0.343343343 0.000000000 1.656657
## 345  0.344344344 0.000000000 1.655656
## 346  0.345345345 0.000000000 1.654655
## 347  0.346346346 0.000000000 1.653654
## 348  0.347347347 0.000000000 1.652653
## 349  0.348348348 0.000000000 1.651652
## 350  0.349349349 0.000000000 1.650651
## 351  0.350350350 0.000000000 1.649650
## 352  0.351351351 0.000000000 1.648649
## 353  0.352352352 0.000000000 1.647648
## 354  0.353353353 0.000000000 1.646647
## 355  0.354354354 0.000000000 1.645646
## 356  0.355355355 0.000000000 1.644645
## 357  0.356356356 0.000000000 1.643644
## 358  0.357357357 0.000000000 1.642643
## 359  0.358358358 0.000000000 1.641642
## 360  0.359359359 0.000000000 1.640641
## 361  0.360360360 0.000000000 1.639640
## 362  0.361361361 0.000000000 1.638639
## 363  0.362362362 0.000000000 1.637638
## 364  0.363363363 0.000000000 1.636637
## 365  0.364364364 0.000000000 1.635636
## 366  0.365365365 0.000000000 1.634635
## 367  0.366366366 0.000000000 1.633634
## 368  0.367367367 0.000000000 1.632633
## 369  0.368368368 0.000000000 1.631632
## 370  0.369369369 0.000000000 1.630631
## 371  0.370370370 0.000000000 1.629630
## 372  0.371371371 0.000000000 1.628629
## 373  0.372372372 0.000000000 1.627628
## 374  0.373373373 0.000000000 1.626627

```

```

## 375 0.374374374 0.000000000 1.625626
## 376 0.375375375 0.000000000 1.624625
## 377 0.376376376 0.000000000 1.623624
## 378 0.377377377 0.000000000 1.622623
## 379 0.378378378 0.000000000 1.621622
## 380 0.379379379 0.000000000 1.620621
## 381 0.380380380 0.000000000 1.619620
## 382 0.381381381 0.000000000 1.618619
## 383 0.382382382 0.000000000 1.617618
## 384 0.383383383 0.000000000 1.616617
## 385 0.384384384 0.000000000 1.615616
## 386 0.385385385 0.000000000 1.614615
## 387 0.386386386 0.000000000 1.613614
## 388 0.387387387 0.000000000 1.612613
## 389 0.388388388 0.000000000 1.611612
## 390 0.389389389 0.000000000 1.610611
## 391 0.390390390 0.000000000 1.609610
## 392 0.391391391 0.000000000 1.608609
## 393 0.392392392 0.000000000 1.607608
## 394 0.393393393 0.000000000 1.606607
## 395 0.394394394 0.000000000 1.605606
## 396 0.395395395 0.000000000 1.604605
## 397 0.396396396 0.000000000 1.603604
## 398 0.397397397 0.000000000 1.602603
## 399 0.398398398 0.000000000 1.601602
## 400 0.399399399 0.000000000 1.600601
## 401 0.400400400 0.000000000 1.599600
## 402 0.401401401 0.000000000 1.598599
## 403 0.402402402 0.000000000 1.597598
## 404 0.403403403 0.000000000 1.596597
## 405 0.404404404 0.000000000 1.595596
## 406 0.405405405 0.000000000 1.594595
## 407 0.406406406 0.000000000 1.593594
## 408 0.407407407 0.000000000 1.592593
## 409 0.408408408 0.000000000 1.591592
## 410 0.409409409 0.000000000 1.590591
## 411 0.410410410 0.000000000 1.589590
## 412 0.411411411 0.000000000 1.588589
## 413 0.412412412 0.000000000 1.587588
## 414 0.413413413 0.000000000 1.586587
## 415 0.414414414 0.000000000 1.585586
## 416 0.415415415 0.000000000 1.584585
## 417 0.416416416 0.000000000 1.583584
## 418 0.417417417 0.000000000 1.582583
## 419 0.418418418 0.000000000 1.581582
## 420 0.419419419 0.000000000 1.580581

```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 121

```

## 421 0.420420420 0.000000000 1.579580
## 422 0.421421421 0.000000000 1.578579
## 423 0.422422422 0.000000000 1.577578
## 424 0.423423423 0.000000000 1.576577
## 425 0.424424424 0.000000000 1.575576
## 426 0.425425425 0.000000000 1.574575
## 427 0.426426426 0.000000000 1.573574
## 428 0.427427427 0.000000000 1.572573
## 429 0.428428428 0.000000000 1.571572
## 430 0.429429429 0.000000000 1.570571
## 431 0.430430430 0.000000000 1.569570
## 432 0.431431431 0.000000000 1.568569
## 433 0.432432432 0.000000000 1.567568
## 434 0.433433433 0.000000000 1.566567
## 435 0.434434434 0.000000000 1.565566
## 436 0.435435435 0.000000000 1.564565
## 437 0.436436436 0.000000000 1.563564
## 438 0.437437437 0.000000000 1.562563
## 439 0.438438438 0.000000000 1.561562
## 440 0.439439439 0.000000000 1.560561
## 441 0.440440440 0.000000000 1.559560
## 442 0.441441441 0.000000000 1.558559
## 443 0.442442442 0.000000000 1.557558
## 444 0.443443443 0.000000000 1.556557
## 445 0.444444444 0.000000000 1.555556
## 446 0.445445445 0.000000000 1.554555
## 447 0.446446446 0.000000000 1.553554
## 448 0.447447447 0.000000000 1.552553
## 449 0.448448448 0.000000000 1.551552
## 450 0.449449449 0.000000000 1.550551
## 451 0.450450450 0.000000000 1.549550
## 452 0.451451451 0.000000000 1.548549
## 453 0.452452452 0.000000000 1.547548
## 454 0.453453453 0.000000000 1.546547
## 455 0.454454454 0.000000000 1.545546
## 456 0.455455455 0.000000000 1.544545
## 457 0.456456456 0.000000000 1.543544
## 458 0.457457457 0.000000000 1.542543
## 459 0.458458458 0.000000000 1.541542
## 460 0.459459459 0.000000000 1.540541
## 461 0.460460460 0.000000000 1.539540
## 462 0.461461461 0.000000000 1.538539
## 463 0.462462462 0.000000000 1.537538
## 464 0.463463463 0.000000000 1.536537
## 465 0.464464464 0.000000000 1.535536
## 466 0.465465465 0.000000000 1.534535

```

```

## 467 0.466466466 0.000000000 1.533534
## 468 0.467467467 0.000000000 1.532533
## 469 0.468468468 0.000000000 1.531532
## 470 0.469469469 0.000000000 1.530531
## 471 0.470470470 0.000000000 1.529530
## 472 0.471471471 0.000000000 1.528529
## 473 0.472472472 0.000000000 1.527528
## 474 0.473473473 0.000000000 1.526527
## 475 0.474474474 0.000000000 1.525526
## 476 0.475475475 0.000000000 1.524525
## 477 0.476476476 0.000000000 1.523524
## 478 0.477477477 0.000000000 1.522523
## 479 0.478478478 0.000000000 1.521522
## 480 0.479479479 0.000000000 1.520521
## 481 0.480480480 0.000000000 1.519520
## 482 0.481481481 0.000000000 1.518519
## 483 0.482482482 0.000000000 1.517518
## 484 0.483483483 0.000000000 1.516517
## 485 0.484484484 0.000000000 1.515516
## 486 0.485485485 0.000000000 1.514515
## 487 0.486486486 0.000000000 1.513514
## 488 0.487487487 0.000000000 1.512513
## 489 0.488488488 0.000000000 1.511512
## 490 0.489489489 0.000000000 1.510511
## 491 0.490490490 0.000000000 1.509510
## 492 0.491491491 0.000000000 1.508509
## 493 0.492492492 0.000000000 1.507508
## 494 0.493493493 0.000000000 1.506507
## 495 0.494494494 0.000000000 1.505506
## 496 0.495495495 0.000000000 1.504505
## 497 0.496496496 0.000000000 1.503504
## 498 0.497497497 0.000000000 1.502503
## 499 0.498498498 0.000000000 1.501502
## 500 0.499499499 0.000000000 1.500501
## 501 0.500500501 0.000000000 1.499499
## 502 0.501501502 0.000000000 1.498498
## 503 0.502502503 0.000000000 1.497497
## 504 0.503503504 0.000000000 1.496496
## 505 0.504504505 0.000000000 1.495495
## 506 0.505505506 0.000000000 1.494494
## 507 0.506506507 0.000000000 1.493493
## 508 0.507507508 0.000000000 1.492492
## 509 0.508508509 0.000000000 1.491491
## 510 0.509509510 0.000000000 1.490490
## 511 0.510510511 0.000000000 1.489489
## 512 0.511511512 0.000000000 1.488488

```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR123

```

## 513  0.512512513 0.000000000 1.487487
## 514  0.513513514 0.000000000 1.486486
## 515  0.514514515 0.000000000 1.485485
## 516  0.515515516 0.000000000 1.484484
## 517  0.516516517 0.000000000 1.483483
## 518  0.517517518 0.000000000 1.482482
## 519  0.518518519 0.000000000 1.481481
## 520  0.519519520 0.000000000 1.480480
## 521  0.520520521 0.000000000 1.479479
## 522  0.521521522 0.000000000 1.478478
## 523  0.522522523 0.000000000 1.477477
## 524  0.523523524 0.000000000 1.476476
## 525  0.524524525 0.000000000 1.475475
## 526  0.525525526 0.000000000 1.474474
## 527  0.526526527 0.000000000 1.473473
## 528  0.527527528 0.000000000 1.472472
## 529  0.528528529 0.000000000 1.471471
## 530  0.529529530 0.000000000 1.470470
## 531  0.530530531 0.000000000 1.469469
## 532  0.531531532 0.000000000 1.468468
## 533  0.532532533 0.000000000 1.467467
## 534  0.533533534 0.000000000 1.466466
## 535  0.534534535 0.000000000 1.465465
## 536  0.535535536 0.000000000 1.464464
## 537  0.536536537 0.000000000 1.463463
## 538  0.537537538 0.000000000 1.462462
## 539  0.538538539 0.000000000 1.461461
## 540  0.539539540 0.000000000 1.460460
## 541  0.540540541 0.000000000 1.459459
## 542  0.541541542 0.000000000 1.458458
## 543  0.542542543 0.000000000 1.457457
## 544  0.543543544 0.000000000 1.456456
## 545  0.544544545 0.000000000 1.455455
## 546  0.545545546 0.000000000 1.454454
## 547  0.546546547 0.000000000 1.453453
## 548  0.547547548 0.000000000 1.452452
## 549  0.548548549 0.000000000 1.451451
## 550  0.549549550 0.000000000 1.450450
## 551  0.550550551 0.000000000 1.449449
## 552  0.551551552 0.000000000 1.448448
## 553  0.552552553 0.000000000 1.447447
## 554  0.553553554 0.000000000 1.446446
## 555  0.554554555 0.000000000 1.445445
## 556  0.555555556 0.000000000 1.444444
## 557  0.556556557 0.000000000 1.443443
## 558  0.557557558 0.000000000 1.442442

```

```
## 559  0.558558559 0.000000000 1.441441
## 560  0.559559560 0.000000000 1.440440
## 561  0.560560561 0.000000000 1.439439
## 562  0.561561562 0.000000000 1.438438
## 563  0.562562563 0.000000000 1.437437
## 564  0.563563564 0.000000000 1.436436
## 565  0.564564565 0.000000000 1.435435
## 566  0.565565566 0.000000000 1.434434
## 567  0.566566567 0.000000000 1.433433
## 568  0.567567568 0.000000000 1.432432
## 569  0.568568569 0.000000000 1.431431
## 570  0.569569570 0.000000000 1.430430
## 571  0.570570571 0.000000000 1.429429
## 572  0.571571572 0.000000000 1.428428
## 573  0.572572573 0.000000000 1.427427
## 574  0.573573574 0.000000000 1.426426
## 575  0.574574575 0.000000000 1.425425
## 576  0.575575576 0.000000000 1.424424
## 577  0.576576577 0.000000000 1.423423
## 578  0.577577578 0.000000000 1.422422
## 579  0.578578579 0.000000000 1.421421
## 580  0.579579580 0.000000000 1.420420
## 581  0.580580581 0.000000000 1.419419
## 582  0.581581582 0.000000000 1.418418
## 583  0.582582583 0.000000000 1.417417
## 584  0.583583584 0.000000000 1.416416
## 585  0.584584585 0.000000000 1.415415
## 586  0.585585586 0.000000000 1.414414
## 587  0.586586587 0.000000000 1.413413
## 588  0.587587588 0.000000000 1.412412
## 589  0.588588589 0.000000000 1.411411
## 590  0.589589590 0.000000000 1.410410
## 591  0.590590591 0.000000000 1.409409
## 592  0.591591592 0.000000000 1.408408
## 593  0.592592593 0.000000000 1.407407
## 594  0.593593594 0.000000000 1.406406
## 595  0.594594595 0.000000000 1.405405
## 596  0.595595596 0.000000000 1.404404
## 597  0.596596597 0.000000000 1.403403
## 598  0.597597598 0.000000000 1.402402
## 599  0.598598599 0.000000000 1.401401
## 600  0.599599600 0.000000000 1.400400
## 601  0.600600601 0.000000000 1.399399
## 602  0.601601602 0.000000000 1.398398
## 603  0.602602603 0.000000000 1.397397
## 604  0.603603604 0.000000000 1.396396
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR125

```

## 605 0.604604605 0.000000000 1.395395
## 606 0.605605606 0.000000000 1.394394
## 607 0.606606607 0.000000000 1.393393
## 608 0.607607608 0.000000000 1.392392
## 609 0.608608609 0.000000000 1.391391
## 610 0.609609610 0.000000000 1.390390
## 611 0.610610611 0.000000000 1.389389
## 612 0.611611612 0.000000000 1.388388
## 613 0.612612613 0.000000000 1.387387
## 614 0.613613614 0.000000000 1.386386
## 615 0.614614615 0.000000000 1.385385
## 616 0.615615616 0.000000000 1.384384
## 617 0.616616617 0.000000000 1.383383
## 618 0.617617618 0.000000000 1.382382
## 619 0.618618619 0.000000000 1.381381
## 620 0.619619620 0.000000000 1.380380
## 621 0.620620621 0.000000000 1.379379
## 622 0.621621622 0.000000000 1.378378
## 623 0.622622623 0.000000000 1.377377
## 624 0.623623624 0.000000000 1.376376
## 625 0.624624625 0.000000000 1.375375
## 626 0.625625626 0.000000000 1.374374
## 627 0.626626627 0.000000000 1.373373
## 628 0.627627628 0.000000000 1.372372
## 629 0.628628629 0.000000000 1.371371
## 630 0.629629630 0.000000000 1.370370
## 631 0.630630631 0.000000000 1.369369
## 632 0.631631632 0.000000000 1.368368
## 633 0.632632633 0.000000000 1.367367
## 634 0.6336333634 0.000000000 1.366366
## 635 0.634634635 0.000000000 1.365365
## 636 0.635635636 0.000000000 1.364364
## 637 0.636636637 0.000000000 1.363363
## 638 0.637637638 0.000000000 1.362362
## 639 0.638638639 0.000000000 1.361361
## 640 0.639639640 0.000000000 1.360360
## 641 0.640640641 0.000000000 1.359359
## 642 0.641641642 0.000000000 1.358358
## 643 0.642642643 0.000000000 1.357357
## 644 0.643643644 0.000000000 1.356356
## 645 0.644644645 0.000000000 1.355355
## 646 0.645645646 0.000000000 1.354354
## 647 0.646646647 0.000000000 1.353353
## 648 0.647647648 0.000000000 1.352352
## 649 0.648648649 0.000000000 1.351351
## 650 0.649649650 0.000000000 1.350350

```

```
## 651 0.650650651 0.000000000 1.349349
## 652 0.651651652 0.000000000 1.348348
## 653 0.652652653 0.000000000 1.347347
## 654 0.653653654 0.000000000 1.346346
## 655 0.654654655 0.000000000 1.345345
## 656 0.655655656 0.000000000 1.344344
## 657 0.656656657 0.000000000 1.343343
## 658 0.657657658 0.000000000 1.342342
## 659 0.658658659 0.000000000 1.341341
## 660 0.659659660 0.000000000 1.340340
## 661 0.660660661 0.000000000 1.339339
## 662 0.661661662 0.000000000 1.338338
## 663 0.662662663 0.000000000 1.337337
## 664 0.663663664 0.000000000 1.336336
## 665 0.664664665 0.000000000 1.335335
## 666 0.665665666 0.000000000 1.334334
## 667 0.666666667 0.000000000 1.333333
## 668 0.667667668 0.000000000 1.332332
## 669 0.668668669 0.000000000 1.331331
## 670 0.669669670 0.000000000 1.330330
## 671 0.670670671 0.000000000 1.329329
## 672 0.671671672 0.000000000 1.328328
## 673 0.672672673 0.000000000 1.327327
## 674 0.673673674 0.000000000 1.326326
## 675 0.674674675 0.000000000 1.325325
## 676 0.675675676 0.000000000 1.324324
## 677 0.676676677 0.000000000 1.323323
## 678 0.677677678 0.000000000 1.322322
## 679 0.678678679 0.000000000 1.321321
## 680 0.679679680 0.000000000 1.320320
## 681 0.680680681 0.000000000 1.319319
## 682 0.681681682 0.000000000 1.318318
## 683 0.682682683 0.000000000 1.317317
## 684 0.683683684 0.000000000 1.316316
## 685 0.684684685 0.000000000 1.315315
## 686 0.685685686 0.000000000 1.314314
## 687 0.686686687 0.000000000 1.313313
## 688 0.687687688 0.000000000 1.312312
## 689 0.688688689 0.000000000 1.311311
## 690 0.689689690 0.000000000 1.310310
## 691 0.690690691 0.000000000 1.309309
## 692 0.691691692 0.000000000 1.308308
## 693 0.692692693 0.000000000 1.307307
## 694 0.693693694 0.000000000 1.306306
## 695 0.694694695 0.000000000 1.305305
## 696 0.695695696 0.000000000 1.304304
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR127

```

## 697 0.696696697 0.000000000 1.303303
## 698 0.697697698 0.000000000 1.302302
## 699 0.698698699 0.000000000 1.301301
## 700 0.699699700 0.000000000 1.300300
## 701 0.700700701 0.000000000 1.299299
## 702 0.701701702 0.000000000 1.298298
## 703 0.702702703 0.000000000 1.297297
## 704 0.703703704 0.000000000 1.296296
## 705 0.704704705 0.000000000 1.295295
## 706 0.705705706 0.000000000 1.294294
## 707 0.706706707 0.000000000 1.293293
## 708 0.707707708 0.000000000 1.292292
## 709 0.708708709 0.000000000 1.291291
## 710 0.709709710 0.000000000 1.290290
## 711 0.710710711 0.000000000 1.289289
## 712 0.711711712 0.000000000 1.288288
## 713 0.712712713 0.000000000 1.287287
## 714 0.713713714 0.000000000 1.286286
## 715 0.714714715 0.000000000 1.285285
## 716 0.715715716 0.000000000 1.284284
## 717 0.716716717 0.000000000 1.283283
## 718 0.717717718 0.000000000 1.282282
## 719 0.718718719 0.000000000 1.281281
## 720 0.719719720 0.000000000 1.280280
## 721 0.720720721 0.000000000 1.279279
## 722 0.721721722 0.000000000 1.278278
## 723 0.722722723 0.000000000 1.277277
## 724 0.723723724 0.000000000 1.276276
## 725 0.724724725 0.000000000 1.275275
## 726 0.725725726 0.000000000 1.274274
## 727 0.726726727 0.000000000 1.273273
## 728 0.727727728 0.000000000 1.272272
## 729 0.728728729 0.000000000 1.271271
## 730 0.729729730 0.000000000 1.270270
## 731 0.730730731 0.000000000 1.269269
## 732 0.731731732 0.000000000 1.268268
## 733 0.732732733 0.000000000 1.267267
## 734 0.733733734 0.000000000 1.266266
## 735 0.734734735 0.000000000 1.265265
## 736 0.735735736 0.000000000 1.264264
## 737 0.736736737 0.000000000 1.263263
## 738 0.737737738 0.000000000 1.262262
## 739 0.738738739 0.000000000 1.261261
## 740 0.739739740 0.000000000 1.260260
## 741 0.740740741 0.000000000 1.259259
## 742 0.741741742 0.000000000 1.258258

```

```

## 743 0.742742743 0.000000000 1.257257
## 744 0.743743744 0.000000000 1.256256
## 745 0.744744745 0.000000000 1.255255
## 746 0.745745746 0.000000000 1.254254
## 747 0.746746747 0.000000000 1.253253
## 748 0.747747748 0.000000000 1.252252
## 749 0.748748749 0.000000000 1.251251
## 750 0.749749750 0.000000000 1.250250
## 751 0.750750751 0.000000000 1.249249
## 752 0.751751752 0.000000000 1.248248
## 753 0.752752753 0.000000000 1.247247
## 754 0.753753754 0.000000000 1.246246
## 755 0.754754755 0.000000000 1.245245
## 756 0.755755756 0.000000000 1.244244
## 757 0.756756757 0.000000000 1.243243
## 758 0.757757758 0.000000000 1.242242
## 759 0.758758759 0.000000000 1.241241
## 760 0.759759760 0.000000000 1.240240
## 761 0.760760761 0.000000000 1.239239
## 762 0.761761762 0.000000000 1.238238
## 763 0.762762763 0.000000000 1.237237
## 764 0.763763764 0.000000000 1.236236
## 765 0.764764765 0.000000000 1.235235
## 766 0.765765766 0.000000000 1.234234
## 767 0.766766767 0.000000000 1.233233
## 768 0.767767768 0.000000000 1.232232
## 769 0.768768769 0.000000000 1.231231
## 770 0.769769770 0.000000000 1.230230
## 771 0.770770771 0.000000000 1.229229
## 772 0.771771772 0.000000000 1.228228
## 773 0.772772773 0.000000000 1.227227
## 774 0.773773774 0.000000000 1.226226
## 775 0.774774775 0.000000000 1.225225
## 776 0.775775776 0.000000000 1.224224
## 777 0.776776777 0.000000000 1.223223
## 778 0.777777778 0.000000000 1.222222
## 779 0.778778779 0.000000000 1.221221
## 780 0.779779780 0.000000000 1.220220
## 781 0.780780781 0.000000000 1.219219
## 782 0.781781782 0.000000000 1.218218
## 783 0.782782783 0.000000000 1.217217
## 784 0.783783784 0.000000000 1.216216
## 785 0.784784785 0.000000000 1.215215
## 786 0.785785786 0.000000000 1.214214
## 787 0.786786787 0.000000000 1.213213
## 788 0.787787788 0.000000000 1.212212

```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR129

```

## 789  0.788788789 0.000000000 1.211211
## 790  0.789789790 0.000000000 1.210210
## 791  0.790790791 0.000000000 1.209209
## 792  0.791791792 0.000000000 1.208208
## 793  0.792792793 0.000000000 1.207207
## 794  0.793793794 0.000000000 1.206206
## 795  0.794794795 0.000000000 1.205205
## 796  0.795795796 0.000000000 1.204204
## 797  0.796796797 0.000000000 1.203203
## 798  0.797797798 0.000000000 1.202202
## 799  0.798798799 0.000000000 1.201201
## 800  0.799799800 0.000000000 1.200200
## 801  0.800800801 0.000000000 1.199199
## 802  0.801801802 0.000000000 1.198198
## 803  0.802802803 0.000000000 1.197197
## 804  0.803803804 0.000000000 1.196196
## 805  0.804804805 0.000000000 1.195195
## 806  0.805805806 0.000000000 1.194194
## 807  0.806806807 0.000000000 1.193193
## 808  0.807807808 0.000000000 1.192192
## 809  0.808808809 0.000000000 1.191191
## 810  0.809809810 0.000000000 1.190190
## 811  0.810810811 0.000000000 1.189189
## 812  0.811811812 0.000000000 1.188188
## 813  0.812812813 0.000000000 1.187187
## 814  0.813813814 0.000000000 1.186186
## 815  0.814814815 0.000000000 1.185185
## 816  0.815815816 0.000000000 1.184184
## 817  0.816816817 0.000000000 1.183183
## 818  0.817817818 0.000000000 1.182182
## 819  0.818818819 0.000000000 1.181181
## 820  0.819819820 0.000000000 1.180180
## 821  0.820820821 0.000000000 1.179179
## 822  0.821821822 0.000000000 1.178178
## 823  0.822822823 0.000000000 1.177177
## 824  0.823823824 0.000000000 1.176176
## 825  0.824824825 0.000000000 1.175175
## 826  0.825825826 0.000000000 1.174174
## 827  0.826826827 0.000000000 1.173173
## 828  0.827827828 0.000000000 1.172172
## 829  0.828828829 0.000000000 1.171171
## 830  0.829829830 0.000000000 1.170170
## 831  0.830830831 0.000000000 1.169169
## 832  0.831831832 0.000000000 1.168168
## 833  0.832832833 0.000000000 1.167167
## 834  0.833833834 0.000000000 1.166166

```

```

## 835 0.834834835 0.000000000 1.165165
## 836 0.835835836 0.000000000 1.164164
## 837 0.836836837 0.000000000 1.163163
## 838 0.837837838 0.000000000 1.162162
## 839 0.838838839 0.000000000 1.161161
## 840 0.839839840 0.000000000 1.160160
## 841 0.840840841 0.000000000 1.159159
## 842 0.841841842 0.000000000 1.158158
## 843 0.842842843 0.000000000 1.157157
## 844 0.843843844 0.000000000 1.156156
## 845 0.844844845 0.000000000 1.155155
## 846 0.845845846 0.000000000 1.154154
## 847 0.846846847 0.000000000 1.153153
## 848 0.847847848 0.000000000 1.152152
## 849 0.848848849 0.000000000 1.151151
## 850 0.849849850 0.000000000 1.150150
## 851 0.850850851 0.000000000 1.149149
## 852 0.851851852 0.000000000 1.148148
## 853 0.852852853 0.000000000 1.147147
## 854 0.853853854 0.000000000 1.146146
## 855 0.854854855 0.000000000 1.145145
## 856 0.8558555856 0.000000000 1.144144
## 857 0.856856857 0.000000000 1.143143
## 858 0.857857858 0.000000000 1.142142
## 859 0.858858859 0.000000000 1.141141
## 860 0.859859860 0.000000000 1.140140
## 861 0.860860861 0.000000000 1.139139
## 862 0.861861862 0.000000000 1.138138
## 863 0.862862863 0.000000000 1.137137
## 864 0.863863864 0.000000000 1.136136
## 865 0.864864865 0.000000000 1.135135
## 866 0.865865866 0.000000000 1.134134
## 867 0.866866867 0.000000000 1.133133
## 868 0.867867868 0.000000000 1.132132
## 869 0.868868869 0.000000000 1.131131
## 870 0.869869870 0.000000000 1.130130
## 871 0.870870871 0.000000000 1.129129
## 872 0.871871872 0.000000000 1.128128
## 873 0.872872873 0.000000000 1.127127
## 874 0.873873874 0.000000000 1.126126
## 875 0.874874875 0.000000000 1.125125
## 876 0.875875876 0.000000000 1.124124
## 877 0.876876877 0.000000000 1.123123
## 878 0.877877878 0.000000000 1.122122
## 879 0.878878879 0.000000000 1.121121
## 880 0.879879880 0.000000000 1.120120

```

```

## 881 0.880880881 0.000000000 1.119119
## 882 0.881881882 0.000000000 1.118118
## 883 0.882882883 0.000000000 1.117117
## 884 0.883883884 0.000000000 1.116116
## 885 0.884884885 0.000000000 1.115115
## 886 0.885885886 0.000000000 1.114114
## 887 0.886886887 0.000000000 1.113113
## 888 0.887887888 0.000000000 1.112112
## 889 0.888888889 0.000000000 1.111111
## 890 0.889889890 0.000000000 1.110110
## 891 0.890890891 0.000000000 1.109109
## 892 0.891891892 0.000000000 1.108108
## 893 0.892892893 0.000000000 1.107107
## 894 0.893893894 0.000000000 1.106106
## 895 0.894894895 0.000000000 1.105105
## 896 0.895895896 0.000000000 1.104104
## 897 0.896896897 0.000000000 1.103103
## 898 0.897897898 0.000000000 1.102102
## 899 0.898898899 0.000000000 1.101101
## 900 0.899899900 0.000000000 1.100100
## 901 0.900900901 0.000000000 1.099099
## 902 0.901901902 0.000000000 1.098098
## 903 0.902902903 0.000000000 1.097097
## 904 0.903903904 0.000000000 1.096096
## 905 0.904904905 0.000000000 1.095095
## 906 0.905905906 0.000000000 1.094094
## 907 0.906906907 0.000000000 1.093093
## 908 0.907907908 0.000000000 1.092092
## 909 0.908908909 0.000000000 1.091091
## 910 0.909909910 0.000000000 1.090090
## 911 0.910910911 0.000000000 1.089089
## 912 0.911911912 0.000000000 1.088088
## 913 0.912912913 0.000000000 1.087087
## 914 0.913913914 0.000000000 1.086086
## 915 0.914914915 0.000000000 1.085085
## 916 0.915915916 0.000000000 1.084084
## 917 0.916916917 0.000000000 1.083083
## 918 0.917917918 0.000000000 1.082082
## 919 0.918918919 0.000000000 1.081081
## 920 0.919919920 0.000000000 1.080080
## 921 0.920920921 0.000000000 1.079079
## 922 0.921921922 0.000000000 1.078078
## 923 0.922922923 0.000000000 1.077077
## 924 0.923923924 0.000000000 1.076076
## 925 0.924924925 0.000000000 1.075075
## 926 0.925925926 0.000000000 1.074074

```

```
## 927  0.926926927 0.000000000 1.073073
## 928  0.927927928 0.000000000 1.072072
## 929  0.928928929 0.000000000 1.071071
## 930  0.929929930 0.000000000 1.070070
## 931  0.930930931 0.000000000 1.069069
## 932  0.931931932 0.000000000 1.068068
## 933  0.932932933 0.000000000 1.067067
## 934  0.933933934 0.000000000 1.066066
## 935  0.934934935 0.000000000 1.065065
## 936  0.935935936 0.000000000 1.064064
## 937  0.936936937 0.000000000 1.063063
## 938  0.937937938 0.000000000 1.062062
## 939  0.938938939 0.000000000 1.061061
## 940  0.939939940 0.000000000 1.060060
## 941  0.940940941 0.000000000 1.059059
## 942  0.941941942 0.000000000 1.058058
## 943  0.942942943 0.000000000 1.057057
## 944  0.943943944 0.000000000 1.056056
## 945  0.944944945 0.000000000 1.055055
## 946  0.945945946 0.000000000 1.054054
## 947  0.946946947 0.000000000 1.053053
## 948  0.947947948 0.000000000 1.052052
## 949  0.948948949 0.000000000 1.051051
## 950  0.949949950 0.000000000 1.050050
## 951  0.950950951 0.000000000 1.049049
## 952  0.951951952 0.000000000 1.048048
## 953  0.952952953 0.000000000 1.047047
## 954  0.953953954 0.000000000 1.046046
## 955  0.954954955 0.000000000 1.045045
## 956  0.955955956 0.000000000 1.044044
## 957  0.956956957 0.000000000 1.043043
## 958  0.957957958 0.000000000 1.042042
## 959  0.958958959 0.000000000 1.041041
## 960  0.959959960 0.000000000 1.040040
## 961  0.960960961 0.000000000 1.039039
## 962  0.961961962 0.000000000 1.038038
## 963  0.962962963 0.000000000 1.037037
## 964  0.963963964 0.000000000 1.036036
## 965  0.964964965 0.000000000 1.035035
## 966  0.965965966 0.000000000 1.034034
## 967  0.966966967 0.000000000 1.033033
## 968  0.967967968 0.000000000 1.032032
## 969  0.968968969 0.000000000 1.031031
## 970  0.969969970 0.000000000 1.030030
## 971  0.970970971 0.000000000 1.029029
## 972  0.971971972 0.000000000 1.028028
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 133

```
## 973  0.972972973 0.000000000 1.027027
## 974  0.973973974 0.000000000 1.026026
## 975  0.974974975 0.000000000 1.025025
## 976  0.975975976 0.000000000 1.024024
## 977  0.976976977 0.000000000 1.023023
## 978  0.977977978 0.000000000 1.022022
## 979  0.978978979 0.000000000 1.021021
## 980  0.979979980 0.000000000 1.020020
## 981  0.980980981 0.000000000 1.019019
## 982  0.981981982 0.000000000 1.018018
## 983  0.982982983 0.000000000 1.017017
## 984  0.983983984 0.000000000 1.016016
## 985  0.984984985 0.000000000 1.015015
## 986  0.985985986 0.000000000 1.014014
## 987  0.986986987 0.000000000 1.013013
## 988  0.987987988 0.000000000 1.012012
## 989  0.988988989 0.000000000 1.011011
## 990  0.989989990 0.000000000 1.010010
## 991  0.990990991 0.000000000 1.009009
## 992  0.991991992 0.000000000 1.008008
## 993  0.992992993 0.000000000 1.007007
## 994  0.993993994 0.000000000 1.006006
## 995  0.994994995 0.000000000 1.005005
## 996  0.995995996 0.000000000 1.004004
## 997  0.996996997 0.000000000 1.003003
## 998  0.997997998 0.000000000 1.002002
## 999  0.998998999 0.000000000 1.001001
## 1000 1.000000000 0.000000000 1.000000
## 1001 0.000000000 0.001001001 1.998999
## 1002 0.001001001 0.001001001 1.997998
## 1003 0.002002002 0.001001001 1.996997
## 1004 0.003003003 0.001001001 1.995996
## 1005 0.004004004 0.001001001 1.994995
## 1006 0.005005005 0.001001001 1.993994
## 1007 0.006006006 0.001001001 1.992993
## 1008 0.007007007 0.001001001 1.991992
## 1009 0.008008008 0.001001001 1.990991
## 1010 0.009009009 0.001001001 1.989990
## 1011 0.010010010 0.001001001 1.988989
## 1012 0.011011011 0.001001001 1.987988
## 1013 0.012012012 0.001001001 1.986987
## 1014 0.013013013 0.001001001 1.985986
## 1015 0.014014014 0.001001001 1.984985
## 1016 0.015015015 0.001001001 1.983984
## 1017 0.016016016 0.001001001 1.982983
## 1018 0.017017017 0.001001001 1.981982
```

```
## 1019  0.018018018 0.001001001 1.980981
## 1020  0.019019019 0.001001001 1.979980
## 1021  0.020020020 0.001001001 1.978979
## 1022  0.021021021 0.001001001 1.977978
## 1023  0.022022022 0.001001001 1.976977
## 1024  0.023023023 0.001001001 1.975976
## 1025  0.024024024 0.001001001 1.974975
## 1026  0.025025025 0.001001001 1.973974
## 1027  0.026026026 0.001001001 1.972973
## 1028  0.027027027 0.001001001 1.971972
## 1029  0.028028028 0.001001001 1.970971
## 1030  0.029029029 0.001001001 1.969970
## 1031  0.030030030 0.001001001 1.968969
## 1032  0.031031031 0.001001001 1.967968
## 1033  0.032032032 0.001001001 1.966967
## 1034  0.033033033 0.001001001 1.965966
## 1035  0.034034034 0.001001001 1.964965
## 1036  0.035035035 0.001001001 1.963964
## 1037  0.036036036 0.001001001 1.962963
## 1038  0.037037037 0.001001001 1.961962
## 1039  0.038038038 0.001001001 1.960961
## 1040  0.039039039 0.001001001 1.959960
## 1041  0.040040040 0.001001001 1.958959
## 1042  0.041041041 0.001001001 1.957958
## 1043  0.042042042 0.001001001 1.956957
## 1044  0.043043043 0.001001001 1.955956
## 1045  0.044044044 0.001001001 1.954955
## 1046  0.045045045 0.001001001 1.953954
## 1047  0.046046046 0.001001001 1.952953
## 1048  0.047047047 0.001001001 1.951952
## 1049  0.048048048 0.001001001 1.950951
## 1050  0.049049049 0.001001001 1.949950
## 1051  0.050050050 0.001001001 1.948949
## 1052  0.051051051 0.001001001 1.947948
## 1053  0.052052052 0.001001001 1.946947
## 1054  0.053053053 0.001001001 1.945946
## 1055  0.054054054 0.001001001 1.944945
## 1056  0.055055055 0.001001001 1.943944
## 1057  0.056056056 0.001001001 1.942943
## 1058  0.057057057 0.001001001 1.941942
## 1059  0.058058058 0.001001001 1.940941
## 1060  0.059059059 0.001001001 1.939940
## 1061  0.060060060 0.001001001 1.938939
## 1062  0.061061061 0.001001001 1.937938
## 1063  0.062062062 0.001001001 1.936937
## 1064  0.063063063 0.001001001 1.935936
```

```

## 1065 0.064064064 0.001001001 1.934935
## 1066 0.065065065 0.001001001 1.933934
## 1067 0.066066066 0.001001001 1.932933
## 1068 0.067067067 0.001001001 1.931932
## 1069 0.068068068 0.001001001 1.930931
## 1070 0.069069069 0.001001001 1.929930
## 1071 0.070070070 0.001001001 1.928929
## 1072 0.071071071 0.001001001 1.927928
## 1073 0.072072072 0.001001001 1.926927
## 1074 0.073073073 0.001001001 1.925926
## 1075 0.074074074 0.001001001 1.924925
## 1076 0.075075075 0.001001001 1.923924
## 1077 0.076076076 0.001001001 1.922923
## 1078 0.077077077 0.001001001 1.921922
## 1079 0.078078078 0.001001001 1.920921
## 1080 0.079079079 0.001001001 1.919920
## 1081 0.080080080 0.001001001 1.918919
## 1082 0.081081081 0.001001001 1.917918
## 1083 0.082082082 0.001001001 1.916917
## 1084 0.083083083 0.001001001 1.915916
## 1085 0.084084084 0.001001001 1.914915
## 1086 0.085085085 0.001001001 1.913914
## 1087 0.086086086 0.001001001 1.912913
## 1088 0.087087087 0.001001001 1.911912
## 1089 0.088088088 0.001001001 1.910911
## 1090 0.089089089 0.001001001 1.909910
## 1091 0.090090090 0.001001001 1.908909
## 1092 0.091091091 0.001001001 1.907908
## 1093 0.092092092 0.001001001 1.906907
## 1094 0.093093093 0.001001001 1.905906
## 1095 0.094094094 0.001001001 1.904905
## 1096 0.095095095 0.001001001 1.903904
## 1097 0.096096096 0.001001001 1.902903
## 1098 0.097097097 0.001001001 1.901902
## 1099 0.098098098 0.001001001 1.900901
## 1100 0.099099099 0.001001001 1.899900
## 1101 0.100100100 0.001001001 1.898899
## 1102 0.101101101 0.001001001 1.897898
## 1103 0.102102102 0.001001001 1.896897
## 1104 0.103103103 0.001001001 1.895896
## 1105 0.104104104 0.001001001 1.894895
## 1106 0.105105105 0.001001001 1.893894
## 1107 0.106106106 0.001001001 1.892893
## 1108 0.107107107 0.001001001 1.891892
## 1109 0.108108108 0.001001001 1.890891
## 1110 0.109109109 0.001001001 1.889890

```

```
## 1111  0.110110110 0.001001001 1.888889
## 1112  0.111111111 0.001001001 1.887888
## 1113  0.112112112 0.001001001 1.886887
## 1114  0.113113113 0.001001001 1.885886
## 1115  0.114114114 0.001001001 1.884885
## 1116  0.115115115 0.001001001 1.883884
## 1117  0.116116116 0.001001001 1.882883
## 1118  0.117117117 0.001001001 1.881882
## 1119  0.118118118 0.001001001 1.880881
## 1120  0.119119119 0.001001001 1.879880
## 1121  0.120120120 0.001001001 1.878879
## 1122  0.121121121 0.001001001 1.877878
## 1123  0.122122122 0.001001001 1.876877
## 1124  0.123123123 0.001001001 1.875876
## 1125  0.124124124 0.001001001 1.874875
## 1126  0.125125125 0.001001001 1.873874
## 1127  0.126126126 0.001001001 1.872873
## 1128  0.127127127 0.001001001 1.871872
## 1129  0.128128128 0.001001001 1.870871
## 1130  0.129129129 0.001001001 1.869870
## 1131  0.130130130 0.001001001 1.868869
## 1132  0.131131131 0.001001001 1.867868
## 1133  0.132132132 0.001001001 1.866867
## 1134  0.133133133 0.001001001 1.865866
## 1135  0.134134134 0.001001001 1.864865
## 1136  0.135135135 0.001001001 1.863864
## 1137  0.136136136 0.001001001 1.862863
## 1138  0.137137137 0.001001001 1.861862
## 1139  0.138138138 0.001001001 1.860861
## 1140  0.139139139 0.001001001 1.859860
## 1141  0.140140140 0.001001001 1.858859
## 1142  0.141141141 0.001001001 1.857858
## 1143  0.142142142 0.001001001 1.856857
## 1144  0.143143143 0.001001001 1.855856
## 1145  0.144144144 0.001001001 1.854855
## 1146  0.145145145 0.001001001 1.853854
## 1147  0.146146146 0.001001001 1.852853
## 1148  0.147147147 0.001001001 1.851852
## 1149  0.148148148 0.001001001 1.850851
## 1150  0.149149149 0.001001001 1.849850
## 1151  0.150150150 0.001001001 1.848849
## 1152  0.151151151 0.001001001 1.847848
## 1153  0.152152152 0.001001001 1.846847
## 1154  0.153153153 0.001001001 1.845846
## 1155  0.154154154 0.001001001 1.844845
## 1156  0.155155155 0.001001001 1.843844
```

```

## 1157 0.156156156 0.001001001 1.842843
## 1158 0.157157157 0.001001001 1.841842
## 1159 0.158158158 0.001001001 1.840841
## 1160 0.159159159 0.001001001 1.839840
## 1161 0.160160160 0.001001001 1.838839
## 1162 0.161161161 0.001001001 1.837838
## 1163 0.162162162 0.001001001 1.836837
## 1164 0.163163163 0.001001001 1.835836
## 1165 0.164164164 0.001001001 1.834835
## 1166 0.165165165 0.001001001 1.833834
## 1167 0.166166166 0.001001001 1.832833
## 1168 0.167167167 0.001001001 1.831832
## 1169 0.168168168 0.001001001 1.830831
## 1170 0.169169169 0.001001001 1.829830
## 1171 0.170170170 0.001001001 1.828829
## 1172 0.171171171 0.001001001 1.827828
## 1173 0.172172172 0.001001001 1.826827
## 1174 0.173173173 0.001001001 1.825826
## 1175 0.174174174 0.001001001 1.824825
## 1176 0.175175175 0.001001001 1.823824
## 1177 0.176176176 0.001001001 1.822823
## 1178 0.177177177 0.001001001 1.821822
## 1179 0.178178178 0.001001001 1.820821
## 1180 0.179179179 0.001001001 1.819820
## 1181 0.180180180 0.001001001 1.818819
## 1182 0.181181181 0.001001001 1.817818
## 1183 0.182182182 0.001001001 1.816817
## 1184 0.183183183 0.001001001 1.815816
## 1185 0.184184184 0.001001001 1.814815
## 1186 0.185185185 0.001001001 1.813814
## 1187 0.186186186 0.001001001 1.812813
## 1188 0.187187187 0.001001001 1.811812
## 1189 0.188188188 0.001001001 1.810811
## 1190 0.189189189 0.001001001 1.809810
## 1191 0.190190190 0.001001001 1.808809
## 1192 0.191191191 0.001001001 1.807808
## 1193 0.192192192 0.001001001 1.806807
## 1194 0.193193193 0.001001001 1.805806
## 1195 0.194194194 0.001001001 1.804805
## 1196 0.195195195 0.001001001 1.803804
## 1197 0.196196196 0.001001001 1.802803
## 1198 0.197197197 0.001001001 1.801802
## 1199 0.198198198 0.001001001 1.800801
## 1200 0.199199199 0.001001001 1.799800
## 1201 0.200200200 0.001001001 1.798799
## 1202 0.201201201 0.001001001 1.797798

```

```
## 1203 0.202202202 0.001001001 1.796797
## 1204 0.203203203 0.001001001 1.795796
## 1205 0.204204204 0.001001001 1.794795
## 1206 0.205205205 0.001001001 1.793794
## 1207 0.206206206 0.001001001 1.792793
## 1208 0.207207207 0.001001001 1.791792
## 1209 0.208208208 0.001001001 1.790791
## 1210 0.209209209 0.001001001 1.789790
## 1211 0.210210210 0.001001001 1.788789
## 1212 0.211211211 0.001001001 1.787788
## 1213 0.212212212 0.001001001 1.786787
## 1214 0.213213213 0.001001001 1.785786
## 1215 0.214214214 0.001001001 1.784785
## 1216 0.215215215 0.001001001 1.783784
## 1217 0.216216216 0.001001001 1.782783
## 1218 0.217217217 0.001001001 1.781782
## 1219 0.218218218 0.001001001 1.780781
## 1220 0.219219219 0.001001001 1.779780
## 1221 0.220220220 0.001001001 1.778779
## 1222 0.221221221 0.001001001 1.777778
## 1223 0.222222222 0.001001001 1.776777
## 1224 0.223223223 0.001001001 1.775776
## 1225 0.224224224 0.001001001 1.774775
## 1226 0.225225225 0.001001001 1.773774
## 1227 0.226226226 0.001001001 1.772773
## 1228 0.227227227 0.001001001 1.771772
## 1229 0.228228228 0.001001001 1.770771
## 1230 0.229229229 0.001001001 1.769770
## 1231 0.230230230 0.001001001 1.768769
## 1232 0.231231231 0.001001001 1.767768
## 1233 0.232232232 0.001001001 1.766767
## 1234 0.233233233 0.001001001 1.765766
## 1235 0.234234234 0.001001001 1.764765
## 1236 0.235235235 0.001001001 1.763764
## 1237 0.236236236 0.001001001 1.762763
## 1238 0.237237237 0.001001001 1.761762
## 1239 0.238238238 0.001001001 1.760761
## 1240 0.239239239 0.001001001 1.759760
## 1241 0.240240240 0.001001001 1.758759
## 1242 0.241241241 0.001001001 1.757758
## 1243 0.242242242 0.001001001 1.756757
## 1244 0.243243243 0.001001001 1.755756
## 1245 0.244244244 0.001001001 1.754755
## 1246 0.245245245 0.001001001 1.753754
## 1247 0.246246246 0.001001001 1.752753
## 1248 0.247247247 0.001001001 1.751752
```

```

## 1249 0.248248248 0.001001001 1.750751
## 1250 0.249249249 0.001001001 1.749750
## 1251 0.250250250 0.001001001 1.748749
## 1252 0.251251251 0.001001001 1.747748
## 1253 0.252252252 0.001001001 1.746747
## 1254 0.253253253 0.001001001 1.745746
## 1255 0.254254254 0.001001001 1.744745
## 1256 0.255255255 0.001001001 1.743744
## 1257 0.256256256 0.001001001 1.742743
## 1258 0.257257257 0.001001001 1.741742
## 1259 0.258258258 0.001001001 1.740741
## 1260 0.259259259 0.001001001 1.739740
## 1261 0.260260260 0.001001001 1.738739
## 1262 0.261261261 0.001001001 1.737738
## 1263 0.262262262 0.001001001 1.736737
## 1264 0.263263263 0.001001001 1.735736
## 1265 0.264264264 0.001001001 1.734735
## 1266 0.265265265 0.001001001 1.733734
## 1267 0.266266266 0.001001001 1.732733
## 1268 0.267267267 0.001001001 1.731732
## 1269 0.268268268 0.001001001 1.730731
## 1270 0.269269269 0.001001001 1.729730
## 1271 0.270270270 0.001001001 1.728729
## 1272 0.271271271 0.001001001 1.727728
## 1273 0.272272272 0.001001001 1.726727
## 1274 0.273273273 0.001001001 1.725726
## 1275 0.274274274 0.001001001 1.724725
## 1276 0.275275275 0.001001001 1.723724
## 1277 0.276276276 0.001001001 1.722723
## 1278 0.277277277 0.001001001 1.721722
## 1279 0.278278278 0.001001001 1.720721
## 1280 0.279279279 0.001001001 1.719720
## 1281 0.280280280 0.001001001 1.718719
## 1282 0.281281281 0.001001001 1.717718
## 1283 0.282282282 0.001001001 1.716717
## 1284 0.283283283 0.001001001 1.715716
## 1285 0.284284284 0.001001001 1.714715
## 1286 0.285285285 0.001001001 1.713714
## 1287 0.286286286 0.001001001 1.712713
## 1288 0.287287287 0.001001001 1.711712
## 1289 0.288288288 0.001001001 1.710711
## 1290 0.289289289 0.001001001 1.709710
## 1291 0.290290290 0.001001001 1.708709
## 1292 0.291291291 0.001001001 1.707708
## 1293 0.292292292 0.001001001 1.706707
## 1294 0.293293293 0.001001001 1.705706

```

```

## 1295 0.294294294 0.001001001 1.704705
## 1296 0.295295295 0.001001001 1.703704
## 1297 0.296296296 0.001001001 1.702703
## 1298 0.297297297 0.001001001 1.701702
## 1299 0.298298298 0.001001001 1.700701
## 1300 0.299299299 0.001001001 1.699700
## 1301 0.300300300 0.001001001 1.698699
## 1302 0.301301301 0.001001001 1.697698
## 1303 0.302302302 0.001001001 1.696697
## 1304 0.303303303 0.001001001 1.695696
## 1305 0.304304304 0.001001001 1.694695
## 1306 0.305305305 0.001001001 1.693694
## 1307 0.306306306 0.001001001 1.692693
## 1308 0.307307307 0.001001001 1.691692
## 1309 0.308308308 0.001001001 1.690691
## 1310 0.309309309 0.001001001 1.689690
## 1311 0.310310310 0.001001001 1.688689
## 1312 0.311311311 0.001001001 1.687688
## 1313 0.312312312 0.001001001 1.686687
## 1314 0.313313313 0.001001001 1.685686
## 1315 0.314314314 0.001001001 1.684685
## 1316 0.315315315 0.001001001 1.683684
## 1317 0.316316316 0.001001001 1.682683
## 1318 0.317317317 0.001001001 1.681682
## 1319 0.318318318 0.001001001 1.680681
## 1320 0.319319319 0.001001001 1.679680
## 1321 0.320320320 0.001001001 1.678679
## 1322 0.321321321 0.001001001 1.677678
## 1323 0.322322322 0.001001001 1.676677
## 1324 0.323323323 0.001001001 1.675676
## 1325 0.324324324 0.001001001 1.674675
## 1326 0.325325325 0.001001001 1.673674
## 1327 0.326326326 0.001001001 1.672673
## 1328 0.327327327 0.001001001 1.671672
## 1329 0.328328328 0.001001001 1.670671
## 1330 0.329329329 0.001001001 1.669670
## 1331 0.330330330 0.001001001 1.668669
## 1332 0.331331331 0.001001001 1.667668
## 1333 0.332332332 0.001001001 1.666667
## 1334 0.333333333 0.001001001 1.665666
## 1335 0.334334334 0.001001001 1.664665
## 1336 0.335335335 0.001001001 1.663664
## 1337 0.336336336 0.001001001 1.662663
## 1338 0.337337337 0.001001001 1.661662
## 1339 0.338338338 0.001001001 1.660661
## 1340 0.339339339 0.001001001 1.659660

```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 141

```
## 1341 0.340340340 0.001001001 1.658659
## 1342 0.341341341 0.001001001 1.657658
## 1343 0.342342342 0.001001001 1.656657
## 1344 0.343343343 0.001001001 1.655656
## 1345 0.344344344 0.001001001 1.654655
## 1346 0.345345345 0.001001001 1.653654
## 1347 0.346346346 0.001001001 1.652653
## 1348 0.347347347 0.001001001 1.651652
## 1349 0.348348348 0.001001001 1.650651
## 1350 0.349349349 0.001001001 1.649650
## 1351 0.350350350 0.001001001 1.648649
## 1352 0.351351351 0.001001001 1.647648
## 1353 0.352352352 0.001001001 1.646647
## 1354 0.353353353 0.001001001 1.645646
## 1355 0.354354354 0.001001001 1.644645
## 1356 0.355355355 0.001001001 1.643644
## 1357 0.356356356 0.001001001 1.642643
## 1358 0.357357357 0.001001001 1.641642
## 1359 0.358358358 0.001001001 1.640641
## 1360 0.359359359 0.001001001 1.639640
## 1361 0.360360360 0.001001001 1.638639
## 1362 0.361361361 0.001001001 1.637638
## 1363 0.362362362 0.001001001 1.636637
## 1364 0.363363363 0.001001001 1.635636
## 1365 0.364364364 0.001001001 1.634635
## 1366 0.365365365 0.001001001 1.633634
## 1367 0.366366366 0.001001001 1.632633
## 1368 0.367367367 0.001001001 1.631632
## 1369 0.368368368 0.001001001 1.630631
## 1370 0.369369369 0.001001001 1.629630
## 1371 0.370370370 0.001001001 1.628629
## 1372 0.371371371 0.001001001 1.627628
## 1373 0.372372372 0.001001001 1.626627
## 1374 0.373373373 0.001001001 1.625626
## 1375 0.374374374 0.001001001 1.624625
## 1376 0.375375375 0.001001001 1.623624
## 1377 0.376376376 0.001001001 1.622623
## 1378 0.377377377 0.001001001 1.621622
## 1379 0.378378378 0.001001001 1.620621
## 1380 0.379379379 0.001001001 1.619620
## 1381 0.380380380 0.001001001 1.618619
## 1382 0.381381381 0.001001001 1.617618
## 1383 0.382382382 0.001001001 1.616617
## 1384 0.383383383 0.001001001 1.615616
## 1385 0.384384384 0.001001001 1.614615
## 1386 0.385385385 0.001001001 1.613614
```

```
## 1387 0.386386386 0.001001001 1.612613
## 1388 0.387387387 0.001001001 1.611612
## 1389 0.388388388 0.001001001 1.610611
## 1390 0.389389389 0.001001001 1.609610
## 1391 0.390390390 0.001001001 1.608609
## 1392 0.391391391 0.001001001 1.607608
## 1393 0.392392392 0.001001001 1.606607
## 1394 0.393393393 0.001001001 1.605606
## 1395 0.394394394 0.001001001 1.604605
## 1396 0.395395395 0.001001001 1.603604
## 1397 0.396396396 0.001001001 1.602603
## 1398 0.397397397 0.001001001 1.601602
## 1399 0.398398398 0.001001001 1.600601
## 1400 0.399399399 0.001001001 1.599600
## 1401 0.400400400 0.001001001 1.598599
## 1402 0.401401401 0.001001001 1.597598
## 1403 0.402402402 0.001001001 1.596597
## 1404 0.403403403 0.001001001 1.595596
## 1405 0.404404404 0.001001001 1.594595
## 1406 0.405405405 0.001001001 1.593594
## 1407 0.406406406 0.001001001 1.592593
## 1408 0.407407407 0.001001001 1.591592
## 1409 0.408408408 0.001001001 1.590591
## 1410 0.409409409 0.001001001 1.589590
## 1411 0.410410410 0.001001001 1.588589
## 1412 0.411411411 0.001001001 1.587588
## 1413 0.412412412 0.001001001 1.586587
## 1414 0.413413413 0.001001001 1.585586
## 1415 0.414414414 0.001001001 1.584585
## 1416 0.415415415 0.001001001 1.583584
## 1417 0.416416416 0.001001001 1.582583
## 1418 0.417417417 0.001001001 1.581582
## 1419 0.418418418 0.001001001 1.580581
## 1420 0.419419419 0.001001001 1.579580
## 1421 0.420420420 0.001001001 1.578579
## 1422 0.421421421 0.001001001 1.577578
## 1423 0.422422422 0.001001001 1.576577
## 1424 0.423423423 0.001001001 1.575576
## 1425 0.424424424 0.001001001 1.574575
## 1426 0.425425425 0.001001001 1.573574
## 1427 0.426426426 0.001001001 1.572573
## 1428 0.427427427 0.001001001 1.571572
## 1429 0.428428428 0.001001001 1.570571
## 1430 0.429429429 0.001001001 1.569570
## 1431 0.430430430 0.001001001 1.568569
## 1432 0.431431431 0.001001001 1.567568
```

```

## 1433 0.432432432 0.001001001 1.566567
## 1434 0.433433433 0.001001001 1.565566
## 1435 0.434434434 0.001001001 1.564565
## 1436 0.435435435 0.001001001 1.563564
## 1437 0.436436436 0.001001001 1.562563
## 1438 0.437437437 0.001001001 1.561562
## 1439 0.438438438 0.001001001 1.560561
## 1440 0.439439439 0.001001001 1.559560
## 1441 0.440440440 0.001001001 1.558559
## 1442 0.441441441 0.001001001 1.557558
## 1443 0.442442442 0.001001001 1.556557
## 1444 0.443443443 0.001001001 1.555556
## 1445 0.444444444 0.001001001 1.554555
## 1446 0.445445445 0.001001001 1.553554
## 1447 0.446446446 0.001001001 1.552553
## 1448 0.447447447 0.001001001 1.551552
## 1449 0.448448448 0.001001001 1.550551
## 1450 0.449449449 0.001001001 1.549550
## 1451 0.450450450 0.001001001 1.548549
## 1452 0.451451451 0.001001001 1.547548
## 1453 0.452452452 0.001001001 1.546547
## 1454 0.453453453 0.001001001 1.545546
## 1455 0.454454454 0.001001001 1.544545
## 1456 0.455455455 0.001001001 1.543544
## 1457 0.456456456 0.001001001 1.542543
## 1458 0.457457457 0.001001001 1.541542
## 1459 0.458458458 0.001001001 1.540541
## 1460 0.459459459 0.001001001 1.539540
## 1461 0.460460460 0.001001001 1.538539
## 1462 0.461461461 0.001001001 1.537538
## 1463 0.462462462 0.001001001 1.536537
## 1464 0.463463463 0.001001001 1.535536
## 1465 0.464464464 0.001001001 1.534535
## 1466 0.465465465 0.001001001 1.533534
## 1467 0.466466466 0.001001001 1.532533
## 1468 0.467467467 0.001001001 1.531532
## 1469 0.468468468 0.001001001 1.530531
## 1470 0.469469469 0.001001001 1.529530
## 1471 0.470470470 0.001001001 1.528529
## 1472 0.471471471 0.001001001 1.527528
## 1473 0.472472472 0.001001001 1.526527
## 1474 0.473473473 0.001001001 1.525526
## 1475 0.474474474 0.001001001 1.524525
## 1476 0.475475475 0.001001001 1.523524
## 1477 0.476476476 0.001001001 1.522523
## 1478 0.477477477 0.001001001 1.521522

```

```
## 1479 0.478478478 0.001001001 1.520521
## 1480 0.479479479 0.001001001 1.519520
## 1481 0.480480480 0.001001001 1.518519
## 1482 0.481481481 0.001001001 1.517518
## 1483 0.482482482 0.001001001 1.516517
## 1484 0.483483483 0.001001001 1.515516
## 1485 0.484484484 0.001001001 1.514515
## 1486 0.485485485 0.001001001 1.513514
## 1487 0.486486486 0.001001001 1.512513
## 1488 0.487487487 0.001001001 1.511512
## 1489 0.488488488 0.001001001 1.510511
## 1490 0.489489489 0.001001001 1.509510
## 1491 0.490490490 0.001001001 1.508509
## 1492 0.491491491 0.001001001 1.507508
## 1493 0.492492492 0.001001001 1.506507
## 1494 0.493493493 0.001001001 1.505506
## 1495 0.494494494 0.001001001 1.504505
## 1496 0.495495495 0.001001001 1.503504
## 1497 0.496496496 0.001001001 1.502503
## 1498 0.497497497 0.001001001 1.501502
## 1499 0.498498498 0.001001001 1.500501
## 1500 0.499499499 0.001001001 1.499499
## 1501 0.500500501 0.001001001 1.498498
## 1502 0.501501502 0.001001001 1.497497
## 1503 0.502502503 0.001001001 1.496496
## 1504 0.503503504 0.001001001 1.495495
## 1505 0.504504505 0.001001001 1.494494
## 1506 0.505505506 0.001001001 1.493493
## 1507 0.506506507 0.001001001 1.492492
## 1508 0.507507508 0.001001001 1.491491
## 1509 0.508508509 0.001001001 1.490490
## 1510 0.509509510 0.001001001 1.489489
## 1511 0.510510511 0.001001001 1.488488
## 1512 0.511511512 0.001001001 1.487487
## 1513 0.512512513 0.001001001 1.486486
## 1514 0.513513514 0.001001001 1.485485
## 1515 0.514514515 0.001001001 1.484484
## 1516 0.515515516 0.001001001 1.483483
## 1517 0.516516517 0.001001001 1.482482
## 1518 0.517517518 0.001001001 1.481481
## 1519 0.518518519 0.001001001 1.480480
## 1520 0.519519520 0.001001001 1.479479
## 1521 0.520520521 0.001001001 1.478478
## 1522 0.521521522 0.001001001 1.477477
## 1523 0.522522523 0.001001001 1.476476
## 1524 0.523523524 0.001001001 1.475475
```

```

## 1525 0.524524525 0.001001001 1.474474
## 1526 0.525525526 0.001001001 1.473473
## 1527 0.526526527 0.001001001 1.472472
## 1528 0.527527528 0.001001001 1.471471
## 1529 0.528528529 0.001001001 1.470470
## 1530 0.529529530 0.001001001 1.469469
## 1531 0.530530531 0.001001001 1.468468
## 1532 0.531531532 0.001001001 1.467467
## 1533 0.532532533 0.001001001 1.466466
## 1534 0.533533534 0.001001001 1.465465
## 1535 0.534534535 0.001001001 1.464464
## 1536 0.535535536 0.001001001 1.463463
## 1537 0.536536537 0.001001001 1.462462
## 1538 0.537537538 0.001001001 1.461461
## 1539 0.538538539 0.001001001 1.460460
## 1540 0.539539540 0.001001001 1.459459
## 1541 0.540540541 0.001001001 1.458458
## 1542 0.541541542 0.001001001 1.457457
## 1543 0.542542543 0.001001001 1.456456
## 1544 0.543543544 0.001001001 1.455455
## 1545 0.544544545 0.001001001 1.454454
## 1546 0.545545546 0.001001001 1.453453
## 1547 0.546546547 0.001001001 1.452452
## 1548 0.547547548 0.001001001 1.451451
## 1549 0.548548549 0.001001001 1.450450
## 1550 0.549549550 0.001001001 1.449449
## 1551 0.550550551 0.001001001 1.448448
## 1552 0.551551552 0.001001001 1.447447
## 1553 0.552552553 0.001001001 1.446446
## 1554 0.553553554 0.001001001 1.445445
## 1555 0.554554555 0.001001001 1.444444
## 1556 0.555555556 0.001001001 1.443443
## 1557 0.556556557 0.001001001 1.442442
## 1558 0.557557558 0.001001001 1.441441
## 1559 0.558558559 0.001001001 1.440440
## 1560 0.559559560 0.001001001 1.439439
## 1561 0.560560561 0.001001001 1.438438
## 1562 0.561561562 0.001001001 1.437437
## 1563 0.562562563 0.001001001 1.436436
## 1564 0.563563564 0.001001001 1.435435
## 1565 0.564564565 0.001001001 1.434434
## 1566 0.565565566 0.001001001 1.433433
## 1567 0.566566567 0.001001001 1.432432
## 1568 0.567567568 0.001001001 1.431431
## 1569 0.568568569 0.001001001 1.430430
## 1570 0.569569570 0.001001001 1.429429

```

```
## 1571 0.570570571 0.001001001 1.428428
## 1572 0.571571572 0.001001001 1.427427
## 1573 0.572572573 0.001001001 1.426426
## 1574 0.573573574 0.001001001 1.425425
## 1575 0.574574575 0.001001001 1.424424
## 1576 0.575575576 0.001001001 1.423423
## 1577 0.576576577 0.001001001 1.422422
## 1578 0.577577578 0.001001001 1.421421
## 1579 0.578578579 0.001001001 1.420420
## 1580 0.579579580 0.001001001 1.419419
## 1581 0.580580581 0.001001001 1.418418
## 1582 0.581581582 0.001001001 1.417417
## 1583 0.582582583 0.001001001 1.416416
## 1584 0.583583584 0.001001001 1.415415
## 1585 0.584584585 0.001001001 1.414414
## 1586 0.585585586 0.001001001 1.413413
## 1587 0.586586587 0.001001001 1.412412
## 1588 0.587587588 0.001001001 1.411411
## 1589 0.588588589 0.001001001 1.410410
## 1590 0.589589590 0.001001001 1.409409
## 1591 0.590590591 0.001001001 1.408408
## 1592 0.591591592 0.001001001 1.407407
## 1593 0.592592593 0.001001001 1.406406
## 1594 0.593593594 0.001001001 1.405405
## 1595 0.594594595 0.001001001 1.404404
## 1596 0.595595596 0.001001001 1.403403
## 1597 0.596596597 0.001001001 1.402402
## 1598 0.597597598 0.001001001 1.401401
## 1599 0.598598599 0.001001001 1.400400
## 1600 0.599599600 0.001001001 1.399399
## 1601 0.600600601 0.001001001 1.398398
## 1602 0.601601602 0.001001001 1.397397
## 1603 0.602602603 0.001001001 1.396396
## 1604 0.603603604 0.001001001 1.395395
## 1605 0.604604605 0.001001001 1.394394
## 1606 0.605605606 0.001001001 1.393393
## 1607 0.606606607 0.001001001 1.392392
## 1608 0.607607608 0.001001001 1.391391
## 1609 0.608608609 0.001001001 1.390390
## 1610 0.609609610 0.001001001 1.389389
## 1611 0.610610611 0.001001001 1.388388
## 1612 0.611611612 0.001001001 1.387387
## 1613 0.612612613 0.001001001 1.386386
## 1614 0.613613614 0.001001001 1.385385
## 1615 0.614614615 0.001001001 1.384384
## 1616 0.615615616 0.001001001 1.383383
```

```

## 1617 0.616616617 0.001001001 1.382382
## 1618 0.617617618 0.001001001 1.381381
## 1619 0.618618619 0.001001001 1.380380
## 1620 0.619619620 0.001001001 1.379379
## 1621 0.620620621 0.001001001 1.378378
## 1622 0.621621622 0.001001001 1.377377
## 1623 0.622622623 0.001001001 1.376376
## 1624 0.623623624 0.001001001 1.375375
## 1625 0.624624625 0.001001001 1.374374
## 1626 0.625625626 0.001001001 1.373373
## 1627 0.626626627 0.001001001 1.372372
## 1628 0.627627628 0.001001001 1.371371
## 1629 0.628628629 0.001001001 1.370370
## 1630 0.629629630 0.001001001 1.369369
## 1631 0.630630631 0.001001001 1.368368
## 1632 0.631631632 0.001001001 1.367367
## 1633 0.632632633 0.001001001 1.366366
## 1634 0.633633634 0.001001001 1.365365
## 1635 0.634634635 0.001001001 1.364364
## 1636 0.635635636 0.001001001 1.363363
## 1637 0.636636637 0.001001001 1.362362
## 1638 0.637637638 0.001001001 1.361361
## 1639 0.638638639 0.001001001 1.360360
## 1640 0.639639640 0.001001001 1.359359
## 1641 0.640640641 0.001001001 1.358358
## 1642 0.641641642 0.001001001 1.357357
## 1643 0.642642643 0.001001001 1.356356
## 1644 0.643643644 0.001001001 1.355355
## 1645 0.644644645 0.001001001 1.354354
## 1646 0.645645646 0.001001001 1.353353
## 1647 0.646646647 0.001001001 1.352352
## 1648 0.647647648 0.001001001 1.351351
## 1649 0.648648649 0.001001001 1.350350
## 1650 0.649649650 0.001001001 1.349349
## 1651 0.650650651 0.001001001 1.348348
## 1652 0.651651652 0.001001001 1.347347
## 1653 0.652652653 0.001001001 1.346346
## 1654 0.653653654 0.001001001 1.345345
## 1655 0.654654655 0.001001001 1.344344
## 1656 0.655655656 0.001001001 1.343343
## 1657 0.656656657 0.001001001 1.342342
## 1658 0.657657658 0.001001001 1.341341
## 1659 0.658658659 0.001001001 1.340340
## 1660 0.659659660 0.001001001 1.339339
## 1661 0.660660661 0.001001001 1.338338
## 1662 0.661661662 0.001001001 1.337337

```

```
## 1663 0.662662663 0.001001001 1.336336
## 1664 0.663663664 0.001001001 1.335335
## 1665 0.664664665 0.001001001 1.334334
## 1666 0.665665666 0.001001001 1.333333
## 1667 0.666666667 0.001001001 1.332332
## 1668 0.667667668 0.001001001 1.331331
## 1669 0.668668669 0.001001001 1.330330
## 1670 0.669669670 0.001001001 1.329329
## 1671 0.670670671 0.001001001 1.328328
## 1672 0.671671672 0.001001001 1.327327
## 1673 0.672672673 0.001001001 1.326326
## 1674 0.673673674 0.001001001 1.325325
## 1675 0.674674675 0.001001001 1.324324
## 1676 0.675675676 0.001001001 1.323323
## 1677 0.676676677 0.001001001 1.322322
## 1678 0.677677678 0.001001001 1.321321
## 1679 0.678678679 0.001001001 1.320320
## 1680 0.679679680 0.001001001 1.319319
## 1681 0.680680681 0.001001001 1.318318
## 1682 0.681681682 0.001001001 1.317317
## 1683 0.682682683 0.001001001 1.316316
## 1684 0.683683684 0.001001001 1.315315
## 1685 0.684684685 0.001001001 1.314314
## 1686 0.685685686 0.001001001 1.313313
## 1687 0.686686687 0.001001001 1.312312
## 1688 0.687687688 0.001001001 1.311311
## 1689 0.688688689 0.001001001 1.310310
## 1690 0.689689690 0.001001001 1.309309
## 1691 0.690690691 0.001001001 1.308308
## 1692 0.691691692 0.001001001 1.307307
## 1693 0.692692693 0.001001001 1.306306
## 1694 0.693693694 0.001001001 1.305305
## 1695 0.694694695 0.001001001 1.304304
## 1696 0.695695696 0.001001001 1.303303
## 1697 0.696696697 0.001001001 1.302302
## 1698 0.697697698 0.001001001 1.301301
## 1699 0.698698699 0.001001001 1.300300
## 1700 0.699699700 0.001001001 1.299299
## 1701 0.700700701 0.001001001 1.298298
## 1702 0.701701702 0.001001001 1.297297
## 1703 0.702702703 0.001001001 1.296296
## 1704 0.703703704 0.001001001 1.295295
## 1705 0.704704705 0.001001001 1.294294
## 1706 0.705705706 0.001001001 1.293293
## 1707 0.706706707 0.001001001 1.292292
## 1708 0.707707708 0.001001001 1.291291
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 149

```
## 1709 0.708708709 0.001001001 1.290290
## 1710 0.709709710 0.001001001 1.289289
## 1711 0.710710711 0.001001001 1.288288
## 1712 0.711711712 0.001001001 1.287287
## 1713 0.712712713 0.001001001 1.286286
## 1714 0.713713714 0.001001001 1.285285
## 1715 0.714714715 0.001001001 1.284284
## 1716 0.715715716 0.001001001 1.283283
## 1717 0.716716717 0.001001001 1.282282
## 1718 0.717717718 0.001001001 1.281281
## 1719 0.718718719 0.001001001 1.280280
## 1720 0.719719720 0.001001001 1.279279
## 1721 0.720720721 0.001001001 1.278278
## 1722 0.721721722 0.001001001 1.277277
## 1723 0.722722723 0.001001001 1.276276
## 1724 0.723723724 0.001001001 1.275275
## 1725 0.724724725 0.001001001 1.274274
## 1726 0.725725726 0.001001001 1.273273
## 1727 0.726726727 0.001001001 1.272272
## 1728 0.727727728 0.001001001 1.271271
## 1729 0.728728729 0.001001001 1.270270
## 1730 0.729729730 0.001001001 1.269269
## 1731 0.730730731 0.001001001 1.268268
## 1732 0.731731732 0.001001001 1.267267
## 1733 0.732732733 0.001001001 1.266266
## 1734 0.733733734 0.001001001 1.265265
## 1735 0.734734735 0.001001001 1.264264
## 1736 0.735735736 0.001001001 1.263263
## 1737 0.736736737 0.001001001 1.262262
## 1738 0.737737738 0.001001001 1.261261
## 1739 0.738738739 0.001001001 1.260260
## 1740 0.739739740 0.001001001 1.259259
## 1741 0.740740741 0.001001001 1.258258
## 1742 0.741741742 0.001001001 1.257257
## 1743 0.742742743 0.001001001 1.256256
## 1744 0.743743744 0.001001001 1.255255
## 1745 0.744744745 0.001001001 1.254254
## 1746 0.745745746 0.001001001 1.253253
## 1747 0.746746747 0.001001001 1.252252
## 1748 0.747747748 0.001001001 1.251251
## 1749 0.748748749 0.001001001 1.250250
## 1750 0.749749750 0.001001001 1.249249
## 1751 0.750750751 0.001001001 1.248248
## 1752 0.751751752 0.001001001 1.247247
## 1753 0.752752753 0.001001001 1.246246
## 1754 0.753753754 0.001001001 1.245245
```

```
## 1755 0.754754755 0.001001001 1.244244
## 1756 0.755755756 0.001001001 1.243243
## 1757 0.756756757 0.001001001 1.242242
## 1758 0.757757758 0.001001001 1.241241
## 1759 0.758758759 0.001001001 1.240240
## 1760 0.759759760 0.001001001 1.239239
## 1761 0.760760761 0.001001001 1.238238
## 1762 0.761761762 0.001001001 1.237237
## 1763 0.762762763 0.001001001 1.236236
## 1764 0.763763764 0.001001001 1.235235
## 1765 0.764764765 0.001001001 1.234234
## 1766 0.765765766 0.001001001 1.233233
## 1767 0.766766767 0.001001001 1.232232
## 1768 0.767767768 0.001001001 1.231231
## 1769 0.768768769 0.001001001 1.230230
## 1770 0.769769770 0.001001001 1.229229
## 1771 0.770770771 0.001001001 1.228228
## 1772 0.771771772 0.001001001 1.227227
## 1773 0.772772773 0.001001001 1.226226
## 1774 0.773773774 0.001001001 1.225225
## 1775 0.774774775 0.001001001 1.224224
## 1776 0.775775776 0.001001001 1.223223
## 1777 0.776776777 0.001001001 1.222222
## 1778 0.777777778 0.001001001 1.221221
## 1779 0.778778779 0.001001001 1.220220
## 1780 0.779779780 0.001001001 1.219219
## 1781 0.780780781 0.001001001 1.218218
## 1782 0.781781782 0.001001001 1.217217
## 1783 0.782782783 0.001001001 1.216216
## 1784 0.783783784 0.001001001 1.215215
## 1785 0.784784785 0.001001001 1.214214
## 1786 0.785785786 0.001001001 1.213213
## 1787 0.786786787 0.001001001 1.212212
## 1788 0.787787788 0.001001001 1.211211
## 1789 0.788788789 0.001001001 1.210210
## 1790 0.789789790 0.001001001 1.209209
## 1791 0.790790791 0.001001001 1.208208
## 1792 0.791791792 0.001001001 1.207207
## 1793 0.792792793 0.001001001 1.206206
## 1794 0.793793794 0.001001001 1.205205
## 1795 0.794794795 0.001001001 1.204204
## 1796 0.795795796 0.001001001 1.203203
## 1797 0.796796797 0.001001001 1.202202
## 1798 0.797797798 0.001001001 1.201201
## 1799 0.798798799 0.001001001 1.200200
## 1800 0.799799800 0.001001001 1.199199
```

```

## 1801 0.800800801 0.001001001 1.198198
## 1802 0.801801802 0.001001001 1.197197
## 1803 0.802802803 0.001001001 1.196196
## 1804 0.803803804 0.001001001 1.195195
## 1805 0.804804805 0.001001001 1.194194
## 1806 0.805805806 0.001001001 1.193193
## 1807 0.806806807 0.001001001 1.192192
## 1808 0.807807808 0.001001001 1.191191
## 1809 0.808808809 0.001001001 1.190190
## 1810 0.809809810 0.001001001 1.189189
## 1811 0.810810811 0.001001001 1.188188
## 1812 0.811811812 0.001001001 1.187187
## 1813 0.812812813 0.001001001 1.186186
## 1814 0.813813814 0.001001001 1.185185
## 1815 0.814814815 0.001001001 1.184184
## 1816 0.815815816 0.001001001 1.183183
## 1817 0.816816817 0.001001001 1.182182
## 1818 0.817817818 0.001001001 1.181181
## 1819 0.818818819 0.001001001 1.180180
## 1820 0.819819820 0.001001001 1.179179
## 1821 0.820820821 0.001001001 1.178178
## 1822 0.821821822 0.001001001 1.177177
## 1823 0.822822823 0.001001001 1.176176
## 1824 0.823823824 0.001001001 1.175175
## 1825 0.824824825 0.001001001 1.174174
## 1826 0.825825826 0.001001001 1.173173
## 1827 0.826826827 0.001001001 1.172172
## 1828 0.827827828 0.001001001 1.171171
## 1829 0.828828829 0.001001001 1.170170
## 1830 0.829829830 0.001001001 1.169169
## 1831 0.830830831 0.001001001 1.168168
## 1832 0.831831832 0.001001001 1.167167
## 1833 0.832832833 0.001001001 1.166166
## 1834 0.833833834 0.001001001 1.165165
## 1835 0.834834835 0.001001001 1.164164
## 1836 0.835835836 0.001001001 1.163163
## 1837 0.836836837 0.001001001 1.162162
## 1838 0.837837838 0.001001001 1.161161
## 1839 0.838838839 0.001001001 1.160160
## 1840 0.839839840 0.001001001 1.159159
## 1841 0.840840841 0.001001001 1.158158
## 1842 0.841841842 0.001001001 1.157157
## 1843 0.842842843 0.001001001 1.156156
## 1844 0.843843844 0.001001001 1.155155
## 1845 0.844844845 0.001001001 1.154154
## 1846 0.845845846 0.001001001 1.153153

```

```
## 1847 0.846846847 0.001001001 1.152152
## 1848 0.847847848 0.001001001 1.151151
## 1849 0.848848849 0.001001001 1.150150
## 1850 0.849849850 0.001001001 1.149149
## 1851 0.850850851 0.001001001 1.148148
## 1852 0.851851852 0.001001001 1.147147
## 1853 0.852852853 0.001001001 1.146146
## 1854 0.853853854 0.001001001 1.145145
## 1855 0.854854855 0.001001001 1.144144
## 1856 0.855855856 0.001001001 1.143143
## 1857 0.856856857 0.001001001 1.142142
## 1858 0.857857858 0.001001001 1.141141
## 1859 0.858858859 0.001001001 1.140140
## 1860 0.859859860 0.001001001 1.139139
## 1861 0.860860861 0.001001001 1.138138
## 1862 0.861861862 0.001001001 1.137137
## 1863 0.862862863 0.001001001 1.136136
## 1864 0.863863864 0.001001001 1.135135
## 1865 0.864864865 0.001001001 1.134134
## 1866 0.865865866 0.001001001 1.133133
## 1867 0.866866867 0.001001001 1.132132
## 1868 0.867867868 0.001001001 1.131131
## 1869 0.868868869 0.001001001 1.130130
## 1870 0.869869870 0.001001001 1.129129
## 1871 0.870870871 0.001001001 1.128128
## 1872 0.871871872 0.001001001 1.127127
## 1873 0.872872873 0.001001001 1.126126
## 1874 0.873873874 0.001001001 1.125125
## 1875 0.874874875 0.001001001 1.124124
## 1876 0.875875876 0.001001001 1.123123
## 1877 0.876876877 0.001001001 1.122122
## 1878 0.877877878 0.001001001 1.121121
## 1879 0.878878879 0.001001001 1.120120
## 1880 0.879879880 0.001001001 1.119119
## 1881 0.880880881 0.001001001 1.118118
## 1882 0.881881882 0.001001001 1.117117
## 1883 0.882882883 0.001001001 1.116116
## 1884 0.883883884 0.001001001 1.115115
## 1885 0.884884885 0.001001001 1.114114
## 1886 0.885885886 0.001001001 1.113113
## 1887 0.886886887 0.001001001 1.112112
## 1888 0.887887888 0.001001001 1.111111
## 1889 0.888888889 0.001001001 1.110110
## 1890 0.889889890 0.001001001 1.109109
## 1891 0.890890891 0.001001001 1.108108
## 1892 0.891891892 0.001001001 1.107107
```

```

## 1893 0.892892893 0.001001001 1.106106
## 1894 0.893893894 0.001001001 1.105105
## 1895 0.894894895 0.001001001 1.104104
## 1896 0.895895896 0.001001001 1.103103
## 1897 0.896896897 0.001001001 1.102102
## 1898 0.897897898 0.001001001 1.101101
## 1899 0.898898899 0.001001001 1.100100
## 1900 0.899899900 0.001001001 1.099099
## 1901 0.900900901 0.001001001 1.098098
## 1902 0.901901902 0.001001001 1.097097
## 1903 0.902902903 0.001001001 1.096096
## 1904 0.903903904 0.001001001 1.095095
## 1905 0.904904905 0.001001001 1.094094
## 1906 0.905905906 0.001001001 1.093093
## 1907 0.906906907 0.001001001 1.092092
## 1908 0.907907908 0.001001001 1.091091
## 1909 0.908908909 0.001001001 1.090090
## 1910 0.909909910 0.001001001 1.089089
## 1911 0.910910911 0.001001001 1.088088
## 1912 0.911911912 0.001001001 1.087087
## 1913 0.912912913 0.001001001 1.086086
## 1914 0.913913914 0.001001001 1.085085
## 1915 0.914914915 0.001001001 1.084084
## 1916 0.915915916 0.001001001 1.083083
## 1917 0.916916917 0.001001001 1.082082
## 1918 0.917917918 0.001001001 1.081081
## 1919 0.918918919 0.001001001 1.080080
## 1920 0.919919920 0.001001001 1.079079
## 1921 0.920920921 0.001001001 1.078078
## 1922 0.921921922 0.001001001 1.077077
## 1923 0.922922923 0.001001001 1.076076
## 1924 0.923923924 0.001001001 1.075075
## 1925 0.924924925 0.001001001 1.074074
## 1926 0.925925926 0.001001001 1.073073
## 1927 0.926926927 0.001001001 1.072072
## 1928 0.927927928 0.001001001 1.071071
## 1929 0.928928929 0.001001001 1.070070
## 1930 0.929929930 0.001001001 1.069069
## 1931 0.930930931 0.001001001 1.068068
## 1932 0.931931932 0.001001001 1.067067
## 1933 0.932932933 0.001001001 1.066066
## 1934 0.933933934 0.001001001 1.065065
## 1935 0.934934935 0.001001001 1.064064
## 1936 0.935935936 0.001001001 1.063063
## 1937 0.936936937 0.001001001 1.062062
## 1938 0.937937938 0.001001001 1.061061

```

```
## 1939  0.938938939 0.001001001 1.060060
## 1940  0.939939940 0.001001001 1.059059
## 1941  0.940940941 0.001001001 1.058058
## 1942  0.941941942 0.001001001 1.057057
## 1943  0.942942943 0.001001001 1.056056
## 1944  0.943943944 0.001001001 1.055055
## 1945  0.944944945 0.001001001 1.054054
## 1946  0.945945946 0.001001001 1.053053
## 1947  0.946946947 0.001001001 1.052052
## 1948  0.947947948 0.001001001 1.051051
## 1949  0.948948949 0.001001001 1.050050
## 1950  0.949949950 0.001001001 1.049049
## 1951  0.950950951 0.001001001 1.048048
## 1952  0.951951952 0.001001001 1.047047
## 1953  0.952952953 0.001001001 1.046046
## 1954  0.953953954 0.001001001 1.045045
## 1955  0.954954955 0.001001001 1.044044
## 1956  0.955955956 0.001001001 1.043043
## 1957  0.956956957 0.001001001 1.042042
## 1958  0.957957958 0.001001001 1.041041
## 1959  0.958958959 0.001001001 1.040040
## 1960  0.959959960 0.001001001 1.039039
## 1961  0.960960961 0.001001001 1.038038
## 1962  0.961961962 0.001001001 1.037037
## 1963  0.962962963 0.001001001 1.036036
## 1964  0.963963964 0.001001001 1.035035
## 1965  0.964964965 0.001001001 1.034034
## 1966  0.965965966 0.001001001 1.033033
## 1967  0.966966967 0.001001001 1.032032
## 1968  0.967967968 0.001001001 1.031031
## 1969  0.968968969 0.001001001 1.030030
## 1970  0.969969970 0.001001001 1.029029
## 1971  0.970970971 0.001001001 1.028028
## 1972  0.971971972 0.001001001 1.027027
## 1973  0.972972973 0.001001001 1.026026
## 1974  0.973973974 0.001001001 1.025025
## 1975  0.974974975 0.001001001 1.024024
## 1976  0.975975976 0.001001001 1.023023
## 1977  0.976976977 0.001001001 1.022022
## 1978  0.977977978 0.001001001 1.021021
## 1979  0.978978979 0.001001001 1.020020
## 1980  0.979979980 0.001001001 1.019019
## 1981  0.980980981 0.001001001 1.018018
## 1982  0.981981982 0.001001001 1.017017
## 1983  0.982982983 0.001001001 1.016016
## 1984  0.983983984 0.001001001 1.015015
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 155

```
## 1985 0.984984985 0.001001001 1.014014
## 1986 0.985985986 0.001001001 1.013013
## 1987 0.986986987 0.001001001 1.012012
## 1988 0.987987988 0.001001001 1.011011
## 1989 0.988988989 0.001001001 1.010010
## 1990 0.989989990 0.001001001 1.009009
## 1991 0.990990991 0.001001001 1.008008
## 1992 0.991991992 0.001001001 1.007007
## 1993 0.992992993 0.001001001 1.006006
## 1994 0.993993994 0.001001001 1.005005
## 1995 0.994994995 0.001001001 1.004004
## 1996 0.995995996 0.001001001 1.003003
## 1997 0.996996997 0.001001001 1.002002
## 1998 0.997997998 0.001001001 1.001001
## 1999 0.998998999 0.001001001 1.000000
## 2000 1.000000000 0.001001001 0.998999
## 2001 0.000000000 0.002002002 1.997998
## 2002 0.001001001 0.002002002 1.996997
## 2003 0.002002002 0.002002002 1.995996
## 2004 0.003003003 0.002002002 1.994995
## 2005 0.004004004 0.002002002 1.993994
## 2006 0.005005005 0.002002002 1.992993
## 2007 0.006006006 0.002002002 1.991992
## 2008 0.007007007 0.002002002 1.990991
## 2009 0.008008008 0.002002002 1.989990
## 2010 0.009009009 0.002002002 1.988989
## 2011 0.010010010 0.002002002 1.987988
## 2012 0.011011011 0.002002002 1.986987
## 2013 0.012012012 0.002002002 1.985986
## 2014 0.013013013 0.002002002 1.984985
## 2015 0.014014014 0.002002002 1.983984
## 2016 0.015015015 0.002002002 1.982983
## 2017 0.016016016 0.002002002 1.981982
## 2018 0.017017017 0.002002002 1.980981
## 2019 0.018018018 0.002002002 1.979980
## 2020 0.019019019 0.002002002 1.978979
## 2021 0.020020020 0.002002002 1.977978
## 2022 0.021021021 0.002002002 1.976977
## 2023 0.022022022 0.002002002 1.975976
## 2024 0.023023023 0.002002002 1.974975
## 2025 0.024024024 0.002002002 1.973974
## 2026 0.025025025 0.002002002 1.972973
## 2027 0.026026026 0.002002002 1.971972
## 2028 0.027027027 0.002002002 1.970971
## 2029 0.028028028 0.002002002 1.969970
## 2030 0.029029029 0.002002002 1.968969
```

```
## 2031 0.030030030 0.002002002 1.967968
## 2032 0.031031031 0.002002002 1.966967
## 2033 0.032032032 0.002002002 1.965966
## 2034 0.033033033 0.002002002 1.964965
## 2035 0.034034034 0.002002002 1.963964
## 2036 0.035035035 0.002002002 1.962963
## 2037 0.036036036 0.002002002 1.961962
## 2038 0.037037037 0.002002002 1.960961
## 2039 0.038038038 0.002002002 1.959960
## 2040 0.039039039 0.002002002 1.958959
## 2041 0.040040040 0.002002002 1.957958
## 2042 0.041041041 0.002002002 1.956957
## 2043 0.042042042 0.002002002 1.955956
## 2044 0.043043043 0.002002002 1.954955
## 2045 0.044044044 0.002002002 1.953954
## 2046 0.045045045 0.002002002 1.952953
## 2047 0.046046046 0.002002002 1.951952
## 2048 0.047047047 0.002002002 1.950951
## 2049 0.048048048 0.002002002 1.949950
## 2050 0.049049049 0.002002002 1.948949
## 2051 0.050050050 0.002002002 1.947948
## 2052 0.051051051 0.002002002 1.946947
## 2053 0.052052052 0.002002002 1.945946
## 2054 0.053053053 0.002002002 1.944945
## 2055 0.054054054 0.002002002 1.943944
## 2056 0.055055055 0.002002002 1.942943
## 2057 0.056056056 0.002002002 1.941942
## 2058 0.057057057 0.002002002 1.940941
## 2059 0.058058058 0.002002002 1.939940
## 2060 0.059059059 0.002002002 1.938939
## 2061 0.060060060 0.002002002 1.937938
## 2062 0.061061061 0.002002002 1.936937
## 2063 0.062062062 0.002002002 1.935936
## 2064 0.063063063 0.002002002 1.934935
## 2065 0.064064064 0.002002002 1.933934
## 2066 0.065065065 0.002002002 1.932933
## 2067 0.066066066 0.002002002 1.931932
## 2068 0.067067067 0.002002002 1.930931
## 2069 0.068068068 0.002002002 1.929930
## 2070 0.069069069 0.002002002 1.928929
## 2071 0.070070070 0.002002002 1.927928
## 2072 0.071071071 0.002002002 1.926927
## 2073 0.072072072 0.002002002 1.925926
## 2074 0.073073073 0.002002002 1.924925
## 2075 0.074074074 0.002002002 1.923924
## 2076 0.075075075 0.002002002 1.922923
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 157

```
## 2077 0.076076076 0.002002002 1.921922
## 2078 0.077077077 0.002002002 1.920921
## 2079 0.078078078 0.002002002 1.919920
## 2080 0.079079079 0.002002002 1.918919
## 2081 0.080080080 0.002002002 1.917918
## 2082 0.081081081 0.002002002 1.916917
## 2083 0.082082082 0.002002002 1.915916
## 2084 0.083083083 0.002002002 1.914915
## 2085 0.084084084 0.002002002 1.913914
## 2086 0.085085085 0.002002002 1.912913
## 2087 0.086086086 0.002002002 1.911912
## 2088 0.087087087 0.002002002 1.910911
## 2089 0.088088088 0.002002002 1.909910
## 2090 0.089089089 0.002002002 1.908909
## 2091 0.090090090 0.002002002 1.907908
## 2092 0.091091091 0.002002002 1.906907
## 2093 0.092092092 0.002002002 1.905906
## 2094 0.093093093 0.002002002 1.904905
## 2095 0.094094094 0.002002002 1.903904
## 2096 0.095095095 0.002002002 1.902903
## 2097 0.096096096 0.002002002 1.901902
## 2098 0.097097097 0.002002002 1.900901
## 2099 0.098098098 0.002002002 1.899900
## 2100 0.099099099 0.002002002 1.898899
## 2101 0.100100100 0.002002002 1.897898
## 2102 0.101101101 0.002002002 1.896897
## 2103 0.102102102 0.002002002 1.895896
## 2104 0.103103103 0.002002002 1.894895
## 2105 0.104104104 0.002002002 1.893894
## 2106 0.105105105 0.002002002 1.892893
## 2107 0.106106106 0.002002002 1.891892
## 2108 0.107107107 0.002002002 1.890891
## 2109 0.108108108 0.002002002 1.889890
## 2110 0.109109109 0.002002002 1.888889
## 2111 0.110110110 0.002002002 1.887888
## 2112 0.111111111 0.002002002 1.886887
## 2113 0.112112112 0.002002002 1.885886
## 2114 0.113113113 0.002002002 1.884885
## 2115 0.114114114 0.002002002 1.883884
## 2116 0.115115115 0.002002002 1.882883
## 2117 0.116116116 0.002002002 1.881882
## 2118 0.117117117 0.002002002 1.880881
## 2119 0.118118118 0.002002002 1.879880
## 2120 0.119119119 0.002002002 1.878879
## 2121 0.120120120 0.002002002 1.877878
## 2122 0.121121121 0.002002002 1.876877
```

```
## 2123 0.122122122 0.002002002 1.875876
## 2124 0.123123123 0.002002002 1.874875
## 2125 0.124124124 0.002002002 1.873874
## 2126 0.125125125 0.002002002 1.872873
## 2127 0.126126126 0.002002002 1.871872
## 2128 0.127127127 0.002002002 1.870871
## 2129 0.128128128 0.002002002 1.869870
## 2130 0.129129129 0.002002002 1.868869
## 2131 0.130130130 0.002002002 1.867868
## 2132 0.131131131 0.002002002 1.866867
## 2133 0.132132132 0.002002002 1.865866
## 2134 0.133133133 0.002002002 1.864865
## 2135 0.134134134 0.002002002 1.863864
## 2136 0.135135135 0.002002002 1.862863
## 2137 0.136136136 0.002002002 1.861862
## 2138 0.137137137 0.002002002 1.860861
## 2139 0.138138138 0.002002002 1.859860
## 2140 0.139139139 0.002002002 1.858859
## 2141 0.140140140 0.002002002 1.857858
## 2142 0.141141141 0.002002002 1.856857
## 2143 0.142142142 0.002002002 1.855856
## 2144 0.143143143 0.002002002 1.854855
## 2145 0.144144144 0.002002002 1.853854
## 2146 0.145145145 0.002002002 1.852853
## 2147 0.146146146 0.002002002 1.851852
## 2148 0.147147147 0.002002002 1.850851
## 2149 0.148148148 0.002002002 1.849850
## 2150 0.149149149 0.002002002 1.848849
## 2151 0.150150150 0.002002002 1.847848
## 2152 0.151151151 0.002002002 1.846847
## 2153 0.152152152 0.002002002 1.845846
## 2154 0.153153153 0.002002002 1.844845
## 2155 0.154154154 0.002002002 1.843844
## 2156 0.155155155 0.002002002 1.842843
## 2157 0.156156156 0.002002002 1.841842
## 2158 0.157157157 0.002002002 1.840841
## 2159 0.158158158 0.002002002 1.839840
## 2160 0.159159159 0.002002002 1.838839
## 2161 0.160160160 0.002002002 1.837838
## 2162 0.161161161 0.002002002 1.836837
## 2163 0.162162162 0.002002002 1.835836
## 2164 0.163163163 0.002002002 1.834835
## 2165 0.164164164 0.002002002 1.833834
## 2166 0.165165165 0.002002002 1.832833
## 2167 0.166166166 0.002002002 1.831832
## 2168 0.167167167 0.002002002 1.830831
```

```

## 2169 0.168168168 0.002002002 1.829830
## 2170 0.169169169 0.002002002 1.828829
## 2171 0.170170170 0.002002002 1.827828
## 2172 0.171171171 0.002002002 1.826827
## 2173 0.172172172 0.002002002 1.825826
## 2174 0.173173173 0.002002002 1.824825
## 2175 0.174174174 0.002002002 1.823824
## 2176 0.175175175 0.002002002 1.822823
## 2177 0.176176176 0.002002002 1.821822
## 2178 0.177177177 0.002002002 1.820821
## 2179 0.178178178 0.002002002 1.819820
## 2180 0.179179179 0.002002002 1.818819
## 2181 0.180180180 0.002002002 1.817818
## 2182 0.181181181 0.002002002 1.816817
## 2183 0.182182182 0.002002002 1.815816
## 2184 0.183183183 0.002002002 1.814815
## 2185 0.184184184 0.002002002 1.813814
## 2186 0.185185185 0.002002002 1.812813
## 2187 0.186186186 0.002002002 1.811812
## 2188 0.187187187 0.002002002 1.810811
## 2189 0.188188188 0.002002002 1.809810
## 2190 0.189189189 0.002002002 1.808809
## 2191 0.190190190 0.002002002 1.807808
## 2192 0.191191191 0.002002002 1.806807
## 2193 0.192192192 0.002002002 1.805806
## 2194 0.193193193 0.002002002 1.804805
## 2195 0.194194194 0.002002002 1.803804
## 2196 0.195195195 0.002002002 1.802803
## 2197 0.196196196 0.002002002 1.801802
## 2198 0.197197197 0.002002002 1.800801
## 2199 0.198198198 0.002002002 1.799800
## 2200 0.199199199 0.002002002 1.798799
## 2201 0.200200200 0.002002002 1.797798
## 2202 0.201201201 0.002002002 1.796797
## 2203 0.202202202 0.002002002 1.795796
## 2204 0.203203203 0.002002002 1.794795
## 2205 0.204204204 0.002002002 1.793794
## 2206 0.205205205 0.002002002 1.792793
## 2207 0.206206206 0.002002002 1.791792
## 2208 0.207207207 0.002002002 1.790791
## 2209 0.208208208 0.002002002 1.789790
## 2210 0.209209209 0.002002002 1.788789
## 2211 0.210210210 0.002002002 1.787788
## 2212 0.211211211 0.002002002 1.786787
## 2213 0.212212212 0.002002002 1.785786
## 2214 0.213213213 0.002002002 1.784785

```

```
## 2215 0.214214214 0.002002002 1.783784
## 2216 0.215215215 0.002002002 1.782783
## 2217 0.216216216 0.002002002 1.781782
## 2218 0.217217217 0.002002002 1.780781
## 2219 0.218218218 0.002002002 1.779780
## 2220 0.219219219 0.002002002 1.778779
## 2221 0.220220220 0.002002002 1.777778
## 2222 0.221221221 0.002002002 1.776777
## 2223 0.222222222 0.002002002 1.775776
## 2224 0.223223223 0.002002002 1.774775
## 2225 0.224224224 0.002002002 1.773774
## 2226 0.225225225 0.002002002 1.772773
## 2227 0.226226226 0.002002002 1.771772
## 2228 0.227227227 0.002002002 1.770771
## 2229 0.228228228 0.002002002 1.769770
## 2230 0.229229229 0.002002002 1.768769
## 2231 0.230230230 0.002002002 1.767768
## 2232 0.231231231 0.002002002 1.766767
## 2233 0.232232232 0.002002002 1.765766
## 2234 0.233233233 0.002002002 1.764765
## 2235 0.234234234 0.002002002 1.763764
## 2236 0.235235235 0.002002002 1.762763
## 2237 0.236236236 0.002002002 1.761762
## 2238 0.237237237 0.002002002 1.760761
## 2239 0.238238238 0.002002002 1.759760
## 2240 0.239239239 0.002002002 1.758759
## 2241 0.240240240 0.002002002 1.757758
## 2242 0.241241241 0.002002002 1.756757
## 2243 0.242242242 0.002002002 1.755756
## 2244 0.243243243 0.002002002 1.754755
## 2245 0.244244244 0.002002002 1.753754
## 2246 0.245245245 0.002002002 1.752753
## 2247 0.246246246 0.002002002 1.751752
## 2248 0.247247247 0.002002002 1.750751
## 2249 0.248248248 0.002002002 1.749750
## 2250 0.249249249 0.002002002 1.748749
## 2251 0.250250250 0.002002002 1.747748
## 2252 0.251251251 0.002002002 1.746747
## 2253 0.252252252 0.002002002 1.745746
## 2254 0.253253253 0.002002002 1.744745
## 2255 0.254254254 0.002002002 1.743744
## 2256 0.255255255 0.002002002 1.742743
## 2257 0.256256256 0.002002002 1.741742
## 2258 0.257257257 0.002002002 1.740741
## 2259 0.258258258 0.002002002 1.739740
## 2260 0.259259259 0.002002002 1.738739
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 161

```
## 2261 0.260260260 0.002002002 1.737738
## 2262 0.261261261 0.002002002 1.736737
## 2263 0.262262262 0.002002002 1.735736
## 2264 0.263263263 0.002002002 1.734735
## 2265 0.264264264 0.002002002 1.733734
## 2266 0.265265265 0.002002002 1.732733
## 2267 0.266266266 0.002002002 1.731732
## 2268 0.267267267 0.002002002 1.730731
## 2269 0.268268268 0.002002002 1.729730
## 2270 0.269269269 0.002002002 1.728729
## 2271 0.270270270 0.002002002 1.727728
## 2272 0.271271271 0.002002002 1.726727
## 2273 0.272272272 0.002002002 1.725726
## 2274 0.273273273 0.002002002 1.724725
## 2275 0.274274274 0.002002002 1.723724
## 2276 0.275275275 0.002002002 1.722723
## 2277 0.276276276 0.002002002 1.721722
## 2278 0.277277277 0.002002002 1.720721
## 2279 0.278278278 0.002002002 1.719720
## 2280 0.279279279 0.002002002 1.718719
## 2281 0.280280280 0.002002002 1.717718
## 2282 0.281281281 0.002002002 1.716717
## 2283 0.282282282 0.002002002 1.715716
## 2284 0.283283283 0.002002002 1.714715
## 2285 0.284284284 0.002002002 1.713714
## 2286 0.285285285 0.002002002 1.712713
## 2287 0.286286286 0.002002002 1.711712
## 2288 0.287287287 0.002002002 1.710711
## 2289 0.288288288 0.002002002 1.709710
## 2290 0.289289289 0.002002002 1.708709
## 2291 0.290290290 0.002002002 1.707708
## 2292 0.291291291 0.002002002 1.706707
## 2293 0.292292292 0.002002002 1.705706
## 2294 0.293293293 0.002002002 1.704705
## 2295 0.294294294 0.002002002 1.703704
## 2296 0.295295295 0.002002002 1.702703
## 2297 0.296296296 0.002002002 1.701702
## 2298 0.297297297 0.002002002 1.700701
## 2299 0.298298298 0.002002002 1.699700
## 2300 0.299299299 0.002002002 1.698699
## 2301 0.300300300 0.002002002 1.697698
## 2302 0.301301301 0.002002002 1.696697
## 2303 0.302302302 0.002002002 1.695696
## 2304 0.303303303 0.002002002 1.694695
## 2305 0.304304304 0.002002002 1.693694
## 2306 0.305305305 0.002002002 1.692693
```

```
## 2307 0.306306306 0.002002002 1.691692
## 2308 0.307307307 0.002002002 1.690691
## 2309 0.308308308 0.002002002 1.689690
## 2310 0.309309309 0.002002002 1.688689
## 2311 0.310310310 0.002002002 1.687688
## 2312 0.311311311 0.002002002 1.686687
## 2313 0.312312312 0.002002002 1.685686
## 2314 0.313313313 0.002002002 1.684685
## 2315 0.314314314 0.002002002 1.683684
## 2316 0.315315315 0.002002002 1.682683
## 2317 0.316316316 0.002002002 1.681682
## 2318 0.317317317 0.002002002 1.680681
## 2319 0.318318318 0.002002002 1.679680
## 2320 0.319319319 0.002002002 1.678679
## 2321 0.320320320 0.002002002 1.677678
## 2322 0.321321321 0.002002002 1.676677
## 2323 0.322322322 0.002002002 1.675676
## 2324 0.323323323 0.002002002 1.674675
## 2325 0.324324324 0.002002002 1.673674
## 2326 0.325325325 0.002002002 1.672673
## 2327 0.326326326 0.002002002 1.671672
## 2328 0.327327327 0.002002002 1.670671
## 2329 0.328328328 0.002002002 1.669670
## 2330 0.329329329 0.002002002 1.668669
## 2331 0.330330330 0.002002002 1.667668
## 2332 0.331331331 0.002002002 1.666667
## 2333 0.332332332 0.002002002 1.665666
## 2334 0.333333333 0.002002002 1.664665
## 2335 0.334334334 0.002002002 1.663664
## 2336 0.335335335 0.002002002 1.662663
## 2337 0.336336336 0.002002002 1.661662
## 2338 0.337337337 0.002002002 1.660661
## 2339 0.338338338 0.002002002 1.659660
## 2340 0.339339339 0.002002002 1.658659
## 2341 0.340340340 0.002002002 1.657658
## 2342 0.341341341 0.002002002 1.656657
## 2343 0.342342342 0.002002002 1.655656
## 2344 0.343343343 0.002002002 1.654655
## 2345 0.344344344 0.002002002 1.653654
## 2346 0.345345345 0.002002002 1.652653
## 2347 0.346346346 0.002002002 1.651652
## 2348 0.347347347 0.002002002 1.650651
## 2349 0.348348348 0.002002002 1.649650
## 2350 0.349349349 0.002002002 1.648649
## 2351 0.350350350 0.002002002 1.647648
## 2352 0.351351351 0.002002002 1.646647
```

```

## 2353 0.352352352 0.002002002 1.645646
## 2354 0.353353353 0.002002002 1.644645
## 2355 0.354354354 0.002002002 1.643644
## 2356 0.355355355 0.002002002 1.642643
## 2357 0.356356356 0.002002002 1.641642
## 2358 0.357357357 0.002002002 1.640641
## 2359 0.358358358 0.002002002 1.639640
## 2360 0.359359359 0.002002002 1.638639
## 2361 0.360360360 0.002002002 1.637638
## 2362 0.361361361 0.002002002 1.636637
## 2363 0.362362362 0.002002002 1.635636
## 2364 0.363363363 0.002002002 1.634635
## 2365 0.364364364 0.002002002 1.633634
## 2366 0.365365365 0.002002002 1.632633
## 2367 0.366366366 0.002002002 1.631632
## 2368 0.367367367 0.002002002 1.630631
## 2369 0.368368368 0.002002002 1.629630
## 2370 0.369369369 0.002002002 1.628629
## 2371 0.370370370 0.002002002 1.627628
## 2372 0.371371371 0.002002002 1.626627
## 2373 0.372372372 0.002002002 1.625626
## 2374 0.373373373 0.002002002 1.624625
## 2375 0.374374374 0.002002002 1.623624
## 2376 0.375375375 0.002002002 1.622623
## 2377 0.376376376 0.002002002 1.621622
## 2378 0.377377377 0.002002002 1.620621
## 2379 0.378378378 0.002002002 1.619620
## 2380 0.379379379 0.002002002 1.618619
## 2381 0.380380380 0.002002002 1.617618
## 2382 0.381381381 0.002002002 1.616617
## 2383 0.382382382 0.002002002 1.615616
## 2384 0.383383383 0.002002002 1.614615
## 2385 0.384384384 0.002002002 1.613614
## 2386 0.385385385 0.002002002 1.612613
## 2387 0.386386386 0.002002002 1.611612
## 2388 0.387387387 0.002002002 1.610611
## 2389 0.388388388 0.002002002 1.609610
## 2390 0.389389389 0.002002002 1.608609
## 2391 0.390390390 0.002002002 1.607608
## 2392 0.391391391 0.002002002 1.606607
## 2393 0.392392392 0.002002002 1.605606
## 2394 0.393393393 0.002002002 1.604605
## 2395 0.394394394 0.002002002 1.603604
## 2396 0.395395395 0.002002002 1.602603
## 2397 0.396396396 0.002002002 1.601602
## 2398 0.397397397 0.002002002 1.600601

```

```
## 2399 0.398398398 0.002002002 1.599600
## 2400 0.399399399 0.002002002 1.598599
## 2401 0.400400400 0.002002002 1.597598
## 2402 0.401401401 0.002002002 1.596597
## 2403 0.402402402 0.002002002 1.595596
## 2404 0.403403403 0.002002002 1.594595
## 2405 0.404404404 0.002002002 1.593594
## 2406 0.405405405 0.002002002 1.592593
## 2407 0.406406406 0.002002002 1.591592
## 2408 0.407407407 0.002002002 1.590591
## 2409 0.408408408 0.002002002 1.589590
## 2410 0.409409409 0.002002002 1.588589
## 2411 0.410410410 0.002002002 1.587588
## 2412 0.411411411 0.002002002 1.586587
## 2413 0.412412412 0.002002002 1.585586
## 2414 0.413413413 0.002002002 1.584585
## 2415 0.414414414 0.002002002 1.583584
## 2416 0.415415415 0.002002002 1.582583
## 2417 0.416416416 0.002002002 1.581582
## 2418 0.417417417 0.002002002 1.580581
## 2419 0.418418418 0.002002002 1.579580
## 2420 0.419419419 0.002002002 1.578579
## 2421 0.420420420 0.002002002 1.577578
## 2422 0.421421421 0.002002002 1.576577
## 2423 0.422422422 0.002002002 1.575576
## 2424 0.423423423 0.002002002 1.574575
## 2425 0.424424424 0.002002002 1.573574
## 2426 0.425425425 0.002002002 1.572573
## 2427 0.426426426 0.002002002 1.571572
## 2428 0.427427427 0.002002002 1.570571
## 2429 0.428428428 0.002002002 1.569570
## 2430 0.429429429 0.002002002 1.568569
## 2431 0.430430430 0.002002002 1.567568
## 2432 0.431431431 0.002002002 1.566567
## 2433 0.432432432 0.002002002 1.565566
## 2434 0.433433433 0.002002002 1.564565
## 2435 0.434434434 0.002002002 1.563564
## 2436 0.435435435 0.002002002 1.562563
## 2437 0.436436436 0.002002002 1.561562
## 2438 0.437437437 0.002002002 1.560561
## 2439 0.438438438 0.002002002 1.559560
## 2440 0.439439439 0.002002002 1.558559
## 2441 0.440440440 0.002002002 1.557558
## 2442 0.441441441 0.002002002 1.556557
## 2443 0.442442442 0.002002002 1.555556
## 2444 0.443443443 0.002002002 1.554555
```

```

## 2445 0.444444444 0.002002002 1.553554
## 2446 0.445445445 0.002002002 1.552553
## 2447 0.446446446 0.002002002 1.551552
## 2448 0.447447447 0.002002002 1.550551
## 2449 0.448448448 0.002002002 1.549550
## 2450 0.449449449 0.002002002 1.548549
## 2451 0.450450450 0.002002002 1.547548
## 2452 0.451451451 0.002002002 1.546547
## 2453 0.452452452 0.002002002 1.545546
## 2454 0.453453453 0.002002002 1.544545
## 2455 0.454454454 0.002002002 1.543544
## 2456 0.455455455 0.002002002 1.542543
## 2457 0.456456456 0.002002002 1.541542
## 2458 0.457457457 0.002002002 1.540541
## 2459 0.458458458 0.002002002 1.539540
## 2460 0.459459459 0.002002002 1.538539
## 2461 0.460460460 0.002002002 1.537538
## 2462 0.461461461 0.002002002 1.536537
## 2463 0.462462462 0.002002002 1.535536
## 2464 0.463463463 0.002002002 1.534535
## 2465 0.464464464 0.002002002 1.533534
## 2466 0.465465465 0.002002002 1.532533
## 2467 0.466466466 0.002002002 1.531532
## 2468 0.467467467 0.002002002 1.530531
## 2469 0.468468468 0.002002002 1.529530
## 2470 0.469469469 0.002002002 1.528529
## 2471 0.470470470 0.002002002 1.527528
## 2472 0.471471471 0.002002002 1.526527
## 2473 0.472472472 0.002002002 1.525526
## 2474 0.473473473 0.002002002 1.524525
## 2475 0.474474474 0.002002002 1.523524
## 2476 0.475475475 0.002002002 1.522523
## 2477 0.476476476 0.002002002 1.521522
## 2478 0.477477477 0.002002002 1.520521
## 2479 0.478478478 0.002002002 1.519520
## 2480 0.479479479 0.002002002 1.518519
## 2481 0.480480480 0.002002002 1.517518
## 2482 0.481481481 0.002002002 1.516517
## 2483 0.482482482 0.002002002 1.515516
## 2484 0.483483483 0.002002002 1.514515
## 2485 0.484484484 0.002002002 1.513514
## 2486 0.485485485 0.002002002 1.512513
## 2487 0.486486486 0.002002002 1.511512
## 2488 0.487487487 0.002002002 1.510511
## 2489 0.488488488 0.002002002 1.509510
## 2490 0.489489489 0.002002002 1.508509

```

```
## 2491 0.490490490 0.002002002 1.507508
## 2492 0.491491491 0.002002002 1.506507
## 2493 0.492492492 0.002002002 1.505506
## 2494 0.493493493 0.002002002 1.504505
## 2495 0.494494494 0.002002002 1.503504
## 2496 0.495495495 0.002002002 1.502503
## 2497 0.496496496 0.002002002 1.501502
## 2498 0.497497497 0.002002002 1.500501
## 2499 0.498498498 0.002002002 1.499499
## 2500 0.499499499 0.002002002 1.498498
## 2501 0.500500501 0.002002002 1.497497
## 2502 0.501501502 0.002002002 1.496496
## 2503 0.502502503 0.002002002 1.495495
## 2504 0.503503504 0.002002002 1.494494
## 2505 0.504504505 0.002002002 1.493493
## 2506 0.505505506 0.002002002 1.492492
## 2507 0.506506507 0.002002002 1.491491
## 2508 0.507507508 0.002002002 1.490490
## 2509 0.508508509 0.002002002 1.489489
## 2510 0.509509510 0.002002002 1.488488
## 2511 0.510510511 0.002002002 1.487487
## 2512 0.511511512 0.002002002 1.486486
## 2513 0.512512513 0.002002002 1.485485
## 2514 0.513513514 0.002002002 1.484484
## 2515 0.514514515 0.002002002 1.483483
## 2516 0.515515516 0.002002002 1.482482
## 2517 0.516516517 0.002002002 1.481481
## 2518 0.517517518 0.002002002 1.480480
## 2519 0.518518519 0.002002002 1.479479
## 2520 0.519519520 0.002002002 1.478478
## 2521 0.520520521 0.002002002 1.477477
## 2522 0.521521522 0.002002002 1.476476
## 2523 0.522522523 0.002002002 1.475475
## 2524 0.523523524 0.002002002 1.474474
## 2525 0.524524525 0.002002002 1.473473
## 2526 0.525525526 0.002002002 1.472472
## 2527 0.526526527 0.002002002 1.471471
## 2528 0.527527528 0.002002002 1.470470
## 2529 0.528528529 0.002002002 1.469469
## 2530 0.529529530 0.002002002 1.468468
## 2531 0.530530531 0.002002002 1.467467
## 2532 0.531531532 0.002002002 1.466466
## 2533 0.532532533 0.002002002 1.465465
## 2534 0.533533534 0.002002002 1.464464
## 2535 0.534534535 0.002002002 1.463463
## 2536 0.535535536 0.002002002 1.462462
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 167

```
## 2537 0.536536537 0.002002002 1.461461
## 2538 0.537537538 0.002002002 1.460460
## 2539 0.538538539 0.002002002 1.459459
## 2540 0.539539540 0.002002002 1.458458
## 2541 0.540540541 0.002002002 1.457457
## 2542 0.541541542 0.002002002 1.456456
## 2543 0.542542543 0.002002002 1.455455
## 2544 0.543543544 0.002002002 1.454454
## 2545 0.544544545 0.002002002 1.453453
## 2546 0.545545546 0.002002002 1.452452
## 2547 0.546546547 0.002002002 1.451451
## 2548 0.547547548 0.002002002 1.450450
## 2549 0.548548549 0.002002002 1.449449
## 2550 0.549549550 0.002002002 1.448448
## 2551 0.550550551 0.002002002 1.447447
## 2552 0.551551552 0.002002002 1.446446
## 2553 0.552552553 0.002002002 1.445445
## 2554 0.553553554 0.002002002 1.444444
## 2555 0.554554555 0.002002002 1.443443
## 2556 0.555555556 0.002002002 1.442442
## 2557 0.556556557 0.002002002 1.441441
## 2558 0.557557558 0.002002002 1.440440
## 2559 0.558558559 0.002002002 1.439439
## 2560 0.559559560 0.002002002 1.438438
## 2561 0.560560561 0.002002002 1.437437
## 2562 0.561561562 0.002002002 1.436436
## 2563 0.562562563 0.002002002 1.435435
## 2564 0.563563564 0.002002002 1.434434
## 2565 0.564564565 0.002002002 1.433433
## 2566 0.565565566 0.002002002 1.432432
## 2567 0.566566567 0.002002002 1.431431
## 2568 0.567567568 0.002002002 1.430430
## 2569 0.568568569 0.002002002 1.429429
## 2570 0.569569570 0.002002002 1.428428
## 2571 0.570570571 0.002002002 1.427427
## 2572 0.571571572 0.002002002 1.426426
## 2573 0.572572573 0.002002002 1.425425
## 2574 0.573573574 0.002002002 1.424424
## 2575 0.574574575 0.002002002 1.423423
## 2576 0.575575576 0.002002002 1.422422
## 2577 0.576576577 0.002002002 1.421421
## 2578 0.577577578 0.002002002 1.420420
## 2579 0.578578579 0.002002002 1.419419
## 2580 0.579579580 0.002002002 1.418418
## 2581 0.580580581 0.002002002 1.417417
## 2582 0.581581582 0.002002002 1.416416
```

```
## 2583 0.582582583 0.002002002 1.415415
## 2584 0.583583584 0.002002002 1.414414
## 2585 0.584584585 0.002002002 1.413413
## 2586 0.585585586 0.002002002 1.412412
## 2587 0.586586587 0.002002002 1.411411
## 2588 0.587587588 0.002002002 1.410410
## 2589 0.588588589 0.002002002 1.409409
## 2590 0.589589590 0.002002002 1.408408
## 2591 0.590590591 0.002002002 1.407407
## 2592 0.591591592 0.002002002 1.406406
## 2593 0.592592593 0.002002002 1.405405
## 2594 0.593593594 0.002002002 1.404404
## 2595 0.594594595 0.002002002 1.403403
## 2596 0.595595596 0.002002002 1.402402
## 2597 0.596596597 0.002002002 1.401401
## 2598 0.597597598 0.002002002 1.400400
## 2599 0.598598599 0.002002002 1.399399
## 2600 0.599599600 0.002002002 1.398398
## 2601 0.600600601 0.002002002 1.397397
## 2602 0.601601602 0.002002002 1.396396
## 2603 0.602602603 0.002002002 1.395395
## 2604 0.603603604 0.002002002 1.394394
## 2605 0.604604605 0.002002002 1.393393
## 2606 0.605605606 0.002002002 1.392392
## 2607 0.606606607 0.002002002 1.391391
## 2608 0.607607608 0.002002002 1.390390
## 2609 0.608608609 0.002002002 1.389389
## 2610 0.609609610 0.002002002 1.388388
## 2611 0.610610611 0.002002002 1.387387
## 2612 0.611611612 0.002002002 1.386386
## 2613 0.612612613 0.002002002 1.385385
## 2614 0.613613614 0.002002002 1.384384
## 2615 0.614614615 0.002002002 1.383383
## 2616 0.615615616 0.002002002 1.382382
## 2617 0.616616617 0.002002002 1.381381
## 2618 0.617617618 0.002002002 1.380380
## 2619 0.618618619 0.002002002 1.379379
## 2620 0.619619620 0.002002002 1.378378
## 2621 0.620620621 0.002002002 1.377377
## 2622 0.621621622 0.002002002 1.376376
## 2623 0.622622623 0.002002002 1.375375
## 2624 0.623623624 0.002002002 1.374374
## 2625 0.624624625 0.002002002 1.373373
## 2626 0.625625626 0.002002002 1.372372
## 2627 0.626626627 0.002002002 1.371371
## 2628 0.627627628 0.002002002 1.370370
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 169

```
## 2629  0.628628629 0.002002002 1.369369
## 2630  0.629629630 0.002002002 1.368368
## 2631  0.630630631 0.002002002 1.367367
## 2632  0.631631632 0.002002002 1.366366
## 2633  0.632632633 0.002002002 1.365365
## 2634  0.633633634 0.002002002 1.364364
## 2635  0.634634635 0.002002002 1.363363
## 2636  0.635635636 0.002002002 1.362362
## 2637  0.636636637 0.002002002 1.361361
## 2638  0.637637638 0.002002002 1.360360
## 2639  0.638638639 0.002002002 1.359359
## 2640  0.639639640 0.002002002 1.358358
## 2641  0.640640641 0.002002002 1.357357
## 2642  0.641641642 0.002002002 1.356356
## 2643  0.642642643 0.002002002 1.355355
## 2644  0.643643644 0.002002002 1.354354
## 2645  0.644644645 0.002002002 1.353353
## 2646  0.645645646 0.002002002 1.352352
## 2647  0.646646647 0.002002002 1.351351
## 2648  0.647647648 0.002002002 1.350350
## 2649  0.648648649 0.002002002 1.349349
## 2650  0.649649650 0.002002002 1.348348
## 2651  0.650650651 0.002002002 1.347347
## 2652  0.651651652 0.002002002 1.346346
## 2653  0.652652653 0.002002002 1.345345
## 2654  0.653653654 0.002002002 1.344344
## 2655  0.654654655 0.002002002 1.343343
## 2656  0.655655656 0.002002002 1.342342
## 2657  0.656656657 0.002002002 1.341341
## 2658  0.657657658 0.002002002 1.340340
## 2659  0.658658659 0.002002002 1.339339
## 2660  0.659659660 0.002002002 1.338338
## 2661  0.660660661 0.002002002 1.337337
## 2662  0.661661662 0.002002002 1.336336
## 2663  0.662662663 0.002002002 1.335335
## 2664  0.663663664 0.002002002 1.334334
## 2665  0.664664665 0.002002002 1.333333
## 2666  0.665665666 0.002002002 1.332332
## 2667  0.666666667 0.002002002 1.331331
## 2668  0.667667668 0.002002002 1.330330
## 2669  0.668668669 0.002002002 1.329329
## 2670  0.669669670 0.002002002 1.328328
## 2671  0.670670671 0.002002002 1.327327
## 2672  0.671671672 0.002002002 1.326326
## 2673  0.672672673 0.002002002 1.325325
## 2674  0.673673674 0.002002002 1.324324
```

```
## 2675 0.674674675 0.002002002 1.323323
## 2676 0.675675676 0.002002002 1.322322
## 2677 0.676676677 0.002002002 1.321321
## 2678 0.677677678 0.002002002 1.320320
## 2679 0.678678679 0.002002002 1.319319
## 2680 0.679679680 0.002002002 1.318318
## 2681 0.680680681 0.002002002 1.317317
## 2682 0.681681682 0.002002002 1.316316
## 2683 0.682682683 0.002002002 1.315315
## 2684 0.683683684 0.002002002 1.314314
## 2685 0.684684685 0.002002002 1.313313
## 2686 0.685685686 0.002002002 1.312312
## 2687 0.686686687 0.002002002 1.311311
## 2688 0.687687688 0.002002002 1.310310
## 2689 0.688688689 0.002002002 1.309309
## 2690 0.689689690 0.002002002 1.308308
## 2691 0.690690691 0.002002002 1.307307
## 2692 0.691691692 0.002002002 1.306306
## 2693 0.692692693 0.002002002 1.305305
## 2694 0.693693694 0.002002002 1.304304
## 2695 0.694694695 0.002002002 1.303303
## 2696 0.695695696 0.002002002 1.302302
## 2697 0.696696697 0.002002002 1.301301
## 2698 0.697697698 0.002002002 1.300300
## 2699 0.698698699 0.002002002 1.299299
## 2700 0.699699700 0.002002002 1.298298
## 2701 0.700700701 0.002002002 1.297297
## 2702 0.701701702 0.002002002 1.296296
## 2703 0.702702703 0.002002002 1.295295
## 2704 0.703703704 0.002002002 1.294294
## 2705 0.704704705 0.002002002 1.293293
## 2706 0.705705706 0.002002002 1.292292
## 2707 0.706706707 0.002002002 1.291291
## 2708 0.707707708 0.002002002 1.290290
## 2709 0.708708709 0.002002002 1.289289
## 2710 0.709709710 0.002002002 1.288288
## 2711 0.710710711 0.002002002 1.287287
## 2712 0.711711712 0.002002002 1.286286
## 2713 0.712712713 0.002002002 1.285285
## 2714 0.713713714 0.002002002 1.284284
## 2715 0.714714715 0.002002002 1.283283
## 2716 0.715715716 0.002002002 1.282282
## 2717 0.716716717 0.002002002 1.281281
## 2718 0.717717718 0.002002002 1.280280
## 2719 0.718718719 0.002002002 1.279279
## 2720 0.719719720 0.002002002 1.278278
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 171

```
## 2721 0.720720721 0.002002002 1.277277
## 2722 0.721721722 0.002002002 1.276276
## 2723 0.722722723 0.002002002 1.275275
## 2724 0.723723724 0.002002002 1.274274
## 2725 0.724724725 0.002002002 1.273273
## 2726 0.725725726 0.002002002 1.272272
## 2727 0.726726727 0.002002002 1.271271
## 2728 0.727727728 0.002002002 1.270270
## 2729 0.728728729 0.002002002 1.269269
## 2730 0.729729730 0.002002002 1.268268
## 2731 0.730730731 0.002002002 1.267267
## 2732 0.731731732 0.002002002 1.266266
## 2733 0.732732733 0.002002002 1.265265
## 2734 0.733733734 0.002002002 1.264264
## 2735 0.734734735 0.002002002 1.263263
## 2736 0.735735736 0.002002002 1.262262
## 2737 0.736736737 0.002002002 1.261261
## 2738 0.737737738 0.002002002 1.260260
## 2739 0.738738739 0.002002002 1.259259
## 2740 0.739739740 0.002002002 1.258258
## 2741 0.740740741 0.002002002 1.257257
## 2742 0.741741742 0.002002002 1.256256
## 2743 0.742742743 0.002002002 1.255255
## 2744 0.743743744 0.002002002 1.254254
## 2745 0.744744745 0.002002002 1.253253
## 2746 0.745745746 0.002002002 1.252252
## 2747 0.746746747 0.002002002 1.251251
## 2748 0.747747748 0.002002002 1.250250
## 2749 0.748748749 0.002002002 1.249249
## 2750 0.749749750 0.002002002 1.248248
## 2751 0.750750751 0.002002002 1.247247
## 2752 0.751751752 0.002002002 1.246246
## 2753 0.752752753 0.002002002 1.245245
## 2754 0.753753754 0.002002002 1.244244
## 2755 0.754754755 0.002002002 1.243243
## 2756 0.755755756 0.002002002 1.242242
## 2757 0.756756757 0.002002002 1.241241
## 2758 0.757757758 0.002002002 1.240240
## 2759 0.758758759 0.002002002 1.239239
## 2760 0.759759760 0.002002002 1.238238
## 2761 0.760760761 0.002002002 1.237237
## 2762 0.761761762 0.002002002 1.236236
## 2763 0.762762763 0.002002002 1.235235
## 2764 0.763763764 0.002002002 1.234234
## 2765 0.764764765 0.002002002 1.233233
## 2766 0.765765766 0.002002002 1.232232
```

```
## 2767 0.766766767 0.002002002 1.231231
## 2768 0.767767768 0.002002002 1.230230
## 2769 0.768768769 0.002002002 1.229229
## 2770 0.769769770 0.002002002 1.228228
## 2771 0.770770771 0.002002002 1.227227
## 2772 0.771771772 0.002002002 1.226226
## 2773 0.772772773 0.002002002 1.225225
## 2774 0.773773774 0.002002002 1.224224
## 2775 0.774774775 0.002002002 1.223223
## 2776 0.775775776 0.002002002 1.222222
## 2777 0.776776777 0.002002002 1.221221
## 2778 0.777777778 0.002002002 1.220220
## 2779 0.778778779 0.002002002 1.219219
## 2780 0.779779780 0.002002002 1.218218
## 2781 0.780780781 0.002002002 1.217217
## 2782 0.781781782 0.002002002 1.216216
## 2783 0.782782783 0.002002002 1.215215
## 2784 0.783783784 0.002002002 1.214214
## 2785 0.784784785 0.002002002 1.213213
## 2786 0.785785786 0.002002002 1.212212
## 2787 0.786786787 0.002002002 1.211211
## 2788 0.787787788 0.002002002 1.210210
## 2789 0.788788789 0.002002002 1.209209
## 2790 0.789789790 0.002002002 1.208208
## 2791 0.790790791 0.002002002 1.207207
## 2792 0.791791792 0.002002002 1.206206
## 2793 0.792792793 0.002002002 1.205205
## 2794 0.793793794 0.002002002 1.204204
## 2795 0.794794795 0.002002002 1.203203
## 2796 0.795795796 0.002002002 1.202202
## 2797 0.796796797 0.002002002 1.201201
## 2798 0.797797798 0.002002002 1.200200
## 2799 0.798798799 0.002002002 1.199199
## 2800 0.799799800 0.002002002 1.198198
## 2801 0.800800801 0.002002002 1.197197
## 2802 0.801801802 0.002002002 1.196196
## 2803 0.802802803 0.002002002 1.195195
## 2804 0.803803804 0.002002002 1.194194
## 2805 0.804804805 0.002002002 1.193193
## 2806 0.805805806 0.002002002 1.192192
## 2807 0.806806807 0.002002002 1.191191
## 2808 0.807807808 0.002002002 1.190190
## 2809 0.808808809 0.002002002 1.189189
## 2810 0.809809810 0.002002002 1.188188
## 2811 0.810810811 0.002002002 1.187187
## 2812 0.811811812 0.002002002 1.186186
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 173

```
## 2813 0.812812813 0.002002002 1.185185
## 2814 0.813813814 0.002002002 1.184184
## 2815 0.814814815 0.002002002 1.183183
## 2816 0.815815816 0.002002002 1.182182
## 2817 0.816816817 0.002002002 1.181181
## 2818 0.817817818 0.002002002 1.180180
## 2819 0.818818819 0.002002002 1.179179
## 2820 0.819819820 0.002002002 1.178178
## 2821 0.820820821 0.002002002 1.177177
## 2822 0.821821822 0.002002002 1.176176
## 2823 0.822822823 0.002002002 1.175175
## 2824 0.823823824 0.002002002 1.174174
## 2825 0.824824825 0.002002002 1.173173
## 2826 0.825825826 0.002002002 1.172172
## 2827 0.826826827 0.002002002 1.171171
## 2828 0.827827828 0.002002002 1.170170
## 2829 0.828828829 0.002002002 1.169169
## 2830 0.829829830 0.002002002 1.168168
## 2831 0.830830831 0.002002002 1.167167
## 2832 0.831831832 0.002002002 1.166166
## 2833 0.832832833 0.002002002 1.165165
## 2834 0.833833834 0.002002002 1.164164
## 2835 0.834834835 0.002002002 1.163163
## 2836 0.835835836 0.002002002 1.162162
## 2837 0.836836837 0.002002002 1.161161
## 2838 0.837837838 0.002002002 1.160160
## 2839 0.838838839 0.002002002 1.159159
## 2840 0.839839840 0.002002002 1.158158
## 2841 0.840840841 0.002002002 1.157157
## 2842 0.841841842 0.002002002 1.156156
## 2843 0.842842843 0.002002002 1.155155
## 2844 0.843843844 0.002002002 1.154154
## 2845 0.844844845 0.002002002 1.153153
## 2846 0.845845846 0.002002002 1.152152
## 2847 0.846846847 0.002002002 1.151151
## 2848 0.847847848 0.002002002 1.150150
## 2849 0.848848849 0.002002002 1.149149
## 2850 0.849849850 0.002002002 1.148148
## 2851 0.850850851 0.002002002 1.147147
## 2852 0.851851852 0.002002002 1.146146
## 2853 0.852852853 0.002002002 1.145145
## 2854 0.853853854 0.002002002 1.144144
## 2855 0.854854855 0.002002002 1.143143
## 2856 0.855855856 0.002002002 1.142142
## 2857 0.856856857 0.002002002 1.141141
## 2858 0.857857858 0.002002002 1.140140
```

```
## 2859  0.858858859 0.002002002 1.139139
## 2860  0.859859860 0.002002002 1.138138
## 2861  0.860860861 0.002002002 1.137137
## 2862  0.861861862 0.002002002 1.136136
## 2863  0.862862863 0.002002002 1.135135
## 2864  0.863863864 0.002002002 1.134134
## 2865  0.864864865 0.002002002 1.133133
## 2866  0.865865866 0.002002002 1.132132
## 2867  0.866866867 0.002002002 1.131131
## 2868  0.867867868 0.002002002 1.130130
## 2869  0.868868869 0.002002002 1.129129
## 2870  0.869869870 0.002002002 1.128128
## 2871  0.870870871 0.002002002 1.127127
## 2872  0.871871872 0.002002002 1.126126
## 2873  0.872872873 0.002002002 1.125125
## 2874  0.873873874 0.002002002 1.124124
## 2875  0.874874875 0.002002002 1.123123
## 2876  0.875875876 0.002002002 1.122122
## 2877  0.876876877 0.002002002 1.121121
## 2878  0.877877878 0.002002002 1.120120
## 2879  0.878878879 0.002002002 1.119119
## 2880  0.879879880 0.002002002 1.118118
## 2881  0.880880881 0.002002002 1.117117
## 2882  0.881881882 0.002002002 1.116116
## 2883  0.882882883 0.002002002 1.115115
## 2884  0.883883884 0.002002002 1.114114
## 2885  0.884884885 0.002002002 1.113113
## 2886  0.885885886 0.002002002 1.112112
## 2887  0.886886887 0.002002002 1.111111
## 2888  0.887887888 0.002002002 1.110110
## 2889  0.888888889 0.002002002 1.109109
## 2890  0.889889890 0.002002002 1.108108
## 2891  0.890890891 0.002002002 1.107107
## 2892  0.891891892 0.002002002 1.106106
## 2893  0.892892893 0.002002002 1.105105
## 2894  0.893893894 0.002002002 1.104104
## 2895  0.894894895 0.002002002 1.103103
## 2896  0.895895896 0.002002002 1.102102
## 2897  0.896896897 0.002002002 1.101101
## 2898  0.897897898 0.002002002 1.100100
## 2899  0.898898899 0.002002002 1.099099
## 2900  0.899899900 0.002002002 1.098098
## 2901  0.900900901 0.002002002 1.097097
## 2902  0.901901902 0.002002002 1.096096
## 2903  0.902902903 0.002002002 1.095095
## 2904  0.903903904 0.002002002 1.094094
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 175

```
## 2905  0.904904905 0.002002002 1.093093
## 2906  0.905905906 0.002002002 1.092092
## 2907  0.906906907 0.002002002 1.091091
## 2908  0.907907908 0.002002002 1.090090
## 2909  0.908908909 0.002002002 1.089089
## 2910  0.909909910 0.002002002 1.088088
## 2911  0.910910911 0.002002002 1.087087
## 2912  0.911911912 0.002002002 1.086086
## 2913  0.912912913 0.002002002 1.085085
## 2914  0.913913914 0.002002002 1.084084
## 2915  0.914914915 0.002002002 1.083083
## 2916  0.915915916 0.002002002 1.082082
## 2917  0.916916917 0.002002002 1.081081
## 2918  0.917917918 0.002002002 1.080080
## 2919  0.918918919 0.002002002 1.079079
## 2920  0.919919920 0.002002002 1.078078
## 2921  0.920920921 0.002002002 1.077077
## 2922  0.921921922 0.002002002 1.076076
## 2923  0.922922923 0.002002002 1.075075
## 2924  0.923923924 0.002002002 1.074074
## 2925  0.924924925 0.002002002 1.073073
## 2926  0.925925926 0.002002002 1.072072
## 2927  0.926926927 0.002002002 1.071071
## 2928  0.927927928 0.002002002 1.070070
## 2929  0.928928929 0.002002002 1.069069
## 2930  0.929929930 0.002002002 1.068068
## 2931  0.930930931 0.002002002 1.067067
## 2932  0.931931932 0.002002002 1.066066
## 2933  0.932932933 0.002002002 1.065065
## 2934  0.933933934 0.002002002 1.064064
## 2935  0.934934935 0.002002002 1.063063
## 2936  0.935935936 0.002002002 1.062062
## 2937  0.936936937 0.002002002 1.061061
## 2938  0.937937938 0.002002002 1.060060
## 2939  0.938938939 0.002002002 1.059059
## 2940  0.939939940 0.002002002 1.058058
## 2941  0.940940941 0.002002002 1.057057
## 2942  0.941941942 0.002002002 1.056056
## 2943  0.942942943 0.002002002 1.055055
## 2944  0.943943944 0.002002002 1.054054
## 2945  0.944944945 0.002002002 1.053053
## 2946  0.945945946 0.002002002 1.052052
## 2947  0.946946947 0.002002002 1.051051
## 2948  0.947947948 0.002002002 1.050050
## 2949  0.948948949 0.002002002 1.049049
## 2950  0.949949950 0.002002002 1.048048
```

```
## 2951  0.950950951 0.002002002 1.047047
## 2952  0.951951952 0.002002002 1.046046
## 2953  0.952952953 0.002002002 1.045045
## 2954  0.953953954 0.002002002 1.044044
## 2955  0.954954955 0.002002002 1.043043
## 2956  0.955955956 0.002002002 1.042042
## 2957  0.956956957 0.002002002 1.041041
## 2958  0.957957958 0.002002002 1.040040
## 2959  0.958958959 0.002002002 1.039039
## 2960  0.959959960 0.002002002 1.038038
## 2961  0.960960961 0.002002002 1.037037
## 2962  0.961961962 0.002002002 1.036036
## 2963  0.962962963 0.002002002 1.035035
## 2964  0.963963964 0.002002002 1.034034
## 2965  0.964964965 0.002002002 1.033033
## 2966  0.965965966 0.002002002 1.032032
## 2967  0.966966967 0.002002002 1.031031
## 2968  0.967967968 0.002002002 1.030030
## 2969  0.968968969 0.002002002 1.029029
## 2970  0.969969970 0.002002002 1.028028
## 2971  0.970970971 0.002002002 1.027027
## 2972  0.971971972 0.002002002 1.026026
## 2973  0.972972973 0.002002002 1.025025
## 2974  0.973973974 0.002002002 1.024024
## 2975  0.974974975 0.002002002 1.023023
## 2976  0.975975976 0.002002002 1.022022
## 2977  0.976976977 0.002002002 1.021021
## 2978  0.977977978 0.002002002 1.020020
## 2979  0.978978979 0.002002002 1.019019
## 2980  0.979979980 0.002002002 1.018018
## 2981  0.980980981 0.002002002 1.017017
## 2982  0.981981982 0.002002002 1.016016
## 2983  0.982982983 0.002002002 1.015015
## 2984  0.983983984 0.002002002 1.014014
## 2985  0.984984985 0.002002002 1.013013
## 2986  0.985985986 0.002002002 1.012012
## 2987  0.986986987 0.002002002 1.011011
## 2988  0.987987988 0.002002002 1.010010
## 2989  0.988988989 0.002002002 1.009009
## 2990  0.989989990 0.002002002 1.008008
## 2991  0.990990991 0.002002002 1.007007
## 2992  0.991991992 0.002002002 1.006006
## 2993  0.992992993 0.002002002 1.005005
## 2994  0.993993994 0.002002002 1.004004
## 2995  0.994994995 0.002002002 1.003003
## 2996  0.995995996 0.002002002 1.002002
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 177

```
## 2997  0.996996997 0.002002002 1.001001
## 2998  0.997997998 0.002002002 1.000000
## 2999  0.998998999 0.002002002 0.998999
## 3000  1.000000000 0.002002002 0.997998
## 3001  0.000000000 0.003003003 1.996997
## 3002  0.001001001 0.003003003 1.995996
## 3003  0.002002002 0.003003003 1.994995
## 3004  0.003003003 0.003003003 1.993994
## 3005  0.004004004 0.003003003 1.992993
## 3006  0.005005005 0.003003003 1.991992
## 3007  0.006006006 0.003003003 1.990991
## 3008  0.007007007 0.003003003 1.989990
## 3009  0.008008008 0.003003003 1.988989
## 3010  0.009009009 0.003003003 1.987988
## 3011  0.010010010 0.003003003 1.986987
## 3012  0.011011011 0.003003003 1.985986
## 3013  0.012012012 0.003003003 1.984985
## 3014  0.013013013 0.003003003 1.983984
## 3015  0.014014014 0.003003003 1.982983
## 3016  0.015015015 0.003003003 1.981982
## 3017  0.016016016 0.003003003 1.980981
## 3018  0.017017017 0.003003003 1.979980
## 3019  0.018018018 0.003003003 1.978979
## 3020  0.019019019 0.003003003 1.977978
## 3021  0.020020020 0.003003003 1.976977
## 3022  0.021021021 0.003003003 1.975976
## 3023  0.022022022 0.003003003 1.974975
## 3024  0.023023023 0.003003003 1.973974
## 3025  0.024024024 0.003003003 1.972973
## 3026  0.025025025 0.003003003 1.971972
## 3027  0.026026026 0.003003003 1.970971
## 3028  0.027027027 0.003003003 1.969970
## 3029  0.028028028 0.003003003 1.968969
## 3030  0.029029029 0.003003003 1.967968
## 3031  0.030030030 0.003003003 1.966967
## 3032  0.031031031 0.003003003 1.965966
## 3033  0.032032032 0.003003003 1.964965
## 3034  0.033033033 0.003003003 1.963964
## 3035  0.034034034 0.003003003 1.962963
## 3036  0.035035035 0.003003003 1.961962
## 3037  0.036036036 0.003003003 1.960961
## 3038  0.037037037 0.003003003 1.959960
## 3039  0.038038038 0.003003003 1.958959
## 3040  0.039039039 0.003003003 1.957958
## 3041  0.040040040 0.003003003 1.956957
## 3042  0.041041041 0.003003003 1.955956
```

```
## 3043 0.042042042 0.003003003 1.954955
## 3044 0.043043043 0.003003003 1.953954
## 3045 0.044044044 0.003003003 1.952953
## 3046 0.045045045 0.003003003 1.951952
## 3047 0.046046046 0.003003003 1.950951
## 3048 0.047047047 0.003003003 1.949950
## 3049 0.048048048 0.003003003 1.948949
## 3050 0.049049049 0.003003003 1.947948
## 3051 0.050050050 0.003003003 1.946947
## 3052 0.051051051 0.003003003 1.945946
## 3053 0.052052052 0.003003003 1.944945
## 3054 0.053053053 0.003003003 1.943944
## 3055 0.054054054 0.003003003 1.942943
## 3056 0.055055055 0.003003003 1.941942
## 3057 0.056056056 0.003003003 1.940941
## 3058 0.057057057 0.003003003 1.939940
## 3059 0.058058058 0.003003003 1.938939
## 3060 0.059059059 0.003003003 1.937938
## 3061 0.060060060 0.003003003 1.936937
## 3062 0.061061061 0.003003003 1.935936
## 3063 0.062062062 0.003003003 1.934935
## 3064 0.063063063 0.003003003 1.933934
## 3065 0.064064064 0.003003003 1.932933
## 3066 0.065065065 0.003003003 1.931932
## 3067 0.066066066 0.003003003 1.930931
## 3068 0.067067067 0.003003003 1.929930
## 3069 0.068068068 0.003003003 1.928929
## 3070 0.069069069 0.003003003 1.927928
## 3071 0.070070070 0.003003003 1.926927
## 3072 0.071071071 0.003003003 1.925926
## 3073 0.072072072 0.003003003 1.924925
## 3074 0.073073073 0.003003003 1.923924
## 3075 0.074074074 0.003003003 1.922923
## 3076 0.075075075 0.003003003 1.921922
## 3077 0.076076076 0.003003003 1.920921
## 3078 0.077077077 0.003003003 1.919920
## 3079 0.078078078 0.003003003 1.918919
## 3080 0.079079079 0.003003003 1.917918
## 3081 0.080080080 0.003003003 1.916917
## 3082 0.081081081 0.003003003 1.915916
## 3083 0.082082082 0.003003003 1.914915
## 3084 0.083083083 0.003003003 1.913914
## 3085 0.084084084 0.003003003 1.912913
## 3086 0.085085085 0.003003003 1.911912
## 3087 0.086086086 0.003003003 1.910911
## 3088 0.087087087 0.003003003 1.909910
```

```

## 3089  0.088088088 0.003003003 1.908909
## 3090  0.089089089 0.003003003 1.907908
## 3091  0.090090090 0.003003003 1.906907
## 3092  0.091091091 0.003003003 1.905906
## 3093  0.092092092 0.003003003 1.904905
## 3094  0.093093093 0.003003003 1.903904
## 3095  0.094094094 0.003003003 1.902903
## 3096  0.095095095 0.003003003 1.901902
## 3097  0.096096096 0.003003003 1.900901
## 3098  0.097097097 0.003003003 1.899900
## 3099  0.098098098 0.003003003 1.898899
## 3100  0.099099099 0.003003003 1.897898
## 3101  0.100100100 0.003003003 1.896897
## 3102  0.101101101 0.003003003 1.895896
## 3103  0.102102102 0.003003003 1.894895
## 3104  0.103103103 0.003003003 1.893894
## 3105  0.104104104 0.003003003 1.892893
## 3106  0.105105105 0.003003003 1.891892
## 3107  0.106106106 0.003003003 1.890891
## 3108  0.107107107 0.003003003 1.889890
## 3109  0.108108108 0.003003003 1.888889
## 3110  0.109109109 0.003003003 1.887888
## 3111  0.110110110 0.003003003 1.886887
## 3112  0.111111111 0.003003003 1.885886
## 3113  0.112112112 0.003003003 1.884885
## 3114  0.113113113 0.003003003 1.883884
## 3115  0.114114114 0.003003003 1.882883
## 3116  0.115115115 0.003003003 1.881882
## 3117  0.116116116 0.003003003 1.880881
## 3118  0.117117117 0.003003003 1.879880
## 3119  0.118118118 0.003003003 1.878879
## 3120  0.119119119 0.003003003 1.877878
## 3121  0.120120120 0.003003003 1.876877
## 3122  0.121121121 0.003003003 1.875876
## 3123  0.122122122 0.003003003 1.874875
## 3124  0.123123123 0.003003003 1.873874
## 3125  0.124124124 0.003003003 1.872873
## 3126  0.125125125 0.003003003 1.871872
## 3127  0.126126126 0.003003003 1.870871
## 3128  0.127127127 0.003003003 1.869870
## 3129  0.128128128 0.003003003 1.868869
## 3130  0.129129129 0.003003003 1.867868
## 3131  0.130130130 0.003003003 1.866867
## 3132  0.131131131 0.003003003 1.865866
## 3133  0.132132132 0.003003003 1.864865
## 3134  0.133133133 0.003003003 1.863864

```

```
## 3135 0.134134134 0.003003003 1.862863
## 3136 0.135135135 0.003003003 1.861862
## 3137 0.136136136 0.003003003 1.860861
## 3138 0.137137137 0.003003003 1.859860
## 3139 0.138138138 0.003003003 1.858859
## 3140 0.139139139 0.003003003 1.857858
## 3141 0.140140140 0.003003003 1.856857
## 3142 0.141141141 0.003003003 1.855856
## 3143 0.142142142 0.003003003 1.854855
## 3144 0.143143143 0.003003003 1.853854
## 3145 0.144144144 0.003003003 1.852853
## 3146 0.145145145 0.003003003 1.851852
## 3147 0.146146146 0.003003003 1.850851
## 3148 0.147147147 0.003003003 1.849850
## 3149 0.148148148 0.003003003 1.848849
## 3150 0.149149149 0.003003003 1.847848
## 3151 0.150150150 0.003003003 1.846847
## 3152 0.151151151 0.003003003 1.845846
## 3153 0.152152152 0.003003003 1.844845
## 3154 0.153153153 0.003003003 1.843844
## 3155 0.154154154 0.003003003 1.842843
## 3156 0.155155155 0.003003003 1.841842
## 3157 0.156156156 0.003003003 1.840841
## 3158 0.157157157 0.003003003 1.839840
## 3159 0.158158158 0.003003003 1.838839
## 3160 0.159159159 0.003003003 1.837838
## 3161 0.160160160 0.003003003 1.836837
## 3162 0.161161161 0.003003003 1.835836
## 3163 0.162162162 0.003003003 1.834835
## 3164 0.163163163 0.003003003 1.833834
## 3165 0.164164164 0.003003003 1.832833
## 3166 0.165165165 0.003003003 1.831832
## 3167 0.166166166 0.003003003 1.830831
## 3168 0.167167167 0.003003003 1.829830
## 3169 0.168168168 0.003003003 1.828829
## 3170 0.169169169 0.003003003 1.827828
## 3171 0.170170170 0.003003003 1.826827
## 3172 0.171171171 0.003003003 1.825826
## 3173 0.172172172 0.003003003 1.824825
## 3174 0.173173173 0.003003003 1.823824
## 3175 0.174174174 0.003003003 1.822823
## 3176 0.175175175 0.003003003 1.821822
## 3177 0.176176176 0.003003003 1.820821
## 3178 0.177177177 0.003003003 1.819820
## 3179 0.178178178 0.003003003 1.818819
## 3180 0.179179179 0.003003003 1.817818
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 181

```
## 3181 0.180180180 0.003003003 1.816817
## 3182 0.181181181 0.003003003 1.815816
## 3183 0.182182182 0.003003003 1.814815
## 3184 0.183183183 0.003003003 1.813814
## 3185 0.184184184 0.003003003 1.812813
## 3186 0.185185185 0.003003003 1.811812
## 3187 0.186186186 0.003003003 1.810811
## 3188 0.187187187 0.003003003 1.809810
## 3189 0.188188188 0.003003003 1.808809
## 3190 0.189189189 0.003003003 1.807808
## 3191 0.190190190 0.003003003 1.806807
## 3192 0.191191191 0.003003003 1.805806
## 3193 0.192192192 0.003003003 1.804805
## 3194 0.193193193 0.003003003 1.803804
## 3195 0.194194194 0.003003003 1.802803
## 3196 0.195195195 0.003003003 1.801802
## 3197 0.196196196 0.003003003 1.800801
## 3198 0.197197197 0.003003003 1.799800
## 3199 0.198198198 0.003003003 1.798799
## 3200 0.199199199 0.003003003 1.797798
## 3201 0.200200200 0.003003003 1.796797
## 3202 0.201201201 0.003003003 1.795796
## 3203 0.202202202 0.003003003 1.794795
## 3204 0.203203203 0.003003003 1.793794
## 3205 0.204204204 0.003003003 1.792793
## 3206 0.205205205 0.003003003 1.791792
## 3207 0.206206206 0.003003003 1.790791
## 3208 0.207207207 0.003003003 1.789790
## 3209 0.208208208 0.003003003 1.788789
## 3210 0.209209209 0.003003003 1.787788
## 3211 0.210210210 0.003003003 1.786787
## 3212 0.211211211 0.003003003 1.785786
## 3213 0.212212212 0.003003003 1.784785
## 3214 0.213213213 0.003003003 1.783784
## 3215 0.214214214 0.003003003 1.782783
## 3216 0.215215215 0.003003003 1.781782
## 3217 0.216216216 0.003003003 1.780781
## 3218 0.217217217 0.003003003 1.779780
## 3219 0.218218218 0.003003003 1.778779
## 3220 0.219219219 0.003003003 1.777778
## 3221 0.220220220 0.003003003 1.776777
## 3222 0.221221221 0.003003003 1.775776
## 3223 0.222222222 0.003003003 1.774775
## 3224 0.223223223 0.003003003 1.773774
## 3225 0.224224224 0.003003003 1.772773
## 3226 0.225225225 0.003003003 1.771772
```

```
## 3227 0.226226226 0.003003003 1.770771
## 3228 0.227227227 0.003003003 1.769770
## 3229 0.228228228 0.003003003 1.768769
## 3230 0.229229229 0.003003003 1.767768
## 3231 0.230230230 0.003003003 1.766767
## 3232 0.231231231 0.003003003 1.765766
## 3233 0.232232232 0.003003003 1.764765
## 3234 0.233233233 0.003003003 1.763764
## 3235 0.234234234 0.003003003 1.762763
## 3236 0.235235235 0.003003003 1.761762
## 3237 0.236236236 0.003003003 1.760761
## 3238 0.237237237 0.003003003 1.759760
## 3239 0.238238238 0.003003003 1.758759
## 3240 0.239239239 0.003003003 1.757758
## 3241 0.240240240 0.003003003 1.756757
## 3242 0.241241241 0.003003003 1.755756
## 3243 0.242242242 0.003003003 1.754755
## 3244 0.243243243 0.003003003 1.753754
## 3245 0.244244244 0.003003003 1.752753
## 3246 0.245245245 0.003003003 1.751752
## 3247 0.246246246 0.003003003 1.750751
## 3248 0.247247247 0.003003003 1.749750
## 3249 0.248248248 0.003003003 1.748749
## 3250 0.249249249 0.003003003 1.747748
## 3251 0.250250250 0.003003003 1.746747
## 3252 0.251251251 0.003003003 1.745746
## 3253 0.252252252 0.003003003 1.744745
## 3254 0.253253253 0.003003003 1.743744
## 3255 0.254254254 0.003003003 1.742743
## 3256 0.255255255 0.003003003 1.741742
## 3257 0.256256256 0.003003003 1.740741
## 3258 0.257257257 0.003003003 1.739740
## 3259 0.258258258 0.003003003 1.738739
## 3260 0.259259259 0.003003003 1.737738
## 3261 0.260260260 0.003003003 1.736737
## 3262 0.261261261 0.003003003 1.735736
## 3263 0.262262262 0.003003003 1.734735
## 3264 0.263263263 0.003003003 1.733734
## 3265 0.264264264 0.003003003 1.732733
## 3266 0.265265265 0.003003003 1.731732
## 3267 0.266266266 0.003003003 1.730731
## 3268 0.267267267 0.003003003 1.729730
## 3269 0.268268268 0.003003003 1.728729
## 3270 0.269269269 0.003003003 1.727728
## 3271 0.270270270 0.003003003 1.726727
## 3272 0.271271271 0.003003003 1.725726
```

```

## 3273 0.272272272 0.003003003 1.724725
## 3274 0.273273273 0.003003003 1.723724
## 3275 0.274274274 0.003003003 1.722723
## 3276 0.275275275 0.003003003 1.721722
## 3277 0.276276276 0.003003003 1.720721
## 3278 0.277277277 0.003003003 1.719720
## 3279 0.278278278 0.003003003 1.718719
## 3280 0.279279279 0.003003003 1.717718
## 3281 0.280280280 0.003003003 1.716717
## 3282 0.281281281 0.003003003 1.715716
## 3283 0.282282282 0.003003003 1.714715
## 3284 0.283283283 0.003003003 1.713714
## 3285 0.284284284 0.003003003 1.712713
## 3286 0.285285285 0.003003003 1.711712
## 3287 0.286286286 0.003003003 1.710711
## 3288 0.287287287 0.003003003 1.709710
## 3289 0.288288288 0.003003003 1.708709
## 3290 0.289289289 0.003003003 1.707708
## 3291 0.290290290 0.003003003 1.706707
## 3292 0.291291291 0.003003003 1.705706
## 3293 0.292292292 0.003003003 1.704705
## 3294 0.293293293 0.003003003 1.703704
## 3295 0.294294294 0.003003003 1.702703
## 3296 0.295295295 0.003003003 1.701702
## 3297 0.296296296 0.003003003 1.700701
## 3298 0.297297297 0.003003003 1.699700
## 3299 0.298298298 0.003003003 1.698699
## 3300 0.299299299 0.003003003 1.697698
## 3301 0.300300300 0.003003003 1.696697
## 3302 0.301301301 0.003003003 1.695696
## 3303 0.302302302 0.003003003 1.694695
## 3304 0.303303303 0.003003003 1.693694
## 3305 0.304304304 0.003003003 1.692693
## 3306 0.305305305 0.003003003 1.691692
## 3307 0.306306306 0.003003003 1.690691
## 3308 0.307307307 0.003003003 1.689690
## 3309 0.308308308 0.003003003 1.688689
## 3310 0.309309309 0.003003003 1.687688
## 3311 0.310310310 0.003003003 1.686687
## 3312 0.311311311 0.003003003 1.685686
## 3313 0.312312312 0.003003003 1.684685
## 3314 0.313313313 0.003003003 1.683684
## 3315 0.314314314 0.003003003 1.682683
## 3316 0.315315315 0.003003003 1.681682
## 3317 0.316316316 0.003003003 1.680681
## 3318 0.317317317 0.003003003 1.679680

```

```
## 3319  0.318318318 0.003003003 1.678679
## 3320  0.319319319 0.003003003 1.677678
## 3321  0.320320320 0.003003003 1.676677
## 3322  0.321321321 0.003003003 1.675676
## 3323  0.322322322 0.003003003 1.674675
## 3324  0.323323323 0.003003003 1.673674
## 3325  0.324324324 0.003003003 1.672673
## 3326  0.325325325 0.003003003 1.671672
## 3327  0.326326326 0.003003003 1.670671
## 3328  0.327327327 0.003003003 1.669670
## 3329  0.328328328 0.003003003 1.668669
## 3330  0.329329329 0.003003003 1.667668
## 3331  0.330330330 0.003003003 1.666667
## 3332  0.331331331 0.003003003 1.665666
## 3333  0.332332332 0.003003003 1.664665
## 3334  0.333333333 0.003003003 1.663664
## 3335  0.334334334 0.003003003 1.662663
## 3336  0.335335335 0.003003003 1.661662
## 3337  0.336336336 0.003003003 1.660661
## 3338  0.337337337 0.003003003 1.659660
## 3339  0.338338338 0.003003003 1.658659
## 3340  0.339339339 0.003003003 1.657658
## 3341  0.340340340 0.003003003 1.656657
## 3342  0.341341341 0.003003003 1.655656
## 3343  0.342342342 0.003003003 1.654655
## 3344  0.343343343 0.003003003 1.653654
## 3345  0.344344344 0.003003003 1.652653
## 3346  0.345345345 0.003003003 1.651652
## 3347  0.346346346 0.003003003 1.650651
## 3348  0.347347347 0.003003003 1.649650
## 3349  0.348348348 0.003003003 1.648649
## 3350  0.349349349 0.003003003 1.647648
## 3351  0.350350350 0.003003003 1.646647
## 3352  0.351351351 0.003003003 1.645646
## 3353  0.352352352 0.003003003 1.644645
## 3354  0.353353353 0.003003003 1.643644
## 3355  0.354354354 0.003003003 1.642643
## 3356  0.355355355 0.003003003 1.641642
## 3357  0.356356356 0.003003003 1.640641
## 3358  0.357357357 0.003003003 1.639640
## 3359  0.358358358 0.003003003 1.638639
## 3360  0.359359359 0.003003003 1.637638
## 3361  0.360360360 0.003003003 1.636637
## 3362  0.361361361 0.003003003 1.635636
## 3363  0.362362362 0.003003003 1.634635
## 3364  0.363363363 0.003003003 1.633634
```

```

## 3365 0.364364364 0.003003003 1.632633
## 3366 0.365365365 0.003003003 1.631632
## 3367 0.366366366 0.003003003 1.630631
## 3368 0.367367367 0.003003003 1.629630
## 3369 0.368368368 0.003003003 1.628629
## 3370 0.369369369 0.003003003 1.627628
## 3371 0.370370370 0.003003003 1.626627
## 3372 0.371371371 0.003003003 1.625626
## 3373 0.372372372 0.003003003 1.624625
## 3374 0.373373373 0.003003003 1.623624
## 3375 0.374374374 0.003003003 1.622623
## 3376 0.375375375 0.003003003 1.621622
## 3377 0.376376376 0.003003003 1.620621
## 3378 0.377377377 0.003003003 1.619620
## 3379 0.378378378 0.003003003 1.618619
## 3380 0.379379379 0.003003003 1.617618
## 3381 0.380380380 0.003003003 1.616617
## 3382 0.381381381 0.003003003 1.615616
## 3383 0.382382382 0.003003003 1.614615
## 3384 0.383383383 0.003003003 1.613614
## 3385 0.384384384 0.003003003 1.612613
## 3386 0.385385385 0.003003003 1.611612
## 3387 0.386386386 0.003003003 1.610611
## 3388 0.387387387 0.003003003 1.609610
## 3389 0.388388388 0.003003003 1.608609
## 3390 0.389389389 0.003003003 1.607608
## 3391 0.390390390 0.003003003 1.606607
## 3392 0.391391391 0.003003003 1.605606
## 3393 0.392392392 0.003003003 1.604605
## 3394 0.393393393 0.003003003 1.603604
## 3395 0.394394394 0.003003003 1.602603
## 3396 0.395395395 0.003003003 1.601602
## 3397 0.396396396 0.003003003 1.600601
## 3398 0.397397397 0.003003003 1.599600
## 3399 0.398398398 0.003003003 1.598599
## 3400 0.399399399 0.003003003 1.597598
## 3401 0.400400400 0.003003003 1.596597
## 3402 0.401401401 0.003003003 1.595596
## 3403 0.402402402 0.003003003 1.594595
## 3404 0.403403403 0.003003003 1.593594
## 3405 0.404404404 0.003003003 1.592593
## 3406 0.405405405 0.003003003 1.591592
## 3407 0.406406406 0.003003003 1.590591
## 3408 0.407407407 0.003003003 1.589590
## 3409 0.408408408 0.003003003 1.588589
## 3410 0.409409409 0.003003003 1.587588

```

```
## 3411 0.410410410 0.003003003 1.586587
## 3412 0.411411411 0.003003003 1.585586
## 3413 0.412412412 0.003003003 1.584585
## 3414 0.413413413 0.003003003 1.583584
## 3415 0.414414414 0.003003003 1.582583
## 3416 0.415415415 0.003003003 1.581582
## 3417 0.416416416 0.003003003 1.580581
## 3418 0.417417417 0.003003003 1.579580
## 3419 0.418418418 0.003003003 1.578579
## 3420 0.419419419 0.003003003 1.577578
## 3421 0.420420420 0.003003003 1.576577
## 3422 0.421421421 0.003003003 1.575576
## 3423 0.422422422 0.003003003 1.574575
## 3424 0.423423423 0.003003003 1.573574
## 3425 0.424424424 0.003003003 1.572573
## 3426 0.425425425 0.003003003 1.571572
## 3427 0.426426426 0.003003003 1.570571
## 3428 0.427427427 0.003003003 1.569570
## 3429 0.428428428 0.003003003 1.568569
## 3430 0.429429429 0.003003003 1.567568
## 3431 0.430430430 0.003003003 1.566567
## 3432 0.431431431 0.003003003 1.565566
## 3433 0.432432432 0.003003003 1.564565
## 3434 0.433433433 0.003003003 1.563564
## 3435 0.434434434 0.003003003 1.562563
## 3436 0.435435435 0.003003003 1.561562
## 3437 0.436436436 0.003003003 1.560561
## 3438 0.437437437 0.003003003 1.559560
## 3439 0.438438438 0.003003003 1.558559
## 3440 0.439439439 0.003003003 1.557558
## 3441 0.440440440 0.003003003 1.556557
## 3442 0.441441441 0.003003003 1.555556
## 3443 0.442442442 0.003003003 1.554555
## 3444 0.443443443 0.003003003 1.553554
## 3445 0.444444444 0.003003003 1.552553
## 3446 0.445445445 0.003003003 1.551552
## 3447 0.446446446 0.003003003 1.550551
## 3448 0.447447447 0.003003003 1.549550
## 3449 0.448448448 0.003003003 1.548549
## 3450 0.449449449 0.003003003 1.547548
## 3451 0.450450450 0.003003003 1.546547
## 3452 0.451451451 0.003003003 1.545546
## 3453 0.452452452 0.003003003 1.544545
## 3454 0.453453453 0.003003003 1.543544
## 3455 0.454454454 0.003003003 1.542543
## 3456 0.455455455 0.003003003 1.541542
```

```

## 3457 0.456456456 0.003003003 1.540541
## 3458 0.457457457 0.003003003 1.539540
## 3459 0.458458458 0.003003003 1.538539
## 3460 0.459459459 0.003003003 1.537538
## 3461 0.460460460 0.003003003 1.536537
## 3462 0.461461461 0.003003003 1.535536
## 3463 0.462462462 0.003003003 1.534535
## 3464 0.463463463 0.003003003 1.533534
## 3465 0.464464464 0.003003003 1.532533
## 3466 0.465465465 0.003003003 1.531532
## 3467 0.466466466 0.003003003 1.530531
## 3468 0.467467467 0.003003003 1.529530
## 3469 0.468468468 0.003003003 1.528529
## 3470 0.469469469 0.003003003 1.527528
## 3471 0.470470470 0.003003003 1.526527
## 3472 0.471471471 0.003003003 1.525526
## 3473 0.472472472 0.003003003 1.524525
## 3474 0.473473473 0.003003003 1.523524
## 3475 0.474474474 0.003003003 1.522523
## 3476 0.475475475 0.003003003 1.521522
## 3477 0.476476476 0.003003003 1.520521
## 3478 0.477477477 0.003003003 1.519520
## 3479 0.478478478 0.003003003 1.518519
## 3480 0.479479479 0.003003003 1.517518
## 3481 0.480480480 0.003003003 1.516517
## 3482 0.481481481 0.003003003 1.515516
## 3483 0.482482482 0.003003003 1.514515
## 3484 0.483483483 0.003003003 1.513514
## 3485 0.484484484 0.003003003 1.512513
## 3486 0.485485485 0.003003003 1.511512
## 3487 0.486486486 0.003003003 1.510511
## 3488 0.487487487 0.003003003 1.509510
## 3489 0.488488488 0.003003003 1.508509
## 3490 0.489489489 0.003003003 1.507508
## 3491 0.490490490 0.003003003 1.506507
## 3492 0.491491491 0.003003003 1.505506
## 3493 0.492492492 0.003003003 1.504505
## 3494 0.493493493 0.003003003 1.503504
## 3495 0.494494494 0.003003003 1.502503
## 3496 0.495495495 0.003003003 1.501502
## 3497 0.496496496 0.003003003 1.500501
## 3498 0.497497497 0.003003003 1.499499
## 3499 0.498498498 0.003003003 1.498498
## 3500 0.499499499 0.003003003 1.497497
## 3501 0.500500501 0.003003003 1.496496
## 3502 0.501501502 0.003003003 1.495495

```

```
## 3503 0.502502503 0.003003003 1.494494
## 3504 0.503503504 0.003003003 1.493493
## 3505 0.504504505 0.003003003 1.492492
## 3506 0.505505506 0.003003003 1.491491
## 3507 0.506506507 0.003003003 1.490490
## 3508 0.507507508 0.003003003 1.489489
## 3509 0.508508509 0.003003003 1.488488
## 3510 0.509509510 0.003003003 1.487487
## 3511 0.510510511 0.003003003 1.486486
## 3512 0.511511512 0.003003003 1.485485
## 3513 0.512512513 0.003003003 1.484484
## 3514 0.513513514 0.003003003 1.483483
## 3515 0.514514515 0.003003003 1.482482
## 3516 0.515515516 0.003003003 1.481481
## 3517 0.516516517 0.003003003 1.480480
## 3518 0.517517518 0.003003003 1.479479
## 3519 0.518518519 0.003003003 1.478478
## 3520 0.519519520 0.003003003 1.477477
## 3521 0.520520521 0.003003003 1.476476
## 3522 0.521521522 0.003003003 1.475475
## 3523 0.522522523 0.003003003 1.474474
## 3524 0.523523524 0.003003003 1.473473
## 3525 0.524524525 0.003003003 1.472472
## 3526 0.525525526 0.003003003 1.471471
## 3527 0.526526527 0.003003003 1.470470
## 3528 0.527527528 0.003003003 1.469469
## 3529 0.528528529 0.003003003 1.468468
## 3530 0.529529530 0.003003003 1.467467
## 3531 0.530530531 0.003003003 1.466466
## 3532 0.531531532 0.003003003 1.465465
## 3533 0.532532533 0.003003003 1.464464
## 3534 0.533533534 0.003003003 1.463463
## 3535 0.534534535 0.003003003 1.462462
## 3536 0.535535536 0.003003003 1.461461
## 3537 0.536536537 0.003003003 1.460460
## 3538 0.537537538 0.003003003 1.459459
## 3539 0.538538539 0.003003003 1.458458
## 3540 0.539539540 0.003003003 1.457457
## 3541 0.540540541 0.003003003 1.456456
## 3542 0.541541542 0.003003003 1.455455
## 3543 0.542542543 0.003003003 1.454454
## 3544 0.543543544 0.003003003 1.453453
## 3545 0.544544545 0.003003003 1.452452
## 3546 0.545545546 0.003003003 1.451451
## 3547 0.546546547 0.003003003 1.450450
## 3548 0.547547548 0.003003003 1.449449
```

```

## 3549  0.548548549  0.003003003 1.448448
## 3550  0.549549550  0.003003003 1.447447
## 3551  0.550550551  0.003003003 1.446446
## 3552  0.551551552  0.003003003 1.445445
## 3553  0.552552553  0.003003003 1.444444
## 3554  0.553553554  0.003003003 1.443443
## 3555  0.554554555  0.003003003 1.442442
## 3556  0.555555556  0.003003003 1.441441
## 3557  0.556556557  0.003003003 1.440440
## 3558  0.557557558  0.003003003 1.439439
## 3559  0.558558559  0.003003003 1.438438
## 3560  0.559559560  0.003003003 1.437437
## 3561  0.560560561  0.003003003 1.436436
## 3562  0.561561562  0.003003003 1.435435
## 3563  0.562562563  0.003003003 1.434434
## 3564  0.563563564  0.003003003 1.433433
## 3565  0.564564565  0.003003003 1.432432
## 3566  0.565565566  0.003003003 1.431431
## 3567  0.566566567  0.003003003 1.430430
## 3568  0.567567568  0.003003003 1.429429
## 3569  0.568568569  0.003003003 1.428428
## 3570  0.569569570  0.003003003 1.427427
## 3571  0.570570571  0.003003003 1.426426
## 3572  0.571571572  0.003003003 1.425425
## 3573  0.572572573  0.003003003 1.424424
## 3574  0.573573574  0.003003003 1.423423
## 3575  0.574574575  0.003003003 1.422422
## 3576  0.575575576  0.003003003 1.421421
## 3577  0.576576577  0.003003003 1.420420
## 3578  0.577577578  0.003003003 1.419419
## 3579  0.578578579  0.003003003 1.418418
## 3580  0.579579580  0.003003003 1.417417
## 3581  0.580580581  0.003003003 1.416416
## 3582  0.581581582  0.003003003 1.415415
## 3583  0.582582583  0.003003003 1.414414
## 3584  0.583583584  0.003003003 1.413413
## 3585  0.584584585  0.003003003 1.412412
## 3586  0.585585586  0.003003003 1.411411
## 3587  0.586586587  0.003003003 1.410410
## 3588  0.587587588  0.003003003 1.409409
## 3589  0.588588589  0.003003003 1.408408
## 3590  0.589589590  0.003003003 1.407407
## 3591  0.590590591  0.003003003 1.406406
## 3592  0.591591592  0.003003003 1.405405
## 3593  0.592592593  0.003003003 1.404404
## 3594  0.593593594  0.003003003 1.403403

```

```
## 3595  0.594594595 0.003003003 1.402402
## 3596  0.595595596 0.003003003 1.401401
## 3597  0.596596597 0.003003003 1.400400
## 3598  0.597597598 0.003003003 1.399399
## 3599  0.598598599 0.003003003 1.398398
## 3600  0.599599600 0.003003003 1.397397
## 3601  0.600600601 0.003003003 1.396396
## 3602  0.601601602 0.003003003 1.395395
## 3603  0.602602603 0.003003003 1.394394
## 3604  0.603603604 0.003003003 1.393393
## 3605  0.604604605 0.003003003 1.392392
## 3606  0.605605606 0.003003003 1.391391
## 3607  0.606606607 0.003003003 1.390390
## 3608  0.607607608 0.003003003 1.389389
## 3609  0.608608609 0.003003003 1.388388
## 3610  0.609609610 0.003003003 1.387387
## 3611  0.610610611 0.003003003 1.386386
## 3612  0.611611612 0.003003003 1.385385
## 3613  0.612612613 0.003003003 1.384384
## 3614  0.613613614 0.003003003 1.383383
## 3615  0.614614615 0.003003003 1.382382
## 3616  0.615615616 0.003003003 1.381381
## 3617  0.616616617 0.003003003 1.380380
## 3618  0.617617618 0.003003003 1.379379
## 3619  0.618618619 0.003003003 1.378378
## 3620  0.619619620 0.003003003 1.377377
## 3621  0.620620621 0.003003003 1.376376
## 3622  0.621621622 0.003003003 1.375375
## 3623  0.622622623 0.003003003 1.374374
## 3624  0.623623624 0.003003003 1.373373
## 3625  0.624624625 0.003003003 1.372372
## 3626  0.625625626 0.003003003 1.371371
## 3627  0.626626627 0.003003003 1.370370
## 3628  0.627627628 0.003003003 1.369369
## 3629  0.628628629 0.003003003 1.368368
## 3630  0.629629630 0.003003003 1.367367
## 3631  0.630630631 0.003003003 1.366366
## 3632  0.631631632 0.003003003 1.365365
## 3633  0.632632633 0.003003003 1.364364
## 3634  0.633633634 0.003003003 1.363363
## 3635  0.634634635 0.003003003 1.362362
## 3636  0.635635636 0.003003003 1.361361
## 3637  0.636636637 0.003003003 1.360360
## 3638  0.637637638 0.003003003 1.359359
## 3639  0.638638639 0.003003003 1.358358
## 3640  0.639639640 0.003003003 1.357357
```

```

## 3641 0.640640641 0.003003003 1.356356
## 3642 0.641641642 0.003003003 1.355355
## 3643 0.642642643 0.003003003 1.354354
## 3644 0.643643644 0.003003003 1.353353
## 3645 0.644644645 0.003003003 1.352352
## 3646 0.645645646 0.003003003 1.351351
## 3647 0.646646647 0.003003003 1.350350
## 3648 0.647647648 0.003003003 1.349349
## 3649 0.648648649 0.003003003 1.348348
## 3650 0.649649650 0.003003003 1.347347
## 3651 0.650650651 0.003003003 1.346346
## 3652 0.651651652 0.003003003 1.345345
## 3653 0.652652653 0.003003003 1.344344
## 3654 0.653653654 0.003003003 1.343343
## 3655 0.654654655 0.003003003 1.342342
## 3656 0.6556555656 0.003003003 1.341341
## 3657 0.656656657 0.003003003 1.340340
## 3658 0.657657658 0.003003003 1.339339
## 3659 0.658658659 0.003003003 1.338338
## 3660 0.659659660 0.003003003 1.337337
## 3661 0.660660661 0.003003003 1.336336
## 3662 0.661661662 0.003003003 1.335335
## 3663 0.662662663 0.003003003 1.334334
## 3664 0.663663664 0.003003003 1.333333
## 3665 0.664664665 0.003003003 1.332332
## 3666 0.665665666 0.003003003 1.331331
## 3667 0.666666667 0.003003003 1.330330
## 3668 0.667667668 0.003003003 1.329329
## 3669 0.668668669 0.003003003 1.328328
## 3670 0.669669670 0.003003003 1.327327
## 3671 0.670670671 0.003003003 1.326326
## 3672 0.671671672 0.003003003 1.325325
## 3673 0.672672673 0.003003003 1.324324
## 3674 0.673673674 0.003003003 1.323323
## 3675 0.674674675 0.003003003 1.322322
## 3676 0.675675676 0.003003003 1.321321
## 3677 0.676676677 0.003003003 1.320320
## 3678 0.677677678 0.003003003 1.319319
## 3679 0.678678679 0.003003003 1.318318
## 3680 0.679679680 0.003003003 1.317317
## 3681 0.680680681 0.003003003 1.316316
## 3682 0.681681682 0.003003003 1.315315
## 3683 0.682682683 0.003003003 1.314314
## 3684 0.683683684 0.003003003 1.313313
## 3685 0.684684685 0.003003003 1.312312
## 3686 0.685685686 0.003003003 1.311311

```

```
## 3687  0.686686687 0.003003003 1.310310
## 3688  0.687687688 0.003003003 1.309309
## 3689  0.688688689 0.003003003 1.308308
## 3690  0.689689690 0.003003003 1.307307
## 3691  0.690690691 0.003003003 1.306306
## 3692  0.691691692 0.003003003 1.305305
## 3693  0.692692693 0.003003003 1.304304
## 3694  0.693693694 0.003003003 1.303303
## 3695  0.694694695 0.003003003 1.302302
## 3696  0.695695696 0.003003003 1.301301
## 3697  0.696696697 0.003003003 1.300300
## 3698  0.697697698 0.003003003 1.299299
## 3699  0.698698699 0.003003003 1.298298
## 3700  0.699699700 0.003003003 1.297297
## 3701  0.700700701 0.003003003 1.296296
## 3702  0.701701702 0.003003003 1.295295
## 3703  0.702702703 0.003003003 1.294294
## 3704  0.703703704 0.003003003 1.293293
## 3705  0.704704705 0.003003003 1.292292
## 3706  0.705705706 0.003003003 1.291291
## 3707  0.706706707 0.003003003 1.290290
## 3708  0.707707708 0.003003003 1.289289
## 3709  0.708708709 0.003003003 1.288288
## 3710  0.709709710 0.003003003 1.287287
## 3711  0.710710711 0.003003003 1.286286
## 3712  0.711711712 0.003003003 1.285285
## 3713  0.712712713 0.003003003 1.284284
## 3714  0.713713714 0.003003003 1.283283
## 3715  0.714714715 0.003003003 1.282282
## 3716  0.715715716 0.003003003 1.281281
## 3717  0.716716717 0.003003003 1.280280
## 3718  0.717717718 0.003003003 1.279279
## 3719  0.718718719 0.003003003 1.278278
## 3720  0.719719720 0.003003003 1.277277
## 3721  0.720720721 0.003003003 1.276276
## 3722  0.721721722 0.003003003 1.275275
## 3723  0.722722723 0.003003003 1.274274
## 3724  0.723723724 0.003003003 1.273273
## 3725  0.724724725 0.003003003 1.272272
## 3726  0.725725726 0.003003003 1.271271
## 3727  0.726726727 0.003003003 1.270270
## 3728  0.727727728 0.003003003 1.269269
## 3729  0.728728729 0.003003003 1.268268
## 3730  0.729729730 0.003003003 1.267267
## 3731  0.730730731 0.003003003 1.266266
## 3732  0.731731732 0.003003003 1.265265
```

```

## 3733 0.732732733 0.003003003 1.264264
## 3734 0.733733734 0.003003003 1.263263
## 3735 0.734734735 0.003003003 1.262262
## 3736 0.735735736 0.003003003 1.261261
## 3737 0.736736737 0.003003003 1.260260
## 3738 0.737737738 0.003003003 1.259259
## 3739 0.738738739 0.003003003 1.258258
## 3740 0.739739740 0.003003003 1.257257
## 3741 0.740740741 0.003003003 1.256256
## 3742 0.741741742 0.003003003 1.255255
## 3743 0.742742743 0.003003003 1.254254
## 3744 0.743743744 0.003003003 1.253253
## 3745 0.744744745 0.003003003 1.252252
## 3746 0.745745746 0.003003003 1.251251
## 3747 0.746746747 0.003003003 1.250250
## 3748 0.747747748 0.003003003 1.249249
## 3749 0.748748749 0.003003003 1.248248
## 3750 0.749749750 0.003003003 1.247247
## 3751 0.750750751 0.003003003 1.246246
## 3752 0.751751752 0.003003003 1.245245
## 3753 0.752752753 0.003003003 1.244244
## 3754 0.753753754 0.003003003 1.243243
## 3755 0.754754755 0.003003003 1.242242
## 3756 0.755755756 0.003003003 1.241241
## 3757 0.756756757 0.003003003 1.240240
## 3758 0.757757758 0.003003003 1.239239
## 3759 0.758758759 0.003003003 1.238238
## 3760 0.759759760 0.003003003 1.237237
## 3761 0.760760761 0.003003003 1.236236
## 3762 0.761761762 0.003003003 1.235235
## 3763 0.762762763 0.003003003 1.234234
## 3764 0.763763764 0.003003003 1.233233
## 3765 0.764764765 0.003003003 1.232232
## 3766 0.765765766 0.003003003 1.231231
## 3767 0.766766767 0.003003003 1.230230
## 3768 0.767767768 0.003003003 1.229229
## 3769 0.768768769 0.003003003 1.228228
## 3770 0.769769770 0.003003003 1.227227
## 3771 0.770770771 0.003003003 1.226226
## 3772 0.771771772 0.003003003 1.225225
## 3773 0.772772773 0.003003003 1.224224
## 3774 0.773773774 0.003003003 1.223223
## 3775 0.774774775 0.003003003 1.222222
## 3776 0.775775776 0.003003003 1.221221
## 3777 0.776776777 0.003003003 1.220220
## 3778 0.777777778 0.003003003 1.219219

```

```
## 3779  0.778778779 0.003003003 1.218218
## 3780  0.779779780 0.003003003 1.217217
## 3781  0.780780781 0.003003003 1.216216
## 3782  0.781781782 0.003003003 1.215215
## 3783  0.782782783 0.003003003 1.214214
## 3784  0.783783784 0.003003003 1.213213
## 3785  0.784784785 0.003003003 1.212212
## 3786  0.785785786 0.003003003 1.211211
## 3787  0.786786787 0.003003003 1.210210
## 3788  0.787787788 0.003003003 1.209209
## 3789  0.788788789 0.003003003 1.208208
## 3790  0.789789790 0.003003003 1.207207
## 3791  0.790790791 0.003003003 1.206206
## 3792  0.791791792 0.003003003 1.205205
## 3793  0.792792793 0.003003003 1.204204
## 3794  0.793793794 0.003003003 1.203203
## 3795  0.794794795 0.003003003 1.202202
## 3796  0.795795796 0.003003003 1.201201
## 3797  0.796796797 0.003003003 1.200200
## 3798  0.797797798 0.003003003 1.199199
## 3799  0.798798799 0.003003003 1.198198
## 3800  0.799799800 0.003003003 1.197197
## 3801  0.800800801 0.003003003 1.196196
## 3802  0.801801802 0.003003003 1.195195
## 3803  0.802802803 0.003003003 1.194194
## 3804  0.803803804 0.003003003 1.193193
## 3805  0.804804805 0.003003003 1.192192
## 3806  0.805805806 0.003003003 1.191191
## 3807  0.806806807 0.003003003 1.190190
## 3808  0.807807808 0.003003003 1.189189
## 3809  0.808808809 0.003003003 1.188188
## 3810  0.809809810 0.003003003 1.187187
## 3811  0.810810811 0.003003003 1.186186
## 3812  0.811811812 0.003003003 1.185185
## 3813  0.812812813 0.003003003 1.184184
## 3814  0.813813814 0.003003003 1.183183
## 3815  0.814814815 0.003003003 1.182182
## 3816  0.815815816 0.003003003 1.181181
## 3817  0.816816817 0.003003003 1.180180
## 3818  0.817817818 0.003003003 1.179179
## 3819  0.818818819 0.003003003 1.178178
## 3820  0.819819820 0.003003003 1.177177
## 3821  0.820820821 0.003003003 1.176176
## 3822  0.821821822 0.003003003 1.175175
## 3823  0.822822823 0.003003003 1.174174
## 3824  0.823823824 0.003003003 1.173173
```

```

## 3825  0.824824825 0.003003003 1.172172
## 3826  0.825825826 0.003003003 1.171171
## 3827  0.826826827 0.003003003 1.170170
## 3828  0.827827828 0.003003003 1.169169
## 3829  0.828828829 0.003003003 1.168168
## 3830  0.829829830 0.003003003 1.167167
## 3831  0.830830831 0.003003003 1.166166
## 3832  0.831831832 0.003003003 1.165165
## 3833  0.832832833 0.003003003 1.164164
## 3834  0.833833834 0.003003003 1.163163
## 3835  0.834834835 0.003003003 1.162162
## 3836  0.835835836 0.003003003 1.161161
## 3837  0.836836837 0.003003003 1.160160
## 3838  0.837837838 0.003003003 1.159159
## 3839  0.838838839 0.003003003 1.158158
## 3840  0.839839840 0.003003003 1.157157
## 3841  0.840840841 0.003003003 1.156156
## 3842  0.841841842 0.003003003 1.155155
## 3843  0.842842843 0.003003003 1.154154
## 3844  0.843843844 0.003003003 1.153153
## 3845  0.844844845 0.003003003 1.152152
## 3846  0.845845846 0.003003003 1.151151
## 3847  0.846846847 0.003003003 1.150150
## 3848  0.847847848 0.003003003 1.149149
## 3849  0.848848849 0.003003003 1.148148
## 3850  0.849849850 0.003003003 1.147147
## 3851  0.850850851 0.003003003 1.146146
## 3852  0.851851852 0.003003003 1.145145
## 3853  0.852852853 0.003003003 1.144144
## 3854  0.853853854 0.003003003 1.143143
## 3855  0.854854855 0.003003003 1.142142
## 3856  0.855855856 0.003003003 1.141141
## 3857  0.856856857 0.003003003 1.140140
## 3858  0.857857858 0.003003003 1.139139
## 3859  0.858858859 0.003003003 1.138138
## 3860  0.859859860 0.003003003 1.137137
## 3861  0.860860861 0.003003003 1.136136
## 3862  0.861861862 0.003003003 1.135135
## 3863  0.862862863 0.003003003 1.134134
## 3864  0.863863864 0.003003003 1.133133
## 3865  0.864864865 0.003003003 1.132132
## 3866  0.865865866 0.003003003 1.131131
## 3867  0.866866867 0.003003003 1.130130
## 3868  0.867867868 0.003003003 1.129129
## 3869  0.868868869 0.003003003 1.128128
## 3870  0.869869870 0.003003003 1.127127

```

```
## 3871 0.870870871 0.003003003 1.126126
## 3872 0.871871872 0.003003003 1.125125
## 3873 0.872872873 0.003003003 1.124124
## 3874 0.873873874 0.003003003 1.123123
## 3875 0.874874875 0.003003003 1.122122
## 3876 0.875875876 0.003003003 1.121121
## 3877 0.876876877 0.003003003 1.120120
## 3878 0.877877878 0.003003003 1.119119
## 3879 0.878878879 0.003003003 1.118118
## 3880 0.879879880 0.003003003 1.117117
## 3881 0.880880881 0.003003003 1.116116
## 3882 0.881881882 0.003003003 1.115115
## 3883 0.882882883 0.003003003 1.114114
## 3884 0.883883884 0.003003003 1.113113
## 3885 0.884884885 0.003003003 1.112112
## 3886 0.885885886 0.003003003 1.111111
## 3887 0.886886887 0.003003003 1.110110
## 3888 0.887887888 0.003003003 1.109109
## 3889 0.888888889 0.003003003 1.108108
## 3890 0.889889890 0.003003003 1.107107
## 3891 0.890890891 0.003003003 1.106106
## 3892 0.891891892 0.003003003 1.105105
## 3893 0.892892893 0.003003003 1.104104
## 3894 0.893893894 0.003003003 1.103103
## 3895 0.894894895 0.003003003 1.102102
## 3896 0.895895896 0.003003003 1.101101
## 3897 0.896896897 0.003003003 1.100100
## 3898 0.897897898 0.003003003 1.099099
## 3899 0.898898899 0.003003003 1.098098
## 3900 0.899899900 0.003003003 1.097097
## 3901 0.900900901 0.003003003 1.096096
## 3902 0.901901902 0.003003003 1.095095
## 3903 0.902902903 0.003003003 1.094094
## 3904 0.903903904 0.003003003 1.093093
## 3905 0.904904905 0.003003003 1.092092
## 3906 0.905905906 0.003003003 1.091091
## 3907 0.906906907 0.003003003 1.090090
## 3908 0.907907908 0.003003003 1.089089
## 3909 0.908908909 0.003003003 1.088088
## 3910 0.909909910 0.003003003 1.087087
## 3911 0.910910911 0.003003003 1.086086
## 3912 0.911911912 0.003003003 1.085085
## 3913 0.912912913 0.003003003 1.084084
## 3914 0.913913914 0.003003003 1.083083
## 3915 0.914914915 0.003003003 1.082082
## 3916 0.915915916 0.003003003 1.081081
```

```

## 3917  0.916916917  0.003003003  1.080080
## 3918  0.917917918  0.003003003  1.079079
## 3919  0.918918919  0.003003003  1.078078
## 3920  0.919919920  0.003003003  1.077077
## 3921  0.920920921  0.003003003  1.076076
## 3922  0.921921922  0.003003003  1.075075
## 3923  0.922922923  0.003003003  1.074074
## 3924  0.923923924  0.003003003  1.073073
## 3925  0.924924925  0.003003003  1.072072
## 3926  0.925925926  0.003003003  1.071071
## 3927  0.926926927  0.003003003  1.070070
## 3928  0.927927928  0.003003003  1.069069
## 3929  0.928928929  0.003003003  1.068068
## 3930  0.929929930  0.003003003  1.067067
## 3931  0.930930931  0.003003003  1.066066
## 3932  0.931931932  0.003003003  1.065065
## 3933  0.932932933  0.003003003  1.064064
## 3934  0.933933934  0.003003003  1.063063
## 3935  0.934934935  0.003003003  1.062062
## 3936  0.935935936  0.003003003  1.061061
## 3937  0.936936937  0.003003003  1.060060
## 3938  0.937937938  0.003003003  1.059059
## 3939  0.938938939  0.003003003  1.058058
## 3940  0.939939940  0.003003003  1.057057
## 3941  0.940940941  0.003003003  1.056056
## 3942  0.941941942  0.003003003  1.055055
## 3943  0.942942943  0.003003003  1.054054
## 3944  0.943943944  0.003003003  1.053053
## 3945  0.944944945  0.003003003  1.052052
## 3946  0.945945946  0.003003003  1.051051
## 3947  0.946946947  0.003003003  1.050050
## 3948  0.947947948  0.003003003  1.049049
## 3949  0.948948949  0.003003003  1.048048
## 3950  0.949949950  0.003003003  1.047047
## 3951  0.950950951  0.003003003  1.046046
## 3952  0.951951952  0.003003003  1.045045
## 3953  0.952952953  0.003003003  1.044044
## 3954  0.953953954  0.003003003  1.043043
## 3955  0.954954955  0.003003003  1.042042
## 3956  0.955955956  0.003003003  1.041041
## 3957  0.956956957  0.003003003  1.040040
## 3958  0.957957958  0.003003003  1.039039
## 3959  0.958958959  0.003003003  1.038038
## 3960  0.959959960  0.003003003  1.037037
## 3961  0.960960961  0.003003003  1.036036
## 3962  0.961961962  0.003003003  1.035035

```

```
## 3963  0.962962963 0.003003003 1.034034
## 3964  0.963963964 0.003003003 1.033033
## 3965  0.964964965 0.003003003 1.032032
## 3966  0.965965966 0.003003003 1.031031
## 3967  0.966966967 0.003003003 1.030030
## 3968  0.967967968 0.003003003 1.029029
## 3969  0.968968969 0.003003003 1.028028
## 3970  0.969969970 0.003003003 1.027027
## 3971  0.970970971 0.003003003 1.026026
## 3972  0.971971972 0.003003003 1.025025
## 3973  0.972972973 0.003003003 1.024024
## 3974  0.973973974 0.003003003 1.023023
## 3975  0.974974975 0.003003003 1.022022
## 3976  0.975975976 0.003003003 1.021021
## 3977  0.976976977 0.003003003 1.020020
## 3978  0.977977978 0.003003003 1.019019
## 3979  0.978978979 0.003003003 1.018018
## 3980  0.979979980 0.003003003 1.017017
## 3981  0.980980981 0.003003003 1.016016
## 3982  0.981981982 0.003003003 1.015015
## 3983  0.982982983 0.003003003 1.014014
## 3984  0.983983984 0.003003003 1.013013
## 3985  0.984984985 0.003003003 1.012012
## 3986  0.985985986 0.003003003 1.011011
## 3987  0.986986987 0.003003003 1.010010
## 3988  0.987987988 0.003003003 1.009009
## 3989  0.988988989 0.003003003 1.008008
## 3990  0.989989990 0.003003003 1.007007
## 3991  0.990990991 0.003003003 1.006006
## 3992  0.991991992 0.003003003 1.005005
## 3993  0.992992993 0.003003003 1.004004
## 3994  0.993993994 0.003003003 1.003003
## 3995  0.994994995 0.003003003 1.002002
## 3996  0.995995996 0.003003003 1.001001
## 3997  0.996996997 0.003003003 1.000000
## 3998  0.997997998 0.003003003 0.998999
## 3999  0.998998999 0.003003003 0.997998
## 4000  1.000000000 0.003003003 0.996997
## 4001  0.000000000 0.004004004 1.995996
## 4002  0.001001001 0.004004004 1.994995
## 4003  0.002002002 0.004004004 1.993994
## 4004  0.003003003 0.004004004 1.992993
## 4005  0.004004004 0.004004004 1.991992
## 4006  0.005005005 0.004004004 1.990991
## 4007  0.006006006 0.004004004 1.989990
## 4008  0.007007007 0.004004004 1.988989
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 199

```
## 4009 0.008008008 0.004004004 1.987988
## 4010 0.009009009 0.004004004 1.986987
## 4011 0.010010010 0.004004004 1.985986
## 4012 0.011011011 0.004004004 1.984985
## 4013 0.012012012 0.004004004 1.983984
## 4014 0.013013013 0.004004004 1.982983
## 4015 0.014014014 0.004004004 1.981982
## 4016 0.015015015 0.004004004 1.980981
## 4017 0.016016016 0.004004004 1.979980
## 4018 0.017017017 0.004004004 1.978979
## 4019 0.018018018 0.004004004 1.977978
## 4020 0.019019019 0.004004004 1.976977
## 4021 0.020020020 0.004004004 1.975976
## 4022 0.021021021 0.004004004 1.974975
## 4023 0.022022022 0.004004004 1.973974
## 4024 0.023023023 0.004004004 1.972973
## 4025 0.024024024 0.004004004 1.971972
## 4026 0.025025025 0.004004004 1.970971
## 4027 0.026026026 0.004004004 1.969970
## 4028 0.027027027 0.004004004 1.968969
## 4029 0.028028028 0.004004004 1.967968
## 4030 0.029029029 0.004004004 1.966967
## 4031 0.030030030 0.004004004 1.965966
## 4032 0.031031031 0.004004004 1.964965
## 4033 0.032032032 0.004004004 1.963964
## 4034 0.033033033 0.004004004 1.962963
## 4035 0.034034034 0.004004004 1.961962
## 4036 0.035035035 0.004004004 1.960961
## 4037 0.036036036 0.004004004 1.959960
## 4038 0.037037037 0.004004004 1.958959
## 4039 0.038038038 0.004004004 1.957958
## 4040 0.039039039 0.004004004 1.956957
## 4041 0.040040040 0.004004004 1.955956
## 4042 0.041041041 0.004004004 1.954955
## 4043 0.042042042 0.004004004 1.953954
## 4044 0.043043043 0.004004004 1.952953
## 4045 0.044044044 0.004004004 1.951952
## 4046 0.045045045 0.004004004 1.950951
## 4047 0.046046046 0.004004004 1.949950
## 4048 0.047047047 0.004004004 1.948949
## 4049 0.048048048 0.004004004 1.947948
## 4050 0.049049049 0.004004004 1.946947
## 4051 0.050050050 0.004004004 1.945946
## 4052 0.051051051 0.004004004 1.944945
## 4053 0.052052052 0.004004004 1.943944
## 4054 0.053053053 0.004004004 1.942943
```

```
## 4055 0.054054054 0.004004004 1.941942
## 4056 0.055055055 0.004004004 1.940941
## 4057 0.056056056 0.004004004 1.939940
## 4058 0.057057057 0.004004004 1.938939
## 4059 0.058058058 0.004004004 1.937938
## 4060 0.059059059 0.004004004 1.936937
## 4061 0.060060060 0.004004004 1.935936
## 4062 0.061061061 0.004004004 1.934935
## 4063 0.062062062 0.004004004 1.933934
## 4064 0.063063063 0.004004004 1.932933
## 4065 0.064064064 0.004004004 1.931932
## 4066 0.065065065 0.004004004 1.930931
## 4067 0.066066066 0.004004004 1.929930
## 4068 0.067067067 0.004004004 1.928929
## 4069 0.068068068 0.004004004 1.927928
## 4070 0.069069069 0.004004004 1.926927
## 4071 0.070070070 0.004004004 1.925926
## 4072 0.071071071 0.004004004 1.924925
## 4073 0.072072072 0.004004004 1.923924
## 4074 0.073073073 0.004004004 1.922923
## 4075 0.074074074 0.004004004 1.921922
## 4076 0.075075075 0.004004004 1.920921
## 4077 0.076076076 0.004004004 1.919920
## 4078 0.077077077 0.004004004 1.918919
## 4079 0.078078078 0.004004004 1.917918
## 4080 0.079079079 0.004004004 1.916917
## 4081 0.080080080 0.004004004 1.915916
## 4082 0.081081081 0.004004004 1.914915
## 4083 0.082082082 0.004004004 1.913914
## 4084 0.083083083 0.004004004 1.912913
## 4085 0.084084084 0.004004004 1.911912
## 4086 0.085085085 0.004004004 1.910911
## 4087 0.086086086 0.004004004 1.909910
## 4088 0.087087087 0.004004004 1.908909
## 4089 0.088088088 0.004004004 1.907908
## 4090 0.089089089 0.004004004 1.906907
## 4091 0.090090090 0.004004004 1.905906
## 4092 0.091091091 0.004004004 1.904905
## 4093 0.092092092 0.004004004 1.903904
## 4094 0.093093093 0.004004004 1.902903
## 4095 0.094094094 0.004004004 1.901902
## 4096 0.095095095 0.004004004 1.900901
## 4097 0.096096096 0.004004004 1.899900
## 4098 0.097097097 0.004004004 1.898899
## 4099 0.098098098 0.004004004 1.897898
## 4100 0.099099099 0.004004004 1.896897
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR201

```
## 4101 0.100100100 0.004004004 1.895896
## 4102 0.101101101 0.004004004 1.894895
## 4103 0.102102102 0.004004004 1.893894
## 4104 0.103103103 0.004004004 1.892893
## 4105 0.104104104 0.004004004 1.891892
## 4106 0.105105105 0.004004004 1.890891
## 4107 0.106106106 0.004004004 1.889890
## 4108 0.107107107 0.004004004 1.888889
## 4109 0.108108108 0.004004004 1.887888
## 4110 0.109109109 0.004004004 1.886887
## 4111 0.110110110 0.004004004 1.885886
## 4112 0.111111111 0.004004004 1.884885
## 4113 0.112112112 0.004004004 1.883884
## 4114 0.113113113 0.004004004 1.882883
## 4115 0.114114114 0.004004004 1.881882
## 4116 0.115115115 0.004004004 1.880881
## 4117 0.116116116 0.004004004 1.879880
## 4118 0.117117117 0.004004004 1.878879
## 4119 0.118118118 0.004004004 1.877878
## 4120 0.119119119 0.004004004 1.876877
## 4121 0.120120120 0.004004004 1.875876
## 4122 0.121121121 0.004004004 1.874875
## 4123 0.122122122 0.004004004 1.873874
## 4124 0.123123123 0.004004004 1.872873
## 4125 0.124124124 0.004004004 1.871872
## 4126 0.125125125 0.004004004 1.870871
## 4127 0.126126126 0.004004004 1.869870
## 4128 0.127127127 0.004004004 1.868869
## 4129 0.128128128 0.004004004 1.867868
## 4130 0.129129129 0.004004004 1.866867
## 4131 0.130130130 0.004004004 1.865866
## 4132 0.131131131 0.004004004 1.864865
## 4133 0.132132132 0.004004004 1.863864
## 4134 0.133133133 0.004004004 1.862863
## 4135 0.134134134 0.004004004 1.861862
## 4136 0.135135135 0.004004004 1.860861
## 4137 0.136136136 0.004004004 1.859860
## 4138 0.137137137 0.004004004 1.858859
## 4139 0.138138138 0.004004004 1.857858
## 4140 0.139139139 0.004004004 1.856857
## 4141 0.140140140 0.004004004 1.855856
## 4142 0.141141141 0.004004004 1.854855
## 4143 0.142142142 0.004004004 1.853854
## 4144 0.143143143 0.004004004 1.852853
## 4145 0.144144144 0.004004004 1.851852
## 4146 0.145145145 0.004004004 1.850851
```

```
## 4147 0.146146146 0.004004004 1.849850
## 4148 0.147147147 0.004004004 1.848849
## 4149 0.148148148 0.004004004 1.847848
## 4150 0.149149149 0.004004004 1.846847
## 4151 0.150150150 0.004004004 1.845846
## 4152 0.151151151 0.004004004 1.844845
## 4153 0.152152152 0.004004004 1.843844
## 4154 0.153153153 0.004004004 1.842843
## 4155 0.154154154 0.004004004 1.841842
## 4156 0.155155155 0.004004004 1.840841
## 4157 0.156156156 0.004004004 1.839840
## 4158 0.157157157 0.004004004 1.838839
## 4159 0.158158158 0.004004004 1.837838
## 4160 0.159159159 0.004004004 1.836837
## 4161 0.160160160 0.004004004 1.835836
## 4162 0.161161161 0.004004004 1.834835
## 4163 0.162162162 0.004004004 1.833834
## 4164 0.163163163 0.004004004 1.832833
## 4165 0.164164164 0.004004004 1.831832
## 4166 0.165165165 0.004004004 1.830831
## 4167 0.166166166 0.004004004 1.829830
## 4168 0.167167167 0.004004004 1.828829
## 4169 0.168168168 0.004004004 1.827828
## 4170 0.169169169 0.004004004 1.826827
## 4171 0.170170170 0.004004004 1.825826
## 4172 0.171171171 0.004004004 1.824825
## 4173 0.172172172 0.004004004 1.823824
## 4174 0.173173173 0.004004004 1.822823
## 4175 0.174174174 0.004004004 1.821822
## 4176 0.175175175 0.004004004 1.820821
## 4177 0.176176176 0.004004004 1.819820
## 4178 0.177177177 0.004004004 1.818819
## 4179 0.178178178 0.004004004 1.817818
## 4180 0.179179179 0.004004004 1.816817
## 4181 0.180180180 0.004004004 1.815816
## 4182 0.181181181 0.004004004 1.814815
## 4183 0.182182182 0.004004004 1.813814
## 4184 0.183183183 0.004004004 1.812813
## 4185 0.184184184 0.004004004 1.811812
## 4186 0.185185185 0.004004004 1.810811
## 4187 0.186186186 0.004004004 1.809810
## 4188 0.187187187 0.004004004 1.808809
## 4189 0.188188188 0.004004004 1.807808
## 4190 0.189189189 0.004004004 1.806807
## 4191 0.190190190 0.004004004 1.805806
## 4192 0.191191191 0.004004004 1.804805
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR203

```
## 4193 0.192192192 0.004004004 1.803804
## 4194 0.193193193 0.004004004 1.802803
## 4195 0.194194194 0.004004004 1.801802
## 4196 0.195195195 0.004004004 1.800801
## 4197 0.196196196 0.004004004 1.799800
## 4198 0.197197197 0.004004004 1.798799
## 4199 0.198198198 0.004004004 1.797798
## 4200 0.199199199 0.004004004 1.796797
## 4201 0.200200200 0.004004004 1.795796
## 4202 0.201201201 0.004004004 1.794795
## 4203 0.202202202 0.004004004 1.793794
## 4204 0.203203203 0.004004004 1.792793
## 4205 0.204204204 0.004004004 1.791792
## 4206 0.205205205 0.004004004 1.790791
## 4207 0.206206206 0.004004004 1.789790
## 4208 0.207207207 0.004004004 1.788789
## 4209 0.208208208 0.004004004 1.787788
## 4210 0.209209209 0.004004004 1.786787
## 4211 0.210210210 0.004004004 1.785786
## 4212 0.211211211 0.004004004 1.784785
## 4213 0.212212212 0.004004004 1.783784
## 4214 0.213213213 0.004004004 1.782783
## 4215 0.214214214 0.004004004 1.781782
## 4216 0.215215215 0.004004004 1.780781
## 4217 0.216216216 0.004004004 1.779780
## 4218 0.217217217 0.004004004 1.778779
## 4219 0.218218218 0.004004004 1.777778
## 4220 0.219219219 0.004004004 1.776777
## 4221 0.220220220 0.004004004 1.775776
## 4222 0.221221221 0.004004004 1.774775
## 4223 0.222222222 0.004004004 1.773774
## 4224 0.223223223 0.004004004 1.772773
## 4225 0.224224224 0.004004004 1.771772
## 4226 0.225225225 0.004004004 1.770771
## 4227 0.226226226 0.004004004 1.769770
## 4228 0.227227227 0.004004004 1.768769
## 4229 0.228228228 0.004004004 1.767768
## 4230 0.229229229 0.004004004 1.766767
## 4231 0.230230230 0.004004004 1.765766
## 4232 0.231231231 0.004004004 1.764765
## 4233 0.232232232 0.004004004 1.763764
## 4234 0.233233233 0.004004004 1.762763
## 4235 0.234234234 0.004004004 1.761762
## 4236 0.235235235 0.004004004 1.760761
## 4237 0.236236236 0.004004004 1.759760
## 4238 0.237237237 0.004004004 1.758759
```

```
## 4239  0.238238238 0.004004004 1.757758
## 4240  0.239239239 0.004004004 1.756757
## 4241  0.240240240 0.004004004 1.755756
## 4242  0.241241241 0.004004004 1.754755
## 4243  0.242242242 0.004004004 1.753754
## 4244  0.243243243 0.004004004 1.752753
## 4245  0.244244244 0.004004004 1.751752
## 4246  0.245245245 0.004004004 1.750751
## 4247  0.246246246 0.004004004 1.749750
## 4248  0.247247247 0.004004004 1.748749
## 4249  0.248248248 0.004004004 1.747748
## 4250  0.249249249 0.004004004 1.746747
## 4251  0.250250250 0.004004004 1.745746
## 4252  0.251251251 0.004004004 1.744745
## 4253  0.252252252 0.004004004 1.743744
## 4254  0.253253253 0.004004004 1.742743
## 4255  0.254254254 0.004004004 1.741742
## 4256  0.255255255 0.004004004 1.740741
## 4257  0.256256256 0.004004004 1.739740
## 4258  0.257257257 0.004004004 1.738739
## 4259  0.258258258 0.004004004 1.737738
## 4260  0.259259259 0.004004004 1.736737
## 4261  0.260260260 0.004004004 1.735736
## 4262  0.261261261 0.004004004 1.734735
## 4263  0.262262262 0.004004004 1.733734
## 4264  0.263263263 0.004004004 1.732733
## 4265  0.264264264 0.004004004 1.731732
## 4266  0.265265265 0.004004004 1.730731
## 4267  0.266266266 0.004004004 1.729730
## 4268  0.267267267 0.004004004 1.728729
## 4269  0.268268268 0.004004004 1.727728
## 4270  0.269269269 0.004004004 1.726727
## 4271  0.270270270 0.004004004 1.725726
## 4272  0.271271271 0.004004004 1.724725
## 4273  0.272272272 0.004004004 1.723724
## 4274  0.273273273 0.004004004 1.722723
## 4275  0.274274274 0.004004004 1.721722
## 4276  0.275275275 0.004004004 1.720721
## 4277  0.276276276 0.004004004 1.719720
## 4278  0.277277277 0.004004004 1.718719
## 4279  0.278278278 0.004004004 1.717718
## 4280  0.279279279 0.004004004 1.716717
## 4281  0.280280280 0.004004004 1.715716
## 4282  0.281281281 0.004004004 1.714715
## 4283  0.282282282 0.004004004 1.713714
## 4284  0.283283283 0.004004004 1.712713
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR205

```
## 4285  0.284284284 0.004004004 1.711712
## 4286  0.285285285 0.004004004 1.710711
## 4287  0.286286286 0.004004004 1.709710
## 4288  0.287287287 0.004004004 1.708709
## 4289  0.288288288 0.004004004 1.707708
## 4290  0.289289289 0.004004004 1.706707
## 4291  0.290290290 0.004004004 1.705706
## 4292  0.291291291 0.004004004 1.704705
## 4293  0.292292292 0.004004004 1.703704
## 4294  0.293293293 0.004004004 1.702703
## 4295  0.294294294 0.004004004 1.701702
## 4296  0.295295295 0.004004004 1.700701
## 4297  0.296296296 0.004004004 1.699700
## 4298  0.297297297 0.004004004 1.698699
## 4299  0.298298298 0.004004004 1.697698
## 4300  0.299299299 0.004004004 1.696697
## 4301  0.300300300 0.004004004 1.695696
## 4302  0.301301301 0.004004004 1.694695
## 4303  0.302302302 0.004004004 1.693694
## 4304  0.303303303 0.004004004 1.692693
## 4305  0.304304304 0.004004004 1.691692
## 4306  0.305305305 0.004004004 1.690691
## 4307  0.306306306 0.004004004 1.689690
## 4308  0.307307307 0.004004004 1.688689
## 4309  0.308308308 0.004004004 1.687688
## 4310  0.309309309 0.004004004 1.686687
## 4311  0.310310310 0.004004004 1.685686
## 4312  0.311311311 0.004004004 1.684685
## 4313  0.312312312 0.004004004 1.683684
## 4314  0.313313313 0.004004004 1.682683
## 4315  0.314314314 0.004004004 1.681682
## 4316  0.315315315 0.004004004 1.680681
## 4317  0.316316316 0.004004004 1.679680
## 4318  0.317317317 0.004004004 1.678679
## 4319  0.318318318 0.004004004 1.677678
## 4320  0.319319319 0.004004004 1.676677
## 4321  0.320320320 0.004004004 1.675676
## 4322  0.321321321 0.004004004 1.674675
## 4323  0.322322322 0.004004004 1.673674
## 4324  0.323323323 0.004004004 1.672673
## 4325  0.324324324 0.004004004 1.671672
## 4326  0.325325325 0.004004004 1.670671
## 4327  0.326326326 0.004004004 1.669670
## 4328  0.327327327 0.004004004 1.668669
## 4329  0.328328328 0.004004004 1.667668
## 4330  0.329329329 0.004004004 1.666667
```

```
## 4331 0.330330330 0.004004004 1.665666
## 4332 0.331331331 0.004004004 1.664665
## 4333 0.332332332 0.004004004 1.663664
## 4334 0.333333333 0.004004004 1.662663
## 4335 0.334334334 0.004004004 1.661662
## 4336 0.335335335 0.004004004 1.660661
## 4337 0.336336336 0.004004004 1.659660
## 4338 0.337337337 0.004004004 1.658659
## 4339 0.338338338 0.004004004 1.657658
## 4340 0.339339339 0.004004004 1.656657
## 4341 0.340340340 0.004004004 1.655656
## 4342 0.341341341 0.004004004 1.654655
## 4343 0.342342342 0.004004004 1.653654
## 4344 0.343343343 0.004004004 1.652653
## 4345 0.344344344 0.004004004 1.651652
## 4346 0.345345345 0.004004004 1.650651
## 4347 0.346346346 0.004004004 1.649650
## 4348 0.347347347 0.004004004 1.648649
## 4349 0.348348348 0.004004004 1.647648
## 4350 0.349349349 0.004004004 1.646647
## 4351 0.350350350 0.004004004 1.645646
## 4352 0.351351351 0.004004004 1.644645
## 4353 0.352352352 0.004004004 1.643644
## 4354 0.353353353 0.004004004 1.642643
## 4355 0.354354354 0.004004004 1.641642
## 4356 0.355355355 0.004004004 1.640641
## 4357 0.356356356 0.004004004 1.639640
## 4358 0.357357357 0.004004004 1.638639
## 4359 0.358358358 0.004004004 1.637638
## 4360 0.359359359 0.004004004 1.636637
## 4361 0.360360360 0.004004004 1.635636
## 4362 0.361361361 0.004004004 1.634635
## 4363 0.362362362 0.004004004 1.633634
## 4364 0.363363363 0.004004004 1.632633
## 4365 0.364364364 0.004004004 1.631632
## 4366 0.365365365 0.004004004 1.630631
## 4367 0.366366366 0.004004004 1.629630
## 4368 0.367367367 0.004004004 1.628629
## 4369 0.368368368 0.004004004 1.627628
## 4370 0.369369369 0.004004004 1.626627
## 4371 0.370370370 0.004004004 1.625626
## 4372 0.371371371 0.004004004 1.624625
## 4373 0.372372372 0.004004004 1.623624
## 4374 0.373373373 0.004004004 1.622623
## 4375 0.374374374 0.004004004 1.621622
## 4376 0.375375375 0.004004004 1.620621
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 207

```

## 4377 0.376376376 0.004004004 1.619620
## 4378 0.377377377 0.004004004 1.618619
## 4379 0.378378378 0.004004004 1.617618
## 4380 0.379379379 0.004004004 1.616617
## 4381 0.380380380 0.004004004 1.615616
## 4382 0.381381381 0.004004004 1.614615
## 4383 0.382382382 0.004004004 1.613614
## 4384 0.383383383 0.004004004 1.612613
## 4385 0.384384384 0.004004004 1.611612
## 4386 0.385385385 0.004004004 1.610611
## 4387 0.386386386 0.004004004 1.609610
## 4388 0.387387387 0.004004004 1.608609
## 4389 0.388388388 0.004004004 1.607608
## 4390 0.389389389 0.004004004 1.606607
## 4391 0.390390390 0.004004004 1.605606
## 4392 0.391391391 0.004004004 1.604605
## 4393 0.392392392 0.004004004 1.603604
## 4394 0.393393393 0.004004004 1.602603
## 4395 0.394394394 0.004004004 1.601602
## 4396 0.395395395 0.004004004 1.600601
## 4397 0.396396396 0.004004004 1.599600
## 4398 0.397397397 0.004004004 1.598599
## 4399 0.398398398 0.004004004 1.597598
## 4400 0.399399399 0.004004004 1.596597
## 4401 0.400400400 0.004004004 1.595596
## 4402 0.401401401 0.004004004 1.594595
## 4403 0.402402402 0.004004004 1.593594
## 4404 0.403403403 0.004004004 1.592593
## 4405 0.404404404 0.004004004 1.591592
## 4406 0.405405405 0.004004004 1.590591
## 4407 0.406406406 0.004004004 1.589590
## 4408 0.407407407 0.004004004 1.588589
## 4409 0.408408408 0.004004004 1.587588
## 4410 0.409409409 0.004004004 1.586587
## 4411 0.410410410 0.004004004 1.585586
## 4412 0.411411411 0.004004004 1.584585
## 4413 0.412412412 0.004004004 1.583584
## 4414 0.413413413 0.004004004 1.582583
## 4415 0.414414414 0.004004004 1.581582
## 4416 0.415415415 0.004004004 1.580581
## 4417 0.416416416 0.004004004 1.579580
## 4418 0.417417417 0.004004004 1.578579
## 4419 0.418418418 0.004004004 1.577578
## 4420 0.419419419 0.004004004 1.576577
## 4421 0.420420420 0.004004004 1.575576
## 4422 0.421421421 0.004004004 1.574575

```

```
## 4423 0.422422422 0.004004004 1.573574
## 4424 0.423423423 0.004004004 1.572573
## 4425 0.424424424 0.004004004 1.571572
## 4426 0.425425425 0.004004004 1.570571
## 4427 0.426426426 0.004004004 1.569570
## 4428 0.427427427 0.004004004 1.568569
## 4429 0.428428428 0.004004004 1.567568
## 4430 0.429429429 0.004004004 1.566567
## 4431 0.430430430 0.004004004 1.565566
## 4432 0.431431431 0.004004004 1.564565
## 4433 0.432432432 0.004004004 1.563564
## 4434 0.433433433 0.004004004 1.562563
## 4435 0.434434434 0.004004004 1.561562
## 4436 0.435435435 0.004004004 1.560561
## 4437 0.436436436 0.004004004 1.559560
## 4438 0.437437437 0.004004004 1.558559
## 4439 0.438438438 0.004004004 1.557558
## 4440 0.439439439 0.004004004 1.556557
## 4441 0.440440440 0.004004004 1.555556
## 4442 0.441441441 0.004004004 1.554555
## 4443 0.442442442 0.004004004 1.553554
## 4444 0.443443443 0.004004004 1.552553
## 4445 0.444444444 0.004004004 1.551552
## 4446 0.445445445 0.004004004 1.550551
## 4447 0.446446446 0.004004004 1.549550
## 4448 0.447447447 0.004004004 1.548549
## 4449 0.448448448 0.004004004 1.547548
## 4450 0.449449449 0.004004004 1.546547
## 4451 0.450450450 0.004004004 1.545546
## 4452 0.451451451 0.004004004 1.544545
## 4453 0.452452452 0.004004004 1.543544
## 4454 0.453453453 0.004004004 1.542543
## 4455 0.454454454 0.004004004 1.541542
## 4456 0.455455455 0.004004004 1.540541
## 4457 0.456456456 0.004004004 1.539540
## 4458 0.457457457 0.004004004 1.538539
## 4459 0.458458458 0.004004004 1.537538
## 4460 0.459459459 0.004004004 1.536537
## 4461 0.460460460 0.004004004 1.535536
## 4462 0.461461461 0.004004004 1.534535
## 4463 0.462462462 0.004004004 1.533534
## 4464 0.463463463 0.004004004 1.532533
## 4465 0.464464464 0.004004004 1.531532
## 4466 0.465465465 0.004004004 1.530531
## 4467 0.466466466 0.004004004 1.529530
## 4468 0.467467467 0.004004004 1.528529
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 209

```

## 4469 0.468468468 0.004004004 1.527528
## 4470 0.469469469 0.004004004 1.526527
## 4471 0.470470470 0.004004004 1.525526
## 4472 0.471471471 0.004004004 1.524525
## 4473 0.472472472 0.004004004 1.523524
## 4474 0.473473473 0.004004004 1.522523
## 4475 0.474474474 0.004004004 1.521522
## 4476 0.475475475 0.004004004 1.520521
## 4477 0.476476476 0.004004004 1.519520
## 4478 0.477477477 0.004004004 1.518519
## 4479 0.478478478 0.004004004 1.517518
## 4480 0.479479479 0.004004004 1.516517
## 4481 0.480480480 0.004004004 1.515516
## 4482 0.481481481 0.004004004 1.514515
## 4483 0.482482482 0.004004004 1.513514
## 4484 0.483483483 0.004004004 1.512513
## 4485 0.484484484 0.004004004 1.511512
## 4486 0.485485485 0.004004004 1.510511
## 4487 0.486486486 0.004004004 1.509510
## 4488 0.487487487 0.004004004 1.508509
## 4489 0.488488488 0.004004004 1.507508
## 4490 0.489489489 0.004004004 1.506507
## 4491 0.490490490 0.004004004 1.505506
## 4492 0.491491491 0.004004004 1.504505
## 4493 0.492492492 0.004004004 1.503504
## 4494 0.493493493 0.004004004 1.502503
## 4495 0.494494494 0.004004004 1.501502
## 4496 0.495495495 0.004004004 1.500501
## 4497 0.496496496 0.004004004 1.499499
## 4498 0.497497497 0.004004004 1.498498
## 4499 0.498498498 0.004004004 1.497497
## 4500 0.499499499 0.004004004 1.496496
## 4501 0.500500501 0.004004004 1.495495
## 4502 0.501501502 0.004004004 1.494494
## 4503 0.502502503 0.004004004 1.493493
## 4504 0.503503504 0.004004004 1.492492
## 4505 0.504504505 0.004004004 1.491491
## 4506 0.505505506 0.004004004 1.490490
## 4507 0.506506507 0.004004004 1.489489
## 4508 0.507507508 0.004004004 1.488488
## 4509 0.508508509 0.004004004 1.487487
## 4510 0.509509510 0.004004004 1.486486
## 4511 0.510510511 0.004004004 1.485485
## 4512 0.511511512 0.004004004 1.484484
## 4513 0.512512513 0.004004004 1.483483
## 4514 0.513513514 0.004004004 1.482482

```

```
## 4515 0.514514515 0.004004004 1.481481
## 4516 0.515515516 0.004004004 1.480480
## 4517 0.516516517 0.004004004 1.479479
## 4518 0.517517518 0.004004004 1.478478
## 4519 0.518518519 0.004004004 1.477477
## 4520 0.519519520 0.004004004 1.476476
## 4521 0.520520521 0.004004004 1.475475
## 4522 0.521521522 0.004004004 1.474474
## 4523 0.522522523 0.004004004 1.473473
## 4524 0.523523524 0.004004004 1.472472
## 4525 0.524524525 0.004004004 1.471471
## 4526 0.525525526 0.004004004 1.470470
## 4527 0.526526527 0.004004004 1.469469
## 4528 0.527527528 0.004004004 1.468468
## 4529 0.528528529 0.004004004 1.467467
## 4530 0.529529530 0.004004004 1.466466
## 4531 0.530530531 0.004004004 1.465465
## 4532 0.531531532 0.004004004 1.464464
## 4533 0.532532533 0.004004004 1.463463
## 4534 0.533533534 0.004004004 1.462462
## 4535 0.534534535 0.004004004 1.461461
## 4536 0.535535536 0.004004004 1.460460
## 4537 0.536536537 0.004004004 1.459459
## 4538 0.537537538 0.004004004 1.458458
## 4539 0.538538539 0.004004004 1.457457
## 4540 0.539539540 0.004004004 1.456456
## 4541 0.540540541 0.004004004 1.455455
## 4542 0.541541542 0.004004004 1.454454
## 4543 0.542542543 0.004004004 1.453453
## 4544 0.543543544 0.004004004 1.452452
## 4545 0.544544545 0.004004004 1.451451
## 4546 0.545545546 0.004004004 1.450450
## 4547 0.546546547 0.004004004 1.449449
## 4548 0.547547548 0.004004004 1.448448
## 4549 0.548548549 0.004004004 1.447447
## 4550 0.549549550 0.004004004 1.446446
## 4551 0.550550551 0.004004004 1.445445
## 4552 0.551551552 0.004004004 1.444444
## 4553 0.552552553 0.004004004 1.443443
## 4554 0.553553554 0.004004004 1.442442
## 4555 0.554554555 0.004004004 1.441441
## 4556 0.555555556 0.004004004 1.440440
## 4557 0.556556557 0.004004004 1.439439
## 4558 0.557557558 0.004004004 1.438438
## 4559 0.558558559 0.004004004 1.437437
## 4560 0.559559560 0.004004004 1.436436
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 211

```

## 4561 0.560560561 0.004004004 1.435435
## 4562 0.561561562 0.004004004 1.434434
## 4563 0.562562563 0.004004004 1.433433
## 4564 0.563563564 0.004004004 1.432432
## 4565 0.564564565 0.004004004 1.431431
## 4566 0.565565566 0.004004004 1.430430
## 4567 0.566566567 0.004004004 1.429429
## 4568 0.567567568 0.004004004 1.428428
## 4569 0.568568569 0.004004004 1.427427
## 4570 0.569569570 0.004004004 1.426426
## 4571 0.570570571 0.004004004 1.425425
## 4572 0.571571572 0.004004004 1.424424
## 4573 0.572572573 0.004004004 1.423423
## 4574 0.573573574 0.004004004 1.422422
## 4575 0.574574575 0.004004004 1.421421
## 4576 0.575575576 0.004004004 1.420420
## 4577 0.576576577 0.004004004 1.419419
## 4578 0.577577578 0.004004004 1.418418
## 4579 0.578578579 0.004004004 1.417417
## 4580 0.579579580 0.004004004 1.416416
## 4581 0.580580581 0.004004004 1.415415
## 4582 0.581581582 0.004004004 1.414414
## 4583 0.582582583 0.004004004 1.413413
## 4584 0.583583584 0.004004004 1.412412
## 4585 0.584584585 0.004004004 1.411411
## 4586 0.585585586 0.004004004 1.410410
## 4587 0.586586587 0.004004004 1.409409
## 4588 0.587587588 0.004004004 1.408408
## 4589 0.588588589 0.004004004 1.407407
## 4590 0.589589590 0.004004004 1.406406
## 4591 0.590590591 0.004004004 1.405405
## 4592 0.591591592 0.004004004 1.404404
## 4593 0.592592593 0.004004004 1.403403
## 4594 0.593593594 0.004004004 1.402402
## 4595 0.594594595 0.004004004 1.401401
## 4596 0.595595596 0.004004004 1.400400
## 4597 0.596596597 0.004004004 1.399399
## 4598 0.597597598 0.004004004 1.398398
## 4599 0.598598599 0.004004004 1.397397
## 4600 0.599599600 0.004004004 1.396396
## 4601 0.600600601 0.004004004 1.395395
## 4602 0.601601602 0.004004004 1.394394
## 4603 0.602602603 0.004004004 1.393393
## 4604 0.603603604 0.004004004 1.392392
## 4605 0.604604605 0.004004004 1.391391
## 4606 0.605605606 0.004004004 1.390390

```

```
## 4607 0.606606607 0.004004004 1.389389
## 4608 0.607607608 0.004004004 1.388388
## 4609 0.608608609 0.004004004 1.387387
## 4610 0.609609610 0.004004004 1.386386
## 4611 0.610610611 0.004004004 1.385385
## 4612 0.611611612 0.004004004 1.384384
## 4613 0.612612613 0.004004004 1.383383
## 4614 0.613613614 0.004004004 1.382382
## 4615 0.614614615 0.004004004 1.381381
## 4616 0.615615616 0.004004004 1.380380
## 4617 0.616616617 0.004004004 1.379379
## 4618 0.617617618 0.004004004 1.378378
## 4619 0.618618619 0.004004004 1.377377
## 4620 0.619619620 0.004004004 1.376376
## 4621 0.620620621 0.004004004 1.375375
## 4622 0.621621622 0.004004004 1.374374
## 4623 0.622622623 0.004004004 1.373373
## 4624 0.623623624 0.004004004 1.372372
## 4625 0.624624625 0.004004004 1.371371
## 4626 0.625625626 0.004004004 1.370370
## 4627 0.626626627 0.004004004 1.369369
## 4628 0.627627628 0.004004004 1.368368
## 4629 0.628628629 0.004004004 1.367367
## 4630 0.629629630 0.004004004 1.366366
## 4631 0.630630631 0.004004004 1.365365
## 4632 0.631631632 0.004004004 1.364364
## 4633 0.632632633 0.004004004 1.363363
## 4634 0.633633634 0.004004004 1.362362
## 4635 0.634634635 0.004004004 1.361361
## 4636 0.635635636 0.004004004 1.360360
## 4637 0.636636637 0.004004004 1.359359
## 4638 0.637637638 0.004004004 1.358358
## 4639 0.638638639 0.004004004 1.357357
## 4640 0.639639640 0.004004004 1.356356
## 4641 0.640640641 0.004004004 1.355355
## 4642 0.641641642 0.004004004 1.354354
## 4643 0.642642643 0.004004004 1.353353
## 4644 0.643643644 0.004004004 1.352352
## 4645 0.644644645 0.004004004 1.351351
## 4646 0.645645646 0.004004004 1.350350
## 4647 0.646646647 0.004004004 1.349349
## 4648 0.647647648 0.004004004 1.348348
## 4649 0.648648649 0.004004004 1.347347
## 4650 0.649649650 0.004004004 1.346346
## 4651 0.650650651 0.004004004 1.345345
## 4652 0.651651652 0.004004004 1.344344
```

```

## 4653 0.652652653 0.004004004 1.343343
## 4654 0.653653654 0.004004004 1.342342
## 4655 0.654654655 0.004004004 1.341341
## 4656 0.655655656 0.004004004 1.340340
## 4657 0.656656657 0.004004004 1.339339
## 4658 0.657657658 0.004004004 1.338338
## 4659 0.658658659 0.004004004 1.337337
## 4660 0.659659660 0.004004004 1.336336
## 4661 0.660660661 0.004004004 1.335335
## 4662 0.661661662 0.004004004 1.334334
## 4663 0.662662663 0.004004004 1.333333
## 4664 0.663663664 0.004004004 1.332332
## 4665 0.664664665 0.004004004 1.331331
## 4666 0.665665666 0.004004004 1.330330
## 4667 0.666666667 0.004004004 1.329329
## 4668 0.667667668 0.004004004 1.328328
## 4669 0.668668669 0.004004004 1.327327
## 4670 0.669669670 0.004004004 1.326326
## 4671 0.670670671 0.004004004 1.325325
## 4672 0.671671672 0.004004004 1.324324
## 4673 0.672672673 0.004004004 1.323323
## 4674 0.673673674 0.004004004 1.322322
## 4675 0.674674675 0.004004004 1.321321
## 4676 0.675675676 0.004004004 1.320320
## 4677 0.676676677 0.004004004 1.319319
## 4678 0.677677678 0.004004004 1.318318
## 4679 0.678678679 0.004004004 1.317317
## 4680 0.679679680 0.004004004 1.316316
## 4681 0.680680681 0.004004004 1.315315
## 4682 0.681681682 0.004004004 1.314314
## 4683 0.682682683 0.004004004 1.313313
## 4684 0.683683684 0.004004004 1.312312
## 4685 0.684684685 0.004004004 1.311311
## 4686 0.685685686 0.004004004 1.310310
## 4687 0.686686687 0.004004004 1.309309
## 4688 0.687687688 0.004004004 1.308308
## 4689 0.688688689 0.004004004 1.307307
## 4690 0.689689690 0.004004004 1.306306
## 4691 0.690690691 0.004004004 1.305305
## 4692 0.691691692 0.004004004 1.304304
## 4693 0.692692693 0.004004004 1.303303
## 4694 0.693693694 0.004004004 1.302302
## 4695 0.694694695 0.004004004 1.301301
## 4696 0.695695696 0.004004004 1.300300
## 4697 0.696696697 0.004004004 1.299299
## 4698 0.697697698 0.004004004 1.298298

```

```
## 4699 0.698698699 0.004004004 1.297297
## 4700 0.699699700 0.004004004 1.296296
## 4701 0.700700701 0.004004004 1.295295
## 4702 0.701701702 0.004004004 1.294294
## 4703 0.702702703 0.004004004 1.293293
## 4704 0.703703704 0.004004004 1.292292
## 4705 0.704704705 0.004004004 1.291291
## 4706 0.705705706 0.004004004 1.290290
## 4707 0.706706707 0.004004004 1.289289
## 4708 0.707707708 0.004004004 1.288288
## 4709 0.708708709 0.004004004 1.287287
## 4710 0.709709710 0.004004004 1.286286
## 4711 0.710710711 0.004004004 1.285285
## 4712 0.711711712 0.004004004 1.284284
## 4713 0.712712713 0.004004004 1.283283
## 4714 0.713713714 0.004004004 1.282282
## 4715 0.714714715 0.004004004 1.281281
## 4716 0.715715716 0.004004004 1.280280
## 4717 0.716716717 0.004004004 1.279279
## 4718 0.717717718 0.004004004 1.278278
## 4719 0.718718719 0.004004004 1.277277
## 4720 0.719719720 0.004004004 1.276276
## 4721 0.720720721 0.004004004 1.275275
## 4722 0.721721722 0.004004004 1.274274
## 4723 0.722722723 0.004004004 1.273273
## 4724 0.723723724 0.004004004 1.272272
## 4725 0.724724725 0.004004004 1.271271
## 4726 0.725725726 0.004004004 1.270270
## 4727 0.726726727 0.004004004 1.269269
## 4728 0.727727728 0.004004004 1.268268
## 4729 0.728728729 0.004004004 1.267267
## 4730 0.729729730 0.004004004 1.266266
## 4731 0.730730731 0.004004004 1.265265
## 4732 0.731731732 0.004004004 1.264264
## 4733 0.732732733 0.004004004 1.263263
## 4734 0.733733734 0.004004004 1.262262
## 4735 0.734734735 0.004004004 1.261261
## 4736 0.735735736 0.004004004 1.260260
## 4737 0.736736737 0.004004004 1.259259
## 4738 0.737737738 0.004004004 1.258258
## 4739 0.738738739 0.004004004 1.257257
## 4740 0.739739740 0.004004004 1.256256
## 4741 0.740740741 0.004004004 1.255255
## 4742 0.741741742 0.004004004 1.254254
## 4743 0.742742743 0.004004004 1.253253
## 4744 0.743743744 0.004004004 1.252252
```

```

## 4745 0.744744745 0.004004004 1.251251
## 4746 0.745745746 0.004004004 1.250250
## 4747 0.746746747 0.004004004 1.249249
## 4748 0.747747748 0.004004004 1.248248
## 4749 0.748748749 0.004004004 1.247247
## 4750 0.749749750 0.004004004 1.246246
## 4751 0.750750751 0.004004004 1.245245
## 4752 0.751751752 0.004004004 1.244244
## 4753 0.752752753 0.004004004 1.243243
## 4754 0.753753754 0.004004004 1.242242
## 4755 0.754754755 0.004004004 1.241241
## 4756 0.755755756 0.004004004 1.240240
## 4757 0.756756757 0.004004004 1.239239
## 4758 0.757757758 0.004004004 1.238238
## 4759 0.758758759 0.004004004 1.237237
## 4760 0.759759760 0.004004004 1.236236
## 4761 0.760760761 0.004004004 1.235235
## 4762 0.761761762 0.004004004 1.234234
## 4763 0.762762763 0.004004004 1.233233
## 4764 0.763763764 0.004004004 1.232232
## 4765 0.764764765 0.004004004 1.231231
## 4766 0.765765766 0.004004004 1.230230
## 4767 0.766766767 0.004004004 1.229229
## 4768 0.767767768 0.004004004 1.228228
## 4769 0.768768769 0.004004004 1.227227
## 4770 0.769769770 0.004004004 1.226226
## 4771 0.770770771 0.004004004 1.225225
## 4772 0.771771772 0.004004004 1.224224
## 4773 0.772772773 0.004004004 1.223223
## 4774 0.773773774 0.004004004 1.222222
## 4775 0.774774775 0.004004004 1.221221
## 4776 0.775775776 0.004004004 1.220220
## 4777 0.776776777 0.004004004 1.219219
## 4778 0.777777778 0.004004004 1.218218
## 4779 0.778778779 0.004004004 1.217217
## 4780 0.779779780 0.004004004 1.216216
## 4781 0.780780781 0.004004004 1.215215
## 4782 0.781781782 0.004004004 1.214214
## 4783 0.782782783 0.004004004 1.213213
## 4784 0.783783784 0.004004004 1.212212
## 4785 0.784784785 0.004004004 1.211211
## 4786 0.785785786 0.004004004 1.210210
## 4787 0.786786787 0.004004004 1.209209
## 4788 0.787787788 0.004004004 1.208208
## 4789 0.788788789 0.004004004 1.207207
## 4790 0.789789790 0.004004004 1.206206

```

```
## 4791  0.790790791 0.004004004 1.205205
## 4792  0.791791792 0.004004004 1.204204
## 4793  0.792792793 0.004004004 1.203203
## 4794  0.793793794 0.004004004 1.202202
## 4795  0.794794795 0.004004004 1.201201
## 4796  0.795795796 0.004004004 1.200200
## 4797  0.796796797 0.004004004 1.199199
## 4798  0.797797798 0.004004004 1.198198
## 4799  0.798798799 0.004004004 1.197197
## 4800  0.799799800 0.004004004 1.196196
## 4801  0.800800801 0.004004004 1.195195
## 4802  0.801801802 0.004004004 1.194194
## 4803  0.802802803 0.004004004 1.193193
## 4804  0.803803804 0.004004004 1.192192
## 4805  0.804804805 0.004004004 1.191191
## 4806  0.805805806 0.004004004 1.190190
## 4807  0.806806807 0.004004004 1.189189
## 4808  0.807807808 0.004004004 1.188188
## 4809  0.808808809 0.004004004 1.187187
## 4810  0.809809810 0.004004004 1.186186
## 4811  0.810810811 0.004004004 1.185185
## 4812  0.811811812 0.004004004 1.184184
## 4813  0.812812813 0.004004004 1.183183
## 4814  0.813813814 0.004004004 1.182182
## 4815  0.814814815 0.004004004 1.181181
## 4816  0.815815816 0.004004004 1.180180
## 4817  0.816816817 0.004004004 1.179179
## 4818  0.817817818 0.004004004 1.178178
## 4819  0.818818819 0.004004004 1.177177
## 4820  0.819819820 0.004004004 1.176176
## 4821  0.820820821 0.004004004 1.175175
## 4822  0.821821822 0.004004004 1.174174
## 4823  0.822822823 0.004004004 1.173173
## 4824  0.823823824 0.004004004 1.172172
## 4825  0.824824825 0.004004004 1.171171
## 4826  0.825825826 0.004004004 1.170170
## 4827  0.826826827 0.004004004 1.169169
## 4828  0.827827828 0.004004004 1.168168
## 4829  0.828828829 0.004004004 1.167167
## 4830  0.829829830 0.004004004 1.166166
## 4831  0.830830831 0.004004004 1.165165
## 4832  0.831831832 0.004004004 1.164164
## 4833  0.832832833 0.004004004 1.163163
## 4834  0.833833834 0.004004004 1.162162
## 4835  0.834834835 0.004004004 1.161161
## 4836  0.835835836 0.004004004 1.160160
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 217

```
## 4837  0.836836837 0.004004004 1.159159
## 4838  0.837837838 0.004004004 1.158158
## 4839  0.838838839 0.004004004 1.157157
## 4840  0.839839840 0.004004004 1.156156
## 4841  0.840840841 0.004004004 1.155155
## 4842  0.841841842 0.004004004 1.154154
## 4843  0.842842843 0.004004004 1.153153
## 4844  0.843843844 0.004004004 1.152152
## 4845  0.844844845 0.004004004 1.151151
## 4846  0.845845846 0.004004004 1.150150
## 4847  0.846846847 0.004004004 1.149149
## 4848  0.847847848 0.004004004 1.148148
## 4849  0.848848849 0.004004004 1.147147
## 4850  0.849849850 0.004004004 1.146146
## 4851  0.850850851 0.004004004 1.145145
## 4852  0.851851852 0.004004004 1.144144
## 4853  0.852852853 0.004004004 1.143143
## 4854  0.853853854 0.004004004 1.142142
## 4855  0.854854855 0.004004004 1.141141
## 4856  0.855855856 0.004004004 1.140140
## 4857  0.856856857 0.004004004 1.139139
## 4858  0.857857858 0.004004004 1.138138
## 4859  0.858858859 0.004004004 1.137137
## 4860  0.859859860 0.004004004 1.136136
## 4861  0.860860861 0.004004004 1.135135
## 4862  0.861861862 0.004004004 1.134134
## 4863  0.862862863 0.004004004 1.133133
## 4864  0.863863864 0.004004004 1.132132
## 4865  0.864864865 0.004004004 1.131131
## 4866  0.865865866 0.004004004 1.130130
## 4867  0.866866867 0.004004004 1.129129
## 4868  0.867867868 0.004004004 1.128128
## 4869  0.868868869 0.004004004 1.127127
## 4870  0.869869870 0.004004004 1.126126
## 4871  0.870870871 0.004004004 1.125125
## 4872  0.871871872 0.004004004 1.124124
## 4873  0.872872873 0.004004004 1.123123
## 4874  0.873873874 0.004004004 1.122122
## 4875  0.874874875 0.004004004 1.121121
## 4876  0.875875876 0.004004004 1.120120
## 4877  0.876876877 0.004004004 1.119119
## 4878  0.877877878 0.004004004 1.118118
## 4879  0.878878879 0.004004004 1.117117
## 4880  0.879879880 0.004004004 1.116116
## 4881  0.880880881 0.004004004 1.115115
## 4882  0.881881882 0.004004004 1.114114
```

```
## 4883 0.882882883 0.004004004 1.113113
## 4884 0.883883884 0.004004004 1.112112
## 4885 0.884884885 0.004004004 1.111111
## 4886 0.885885886 0.004004004 1.110110
## 4887 0.886886887 0.004004004 1.109109
## 4888 0.887887888 0.004004004 1.108108
## 4889 0.888888889 0.004004004 1.107107
## 4890 0.889889890 0.004004004 1.106106
## 4891 0.890890891 0.004004004 1.105105
## 4892 0.891891892 0.004004004 1.104104
## 4893 0.892892893 0.004004004 1.103103
## 4894 0.893893894 0.004004004 1.102102
## 4895 0.894894895 0.004004004 1.101101
## 4896 0.895895896 0.004004004 1.100100
## 4897 0.896896897 0.004004004 1.099099
## 4898 0.897897898 0.004004004 1.098098
## 4899 0.898898899 0.004004004 1.097097
## 4900 0.899899900 0.004004004 1.096096
## 4901 0.900900901 0.004004004 1.095095
## 4902 0.901901902 0.004004004 1.094094
## 4903 0.902902903 0.004004004 1.093093
## 4904 0.903903904 0.004004004 1.092092
## 4905 0.904904905 0.004004004 1.091091
## 4906 0.905905906 0.004004004 1.090090
## 4907 0.906906907 0.004004004 1.089089
## 4908 0.907907908 0.004004004 1.088088
## 4909 0.908908909 0.004004004 1.087087
## 4910 0.909909910 0.004004004 1.086086
## 4911 0.910910911 0.004004004 1.085085
## 4912 0.911911912 0.004004004 1.084084
## 4913 0.912912913 0.004004004 1.083083
## 4914 0.913913914 0.004004004 1.082082
## 4915 0.914914915 0.004004004 1.081081
## 4916 0.915915916 0.004004004 1.080080
## 4917 0.916916917 0.004004004 1.079079
## 4918 0.917917918 0.004004004 1.078078
## 4919 0.918918919 0.004004004 1.077077
## 4920 0.919919920 0.004004004 1.076076
## 4921 0.920920921 0.004004004 1.075075
## 4922 0.921921922 0.004004004 1.074074
## 4923 0.922922923 0.004004004 1.073073
## 4924 0.923923924 0.004004004 1.072072
## 4925 0.924924925 0.004004004 1.071071
## 4926 0.925925926 0.004004004 1.070070
## 4927 0.926926927 0.004004004 1.069069
## 4928 0.927927928 0.004004004 1.068068
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 219

```
## 4929  0.928928929 0.004004004 1.067067
## 4930  0.929929930 0.004004004 1.066066
## 4931  0.930930931 0.004004004 1.065065
## 4932  0.931931932 0.004004004 1.064064
## 4933  0.932932933 0.004004004 1.063063
## 4934  0.933933934 0.004004004 1.062062
## 4935  0.934934935 0.004004004 1.061061
## 4936  0.935935936 0.004004004 1.060060
## 4937  0.936936937 0.004004004 1.059059
## 4938  0.937937938 0.004004004 1.058058
## 4939  0.938938939 0.004004004 1.057057
## 4940  0.939939940 0.004004004 1.056056
## 4941  0.940940941 0.004004004 1.055055
## 4942  0.941941942 0.004004004 1.054054
## 4943  0.942942943 0.004004004 1.053053
## 4944  0.943943944 0.004004004 1.052052
## 4945  0.944944945 0.004004004 1.051051
## 4946  0.945945946 0.004004004 1.050050
## 4947  0.946946947 0.004004004 1.049049
## 4948  0.947947948 0.004004004 1.048048
## 4949  0.948948949 0.004004004 1.047047
## 4950  0.949949950 0.004004004 1.046046
## 4951  0.950950951 0.004004004 1.045045
## 4952  0.951951952 0.004004004 1.044044
## 4953  0.952952953 0.004004004 1.043043
## 4954  0.953953954 0.004004004 1.042042
## 4955  0.954954955 0.004004004 1.041041
## 4956  0.955955956 0.004004004 1.040040
## 4957  0.956956957 0.004004004 1.039039
## 4958  0.957957958 0.004004004 1.038038
## 4959  0.958958959 0.004004004 1.037037
## 4960  0.959959960 0.004004004 1.036036
## 4961  0.960960961 0.004004004 1.035035
## 4962  0.961961962 0.004004004 1.034034
## 4963  0.962962963 0.004004004 1.033033
## 4964  0.963963964 0.004004004 1.032032
## 4965  0.964964965 0.004004004 1.031031
## 4966  0.965965966 0.004004004 1.030030
## 4967  0.966966967 0.004004004 1.029029
## 4968  0.967967968 0.004004004 1.028028
## 4969  0.968968969 0.004004004 1.027027
## 4970  0.969969970 0.004004004 1.026026
## 4971  0.970970971 0.004004004 1.025025
## 4972  0.971971972 0.004004004 1.024024
## 4973  0.972972973 0.004004004 1.023023
## 4974  0.973973974 0.004004004 1.022022
```

```

## 4975  0.974974975 0.004004004 1.021021
## 4976  0.975975976 0.004004004 1.020020
## 4977  0.976976977 0.004004004 1.019019
## 4978  0.977977978 0.004004004 1.018018
## 4979  0.978978979 0.004004004 1.017017
## 4980  0.979979980 0.004004004 1.016016
## 4981  0.980980981 0.004004004 1.015015
## 4982  0.981981982 0.004004004 1.014014
## 4983  0.982982983 0.004004004 1.013013
## 4984  0.983983984 0.004004004 1.012012
## 4985  0.984984985 0.004004004 1.011011
## 4986  0.985985986 0.004004004 1.010010
## 4987  0.986986987 0.004004004 1.009009
## 4988  0.987987988 0.004004004 1.008008
## 4989  0.988988989 0.004004004 1.007007
## 4990  0.989989990 0.004004004 1.006006
## 4991  0.990990991 0.004004004 1.005005
## 4992  0.991991992 0.004004004 1.004004
## 4993  0.992992993 0.004004004 1.003003
## 4994  0.993993994 0.004004004 1.002002
## 4995  0.994994995 0.004004004 1.001001
## 4996  0.995995996 0.004004004 1.000000
## 4997  0.996996997 0.004004004 0.998999
## 4998  0.997997998 0.004004004 0.997998
## 4999  0.998998999 0.004004004 0.996997
## 5000  1.000000000 0.004004004 0.995996
## 5001  0.000000000 0.005005005 1.994995
## 5002  0.001001001 0.005005005 1.993994
## 5003  0.002002002 0.005005005 1.992993
## 5004  0.003003003 0.005005005 1.991992
## 5005  0.004004004 0.005005005 1.990991
## 5006  0.005005005 0.005005005 1.989990
## 5007  0.006006006 0.005005005 1.988989
## 5008  0.007007007 0.005005005 1.987988
## 5009  0.008008008 0.005005005 1.986987
## 5010  0.009009009 0.005005005 1.985986
## 5011  0.010010010 0.005005005 1.984985
## 5012  0.011011011 0.005005005 1.983984
## 5013  0.012012012 0.005005005 1.982983
## 5014  0.013013013 0.005005005 1.981982
## 5015  0.014014014 0.005005005 1.980981
## 5016  0.015015015 0.005005005 1.979980
## 5017  0.016016016 0.005005005 1.978979
## 5018  0.017017017 0.005005005 1.977978
## 5019  0.018018018 0.005005005 1.976977
## 5020  0.019019019 0.005005005 1.975976

```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 221

```
## 5021 0.020020020 0.005005005 1.974975
## 5022 0.021021021 0.005005005 1.973974
## 5023 0.022022022 0.005005005 1.972973
## 5024 0.023023023 0.005005005 1.971972
## 5025 0.024024024 0.005005005 1.970971
## 5026 0.025025025 0.005005005 1.969970
## 5027 0.026026026 0.005005005 1.968969
## 5028 0.027027027 0.005005005 1.967968
## 5029 0.028028028 0.005005005 1.966967
## 5030 0.029029029 0.005005005 1.965966
## 5031 0.030030030 0.005005005 1.964965
## 5032 0.031031031 0.005005005 1.963964
## 5033 0.032032032 0.005005005 1.962963
## 5034 0.033033033 0.005005005 1.961962
## 5035 0.034034034 0.005005005 1.960961
## 5036 0.035035035 0.005005005 1.959960
## 5037 0.036036036 0.005005005 1.958959
## 5038 0.037037037 0.005005005 1.957958
## 5039 0.038038038 0.005005005 1.956957
## 5040 0.039039039 0.005005005 1.955956
## 5041 0.040040040 0.005005005 1.954955
## 5042 0.041041041 0.005005005 1.953954
## 5043 0.042042042 0.005005005 1.952953
## 5044 0.043043043 0.005005005 1.951952
## 5045 0.044044044 0.005005005 1.950951
## 5046 0.045045045 0.005005005 1.949950
## 5047 0.046046046 0.005005005 1.948949
## 5048 0.047047047 0.005005005 1.947948
## 5049 0.048048048 0.005005005 1.946947
## 5050 0.049049049 0.005005005 1.945946
## 5051 0.050050050 0.005005005 1.944945
## 5052 0.051051051 0.005005005 1.943944
## 5053 0.052052052 0.005005005 1.942943
## 5054 0.053053053 0.005005005 1.941942
## 5055 0.054054054 0.005005005 1.940941
## 5056 0.055055055 0.005005005 1.939940
## 5057 0.056056056 0.005005005 1.938939
## 5058 0.057057057 0.005005005 1.937938
## 5059 0.058058058 0.005005005 1.936937
## 5060 0.059059059 0.005005005 1.935936
## 5061 0.060060060 0.005005005 1.934935
## 5062 0.061061061 0.005005005 1.933934
## 5063 0.062062062 0.005005005 1.932933
## 5064 0.063063063 0.005005005 1.931932
## 5065 0.064064064 0.005005005 1.930931
## 5066 0.065065065 0.005005005 1.929930
```

```
## 5067 0.066066066 0.005005005 1.928929
## 5068 0.067067067 0.005005005 1.927928
## 5069 0.068068068 0.005005005 1.926927
## 5070 0.069069069 0.005005005 1.925926
## 5071 0.070070070 0.005005005 1.924925
## 5072 0.071071071 0.005005005 1.923924
## 5073 0.072072072 0.005005005 1.922923
## 5074 0.073073073 0.005005005 1.921922
## 5075 0.074074074 0.005005005 1.920921
## 5076 0.075075075 0.005005005 1.919920
## 5077 0.076076076 0.005005005 1.918919
## 5078 0.077077077 0.005005005 1.917918
## 5079 0.078078078 0.005005005 1.916917
## 5080 0.079079079 0.005005005 1.915916
## 5081 0.080080080 0.005005005 1.914915
## 5082 0.081081081 0.005005005 1.913914
## 5083 0.082082082 0.005005005 1.912913
## 5084 0.083083083 0.005005005 1.911912
## 5085 0.084084084 0.005005005 1.910911
## 5086 0.085085085 0.005005005 1.909910
## 5087 0.086086086 0.005005005 1.908909
## 5088 0.087087087 0.005005005 1.907908
## 5089 0.088088088 0.005005005 1.906907
## 5090 0.089089089 0.005005005 1.905906
## 5091 0.090090090 0.005005005 1.904905
## 5092 0.091091091 0.005005005 1.903904
## 5093 0.092092092 0.005005005 1.902903
## 5094 0.093093093 0.005005005 1.901902
## 5095 0.094094094 0.005005005 1.900901
## 5096 0.095095095 0.005005005 1.899900
## 5097 0.096096096 0.005005005 1.898899
## 5098 0.097097097 0.005005005 1.897898
## 5099 0.098098098 0.005005005 1.896897
## 5100 0.099099099 0.005005005 1.895896
## 5101 0.100100100 0.005005005 1.894895
## 5102 0.101101101 0.005005005 1.893894
## 5103 0.102102102 0.005005005 1.892893
## 5104 0.103103103 0.005005005 1.891892
## 5105 0.104104104 0.005005005 1.890891
## 5106 0.105105105 0.005005005 1.889890
## 5107 0.106106106 0.005005005 1.888889
## 5108 0.107107107 0.005005005 1.887888
## 5109 0.108108108 0.005005005 1.886887
## 5110 0.109109109 0.005005005 1.885886
## 5111 0.110110110 0.005005005 1.884885
## 5112 0.111111111 0.005005005 1.883884
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 223

```

## 5113 0.112112112 0.005005005 1.882883
## 5114 0.113113113 0.005005005 1.881882
## 5115 0.114114114 0.005005005 1.880881
## 5116 0.115115115 0.005005005 1.879880
## 5117 0.116116116 0.005005005 1.878879
## 5118 0.117117117 0.005005005 1.877878
## 5119 0.118118118 0.005005005 1.876877
## 5120 0.119119119 0.005005005 1.875876
## 5121 0.120120120 0.005005005 1.874875
## 5122 0.121121121 0.005005005 1.873874
## 5123 0.122122122 0.005005005 1.872873
## 5124 0.123123123 0.005005005 1.871872
## 5125 0.124124124 0.005005005 1.870871
## 5126 0.125125125 0.005005005 1.869870
## 5127 0.126126126 0.005005005 1.868869
## 5128 0.127127127 0.005005005 1.867868
## 5129 0.128128128 0.005005005 1.866867
## 5130 0.129129129 0.005005005 1.865866
## 5131 0.130130130 0.005005005 1.864865
## 5132 0.131131131 0.005005005 1.863864
## 5133 0.132132132 0.005005005 1.862863
## 5134 0.133133133 0.005005005 1.861862
## 5135 0.134134134 0.005005005 1.860861
## 5136 0.135135135 0.005005005 1.859860
## 5137 0.136136136 0.005005005 1.858859
## 5138 0.137137137 0.005005005 1.857858
## 5139 0.138138138 0.005005005 1.856857
## 5140 0.139139139 0.005005005 1.855856
## 5141 0.140140140 0.005005005 1.854855
## 5142 0.141141141 0.005005005 1.853854
## 5143 0.142142142 0.005005005 1.852853
## 5144 0.143143143 0.005005005 1.851852
## 5145 0.144144144 0.005005005 1.850851
## 5146 0.145145145 0.005005005 1.849850
## 5147 0.146146146 0.005005005 1.848849
## 5148 0.147147147 0.005005005 1.847848
## 5149 0.148148148 0.005005005 1.846847
## 5150 0.149149149 0.005005005 1.845846
## 5151 0.150150150 0.005005005 1.844845
## 5152 0.151151151 0.005005005 1.843844
## 5153 0.152152152 0.005005005 1.842843
## 5154 0.153153153 0.005005005 1.841842
## 5155 0.154154154 0.005005005 1.840841
## 5156 0.155155155 0.005005005 1.839840
## 5157 0.156156156 0.005005005 1.838839
## 5158 0.157157157 0.005005005 1.837838

```

```
## 5159 0.158158158 0.005005005 1.836837
## 5160 0.159159159 0.005005005 1.835836
## 5161 0.160160160 0.005005005 1.834835
## 5162 0.161161161 0.005005005 1.833834
## 5163 0.162162162 0.005005005 1.832833
## 5164 0.163163163 0.005005005 1.831832
## 5165 0.164164164 0.005005005 1.830831
## 5166 0.165165165 0.005005005 1.829830
## 5167 0.166166166 0.005005005 1.828829
## 5168 0.167167167 0.005005005 1.827828
## 5169 0.168168168 0.005005005 1.826827
## 5170 0.169169169 0.005005005 1.825826
## 5171 0.170170170 0.005005005 1.824825
## 5172 0.171171171 0.005005005 1.823824
## 5173 0.172172172 0.005005005 1.822823
## 5174 0.173173173 0.005005005 1.821822
## 5175 0.174174174 0.005005005 1.820821
## 5176 0.175175175 0.005005005 1.819820
## 5177 0.176176176 0.005005005 1.818819
## 5178 0.177177177 0.005005005 1.817818
## 5179 0.178178178 0.005005005 1.816817
## 5180 0.179179179 0.005005005 1.815816
## 5181 0.180180180 0.005005005 1.814815
## 5182 0.181181181 0.005005005 1.813814
## 5183 0.182182182 0.005005005 1.812813
## 5184 0.183183183 0.005005005 1.811812
## 5185 0.184184184 0.005005005 1.810811
## 5186 0.185185185 0.005005005 1.809810
## 5187 0.186186186 0.005005005 1.808809
## 5188 0.187187187 0.005005005 1.807808
## 5189 0.188188188 0.005005005 1.806807
## 5190 0.189189189 0.005005005 1.805806
## 5191 0.190190190 0.005005005 1.804805
## 5192 0.191191191 0.005005005 1.803804
## 5193 0.192192192 0.005005005 1.802803
## 5194 0.193193193 0.005005005 1.801802
## 5195 0.194194194 0.005005005 1.800801
## 5196 0.195195195 0.005005005 1.799800
## 5197 0.196196196 0.005005005 1.798799
## 5198 0.197197197 0.005005005 1.797798
## 5199 0.198198198 0.005005005 1.796797
## 5200 0.199199199 0.005005005 1.795796
## 5201 0.200200200 0.005005005 1.794795
## 5202 0.201201201 0.005005005 1.793794
## 5203 0.202202202 0.005005005 1.792793
## 5204 0.203203203 0.005005005 1.791792
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR225

```

## 5205 0.204204204 0.005005005 1.790791
## 5206 0.205205205 0.005005005 1.789790
## 5207 0.206206206 0.005005005 1.788789
## 5208 0.207207207 0.005005005 1.787788
## 5209 0.208208208 0.005005005 1.786787
## 5210 0.209209209 0.005005005 1.785786
## 5211 0.210210210 0.005005005 1.784785
## 5212 0.211211211 0.005005005 1.783784
## 5213 0.212212212 0.005005005 1.782783
## 5214 0.213213213 0.005005005 1.781782
## 5215 0.214214214 0.005005005 1.780781
## 5216 0.215215215 0.005005005 1.779780
## 5217 0.216216216 0.005005005 1.778779
## 5218 0.217217217 0.005005005 1.777778
## 5219 0.218218218 0.005005005 1.776777
## 5220 0.219219219 0.005005005 1.775776
## 5221 0.220220220 0.005005005 1.774775
## 5222 0.221221221 0.005005005 1.773774
## 5223 0.222222222 0.005005005 1.772773
## 5224 0.223223223 0.005005005 1.771772
## 5225 0.224224224 0.005005005 1.770771
## 5226 0.225225225 0.005005005 1.769770
## 5227 0.226226226 0.005005005 1.768769
## 5228 0.227227227 0.005005005 1.767768
## 5229 0.228228228 0.005005005 1.766767
## 5230 0.229229229 0.005005005 1.765766
## 5231 0.230230230 0.005005005 1.764765
## 5232 0.231231231 0.005005005 1.763764
## 5233 0.232232232 0.005005005 1.762763
## 5234 0.233233233 0.005005005 1.761762
## 5235 0.234234234 0.005005005 1.760761
## 5236 0.235235235 0.005005005 1.759760
## 5237 0.236236236 0.005005005 1.758759
## 5238 0.237237237 0.005005005 1.757758
## 5239 0.238238238 0.005005005 1.756757
## 5240 0.239239239 0.005005005 1.755756
## 5241 0.240240240 0.005005005 1.754755
## 5242 0.241241241 0.005005005 1.753754
## 5243 0.242242242 0.005005005 1.752753
## 5244 0.243243243 0.005005005 1.751752
## 5245 0.244244244 0.005005005 1.750751
## 5246 0.245245245 0.005005005 1.749750
## 5247 0.246246246 0.005005005 1.748749
## 5248 0.247247247 0.005005005 1.747748
## 5249 0.248248248 0.005005005 1.746747
## 5250 0.249249249 0.005005005 1.745746

```

```
## 5251 0.250250250 0.005005005 1.744745
## 5252 0.251251251 0.005005005 1.743744
## 5253 0.252252252 0.005005005 1.742743
## 5254 0.253253253 0.005005005 1.741742
## 5255 0.254254254 0.005005005 1.740741
## 5256 0.255255255 0.005005005 1.739740
## 5257 0.256256256 0.005005005 1.738739
## 5258 0.257257257 0.005005005 1.737738
## 5259 0.258258258 0.005005005 1.736737
## 5260 0.259259259 0.005005005 1.735736
## 5261 0.260260260 0.005005005 1.734735
## 5262 0.261261261 0.005005005 1.733734
## 5263 0.262262262 0.005005005 1.732733
## 5264 0.263263263 0.005005005 1.731732
## 5265 0.264264264 0.005005005 1.730731
## 5266 0.265265265 0.005005005 1.729730
## 5267 0.266266266 0.005005005 1.728729
## 5268 0.267267267 0.005005005 1.727728
## 5269 0.268268268 0.005005005 1.726727
## 5270 0.269269269 0.005005005 1.725726
## 5271 0.270270270 0.005005005 1.724725
## 5272 0.271271271 0.005005005 1.723724
## 5273 0.272272272 0.005005005 1.722723
## 5274 0.273273273 0.005005005 1.721722
## 5275 0.274274274 0.005005005 1.720721
## 5276 0.275275275 0.005005005 1.719720
## 5277 0.276276276 0.005005005 1.718719
## 5278 0.277277277 0.005005005 1.717718
## 5279 0.278278278 0.005005005 1.716717
## 5280 0.279279279 0.005005005 1.715716
## 5281 0.280280280 0.005005005 1.714715
## 5282 0.281281281 0.005005005 1.713714
## 5283 0.282282282 0.005005005 1.712713
## 5284 0.283283283 0.005005005 1.711712
## 5285 0.284284284 0.005005005 1.710711
## 5286 0.285285285 0.005005005 1.709710
## 5287 0.286286286 0.005005005 1.708709
## 5288 0.287287287 0.005005005 1.707708
## 5289 0.288288288 0.005005005 1.706707
## 5290 0.289289289 0.005005005 1.705706
## 5291 0.290290290 0.005005005 1.704705
## 5292 0.291291291 0.005005005 1.703704
## 5293 0.292292292 0.005005005 1.702703
## 5294 0.293293293 0.005005005 1.701702
## 5295 0.294294294 0.005005005 1.700701
## 5296 0.295295295 0.005005005 1.699700
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 227

```
## 5297 0.296296296 0.005005005 1.698699
## 5298 0.297297297 0.005005005 1.697698
## 5299 0.298298298 0.005005005 1.696697
## 5300 0.299299299 0.005005005 1.695696
## 5301 0.300300300 0.005005005 1.694695
## 5302 0.301301301 0.005005005 1.693694
## 5303 0.302302302 0.005005005 1.692693
## 5304 0.303303303 0.005005005 1.691692
## 5305 0.304304304 0.005005005 1.690691
## 5306 0.305305305 0.005005005 1.689690
## 5307 0.306306306 0.005005005 1.688689
## 5308 0.307307307 0.005005005 1.687688
## 5309 0.308308308 0.005005005 1.686687
## 5310 0.309309309 0.005005005 1.685686
## 5311 0.310310310 0.005005005 1.684685
## 5312 0.311311311 0.005005005 1.683684
## 5313 0.312312312 0.005005005 1.682683
## 5314 0.313313313 0.005005005 1.681682
## 5315 0.314314314 0.005005005 1.680681
## 5316 0.315315315 0.005005005 1.679680
## 5317 0.316316316 0.005005005 1.678679
## 5318 0.317317317 0.005005005 1.677678
## 5319 0.318318318 0.005005005 1.676677
## 5320 0.319319319 0.005005005 1.675676
## 5321 0.320320320 0.005005005 1.674675
## 5322 0.321321321 0.005005005 1.673674
## 5323 0.322322322 0.005005005 1.672673
## 5324 0.323323323 0.005005005 1.671672
## 5325 0.324324324 0.005005005 1.670671
## 5326 0.325325325 0.005005005 1.669670
## 5327 0.326326326 0.005005005 1.668669
## 5328 0.327327327 0.005005005 1.667668
## 5329 0.328328328 0.005005005 1.666667
## 5330 0.329329329 0.005005005 1.665666
## 5331 0.330330330 0.005005005 1.664665
## 5332 0.331331331 0.005005005 1.663664
## 5333 0.332332332 0.005005005 1.662663
## 5334 0.333333333 0.005005005 1.661662
## 5335 0.334334334 0.005005005 1.660661
## 5336 0.335335335 0.005005005 1.659660
## 5337 0.336336336 0.005005005 1.658659
## 5338 0.337337337 0.005005005 1.657658
## 5339 0.338338338 0.005005005 1.656657
## 5340 0.339339339 0.005005005 1.655656
## 5341 0.340340340 0.005005005 1.654655
## 5342 0.341341341 0.005005005 1.653654
```

```
## 5343 0.342342342 0.005005005 1.652653
## 5344 0.343343343 0.005005005 1.651652
## 5345 0.344344344 0.005005005 1.650651
## 5346 0.345345345 0.005005005 1.649650
## 5347 0.346346346 0.005005005 1.648649
## 5348 0.347347347 0.005005005 1.647648
## 5349 0.348348348 0.005005005 1.646647
## 5350 0.349349349 0.005005005 1.645646
## 5351 0.350350350 0.005005005 1.644645
## 5352 0.351351351 0.005005005 1.643644
## 5353 0.352352352 0.005005005 1.642643
## 5354 0.353353353 0.005005005 1.641642
## 5355 0.354354354 0.005005005 1.640641
## 5356 0.355355355 0.005005005 1.639640
## 5357 0.356356356 0.005005005 1.638639
## 5358 0.357357357 0.005005005 1.637638
## 5359 0.358358358 0.005005005 1.636637
## 5360 0.359359359 0.005005005 1.635636
## 5361 0.360360360 0.005005005 1.634635
## 5362 0.361361361 0.005005005 1.633634
## 5363 0.362362362 0.005005005 1.632633
## 5364 0.363363363 0.005005005 1.631632
## 5365 0.364364364 0.005005005 1.630631
## 5366 0.365365365 0.005005005 1.629630
## 5367 0.366366366 0.005005005 1.628629
## 5368 0.367367367 0.005005005 1.627628
## 5369 0.368368368 0.005005005 1.626627
## 5370 0.369369369 0.005005005 1.625626
## 5371 0.370370370 0.005005005 1.624625
## 5372 0.371371371 0.005005005 1.623624
## 5373 0.372372372 0.005005005 1.622623
## 5374 0.373373373 0.005005005 1.621622
## 5375 0.374374374 0.005005005 1.620621
## 5376 0.375375375 0.005005005 1.619620
## 5377 0.376376376 0.005005005 1.618619
## 5378 0.377377377 0.005005005 1.617618
## 5379 0.378378378 0.005005005 1.616617
## 5380 0.379379379 0.005005005 1.615616
## 5381 0.380380380 0.005005005 1.614615
## 5382 0.381381381 0.005005005 1.613614
## 5383 0.382382382 0.005005005 1.612613
## 5384 0.383383383 0.005005005 1.611612
## 5385 0.384384384 0.005005005 1.610611
## 5386 0.385385385 0.005005005 1.609610
## 5387 0.386386386 0.005005005 1.608609
## 5388 0.387387387 0.005005005 1.607608
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 229

```

## 5389 0.388388388 0.005005005 1.606607
## 5390 0.389389389 0.005005005 1.605606
## 5391 0.390390390 0.005005005 1.604605
## 5392 0.391391391 0.005005005 1.603604
## 5393 0.392392392 0.005005005 1.602603
## 5394 0.393393393 0.005005005 1.601602
## 5395 0.394394394 0.005005005 1.600601
## 5396 0.395395395 0.005005005 1.599600
## 5397 0.396396396 0.005005005 1.598599
## 5398 0.397397397 0.005005005 1.597598
## 5399 0.398398398 0.005005005 1.596597
## 5400 0.399399399 0.005005005 1.595596
## 5401 0.400400400 0.005005005 1.594595
## 5402 0.401401401 0.005005005 1.593594
## 5403 0.402402402 0.005005005 1.592593
## 5404 0.403403403 0.005005005 1.591592
## 5405 0.404404404 0.005005005 1.590591
## 5406 0.405405405 0.005005005 1.589590
## 5407 0.406406406 0.005005005 1.588589
## 5408 0.407407407 0.005005005 1.587588
## 5409 0.408408408 0.005005005 1.586587
## 5410 0.409409409 0.005005005 1.585586
## 5411 0.410410410 0.005005005 1.584585
## 5412 0.411411411 0.005005005 1.583584
## 5413 0.412412412 0.005005005 1.582583
## 5414 0.413413413 0.005005005 1.581582
## 5415 0.414414414 0.005005005 1.580581
## 5416 0.415415415 0.005005005 1.579580
## 5417 0.416416416 0.005005005 1.578579
## 5418 0.417417417 0.005005005 1.577578
## 5419 0.418418418 0.005005005 1.576577
## 5420 0.419419419 0.005005005 1.575576
## 5421 0.420420420 0.005005005 1.574575
## 5422 0.421421421 0.005005005 1.573574
## 5423 0.422422422 0.005005005 1.572573
## 5424 0.423423423 0.005005005 1.571572
## 5425 0.424424424 0.005005005 1.570571
## 5426 0.425425425 0.005005005 1.569570
## 5427 0.426426426 0.005005005 1.568569
## 5428 0.427427427 0.005005005 1.567568
## 5429 0.428428428 0.005005005 1.566567
## 5430 0.429429429 0.005005005 1.565566
## 5431 0.430430430 0.005005005 1.564565
## 5432 0.431431431 0.005005005 1.563564
## 5433 0.432432432 0.005005005 1.562563
## 5434 0.433433433 0.005005005 1.561562

```

```
## 5435 0.434434434 0.005005005 1.560561
## 5436 0.435435435 0.005005005 1.559560
## 5437 0.436436436 0.005005005 1.558559
## 5438 0.437437437 0.005005005 1.557558
## 5439 0.438438438 0.005005005 1.556557
## 5440 0.439439439 0.005005005 1.555556
## 5441 0.440440440 0.005005005 1.554555
## 5442 0.441441441 0.005005005 1.553554
## 5443 0.442442442 0.005005005 1.552553
## 5444 0.443443443 0.005005005 1.551552
## 5445 0.444444444 0.005005005 1.550551
## 5446 0.445445445 0.005005005 1.549550
## 5447 0.446446446 0.005005005 1.548549
## 5448 0.447447447 0.005005005 1.547548
## 5449 0.448448448 0.005005005 1.546547
## 5450 0.449449449 0.005005005 1.545546
## 5451 0.450450450 0.005005005 1.544545
## 5452 0.451451451 0.005005005 1.543544
## 5453 0.452452452 0.005005005 1.542543
## 5454 0.453453453 0.005005005 1.541542
## 5455 0.454454454 0.005005005 1.540541
## 5456 0.455455455 0.005005005 1.539540
## 5457 0.456456456 0.005005005 1.538539
## 5458 0.457457457 0.005005005 1.537538
## 5459 0.458458458 0.005005005 1.536537
## 5460 0.459459459 0.005005005 1.535536
## 5461 0.460460460 0.005005005 1.534535
## 5462 0.461461461 0.005005005 1.533534
## 5463 0.462462462 0.005005005 1.532533
## 5464 0.463463463 0.005005005 1.531532
## 5465 0.464464464 0.005005005 1.530531
## 5466 0.465465465 0.005005005 1.529530
## 5467 0.466466466 0.005005005 1.528529
## 5468 0.467467467 0.005005005 1.527528
## 5469 0.468468468 0.005005005 1.526527
## 5470 0.469469469 0.005005005 1.525526
## 5471 0.470470470 0.005005005 1.524525
## 5472 0.471471471 0.005005005 1.523524
## 5473 0.472472472 0.005005005 1.522523
## 5474 0.473473473 0.005005005 1.521522
## 5475 0.474474474 0.005005005 1.520521
## 5476 0.475475475 0.005005005 1.519520
## 5477 0.476476476 0.005005005 1.518519
## 5478 0.477477477 0.005005005 1.517518
## 5479 0.478478478 0.005005005 1.516517
## 5480 0.479479479 0.005005005 1.515516
```

```

## 5481 0.480480480 0.005005005 1.514515
## 5482 0.481481481 0.005005005 1.513514
## 5483 0.482482482 0.005005005 1.512513
## 5484 0.483483483 0.005005005 1.511512
## 5485 0.484484484 0.005005005 1.510511
## 5486 0.485485485 0.005005005 1.509510
## 5487 0.486486486 0.005005005 1.508509
## 5488 0.487487487 0.005005005 1.507508
## 5489 0.488488488 0.005005005 1.506507
## 5490 0.489489489 0.005005005 1.505506
## 5491 0.490490490 0.005005005 1.504505
## 5492 0.491491491 0.005005005 1.503504
## 5493 0.492492492 0.005005005 1.502503
## 5494 0.493493493 0.005005005 1.501502
## 5495 0.494494494 0.005005005 1.500501
## 5496 0.495495495 0.005005005 1.499499
## 5497 0.496496496 0.005005005 1.498498
## 5498 0.497497497 0.005005005 1.497497
## 5499 0.498498498 0.005005005 1.496496
## 5500 0.499499499 0.005005005 1.495495
## 5501 0.500500501 0.005005005 1.494494
## 5502 0.501501502 0.005005005 1.493493
## 5503 0.502502503 0.005005005 1.492492
## 5504 0.503503504 0.005005005 1.491491
## 5505 0.504504505 0.005005005 1.490490
## 5506 0.505505506 0.005005005 1.489489
## 5507 0.506506507 0.005005005 1.488488
## 5508 0.507507508 0.005005005 1.487487
## 5509 0.508508509 0.005005005 1.486486
## 5510 0.509509510 0.005005005 1.485485
## 5511 0.510510511 0.005005005 1.484484
## 5512 0.511511512 0.005005005 1.483483
## 5513 0.512512513 0.005005005 1.482482
## 5514 0.513513514 0.005005005 1.481481
## 5515 0.514514515 0.005005005 1.480480
## 5516 0.515515516 0.005005005 1.479479
## 5517 0.516516517 0.005005005 1.478478
## 5518 0.517517518 0.005005005 1.477477
## 5519 0.518518519 0.005005005 1.476476
## 5520 0.519519520 0.005005005 1.475475
## 5521 0.520520521 0.005005005 1.474474
## 5522 0.521521522 0.005005005 1.473473
## 5523 0.522522523 0.005005005 1.472472
## 5524 0.523523524 0.005005005 1.471471
## 5525 0.524524525 0.005005005 1.470470
## 5526 0.525525526 0.005005005 1.469469

```

```
## 5527 0.526526527 0.005005005 1.468468
## 5528 0.527527528 0.005005005 1.467467
## 5529 0.528528529 0.005005005 1.466466
## 5530 0.529529530 0.005005005 1.465465
## 5531 0.530530531 0.005005005 1.464464
## 5532 0.531531532 0.005005005 1.463463
## 5533 0.532532533 0.005005005 1.462462
## 5534 0.533533534 0.005005005 1.461461
## 5535 0.534534535 0.005005005 1.460460
## 5536 0.535535536 0.005005005 1.459459
## 5537 0.536536537 0.005005005 1.458458
## 5538 0.537537538 0.005005005 1.457457
## 5539 0.538538539 0.005005005 1.456456
## 5540 0.539539540 0.005005005 1.455455
## 5541 0.540540541 0.005005005 1.454454
## 5542 0.541541542 0.005005005 1.453453
## 5543 0.542542543 0.005005005 1.452452
## 5544 0.543543544 0.005005005 1.451451
## 5545 0.544544545 0.005005005 1.450450
## 5546 0.545545546 0.005005005 1.449449
## 5547 0.546546547 0.005005005 1.448448
## 5548 0.547547548 0.005005005 1.447447
## 5549 0.548548549 0.005005005 1.446446
## 5550 0.549549550 0.005005005 1.445445
## 5551 0.550550551 0.005005005 1.444444
## 5552 0.551551552 0.005005005 1.443443
## 5553 0.552552553 0.005005005 1.442442
## 5554 0.553553554 0.005005005 1.441441
## 5555 0.554554555 0.005005005 1.440440
## 5556 0.555555556 0.005005005 1.439439
## 5557 0.556556557 0.005005005 1.438438
## 5558 0.557557558 0.005005005 1.437437
## 5559 0.558558559 0.005005005 1.436436
## 5560 0.559559560 0.005005005 1.435435
## 5561 0.560560561 0.005005005 1.434434
## 5562 0.561561562 0.005005005 1.433433
## 5563 0.562562563 0.005005005 1.432432
## 5564 0.563563564 0.005005005 1.431431
## 5565 0.564564565 0.005005005 1.430430
## 5566 0.565565566 0.005005005 1.429429
## 5567 0.566566567 0.005005005 1.428428
## 5568 0.567567568 0.005005005 1.427427
## 5569 0.568568569 0.005005005 1.426426
## 5570 0.569569570 0.005005005 1.425425
## 5571 0.570570571 0.005005005 1.424424
## 5572 0.571571572 0.005005005 1.423423
```

```

## 5573 0.572572573 0.005005005 1.422422
## 5574 0.573573574 0.005005005 1.421421
## 5575 0.574574575 0.005005005 1.420420
## 5576 0.575575576 0.005005005 1.419419
## 5577 0.576576577 0.005005005 1.418418
## 5578 0.577577578 0.005005005 1.417417
## 5579 0.578578579 0.005005005 1.416416
## 5580 0.579579580 0.005005005 1.415415
## 5581 0.580580581 0.005005005 1.414414
## 5582 0.581581582 0.005005005 1.413413
## 5583 0.582582583 0.005005005 1.412412
## 5584 0.583583584 0.005005005 1.411411
## 5585 0.584584585 0.005005005 1.410410
## 5586 0.585585586 0.005005005 1.409409
## 5587 0.586586587 0.005005005 1.408408
## 5588 0.587587588 0.005005005 1.407407
## 5589 0.588588589 0.005005005 1.406406
## 5590 0.589589590 0.005005005 1.405405
## 5591 0.590590591 0.005005005 1.404404
## 5592 0.591591592 0.005005005 1.403403
## 5593 0.592592593 0.005005005 1.402402
## 5594 0.593593594 0.005005005 1.401401
## 5595 0.594594595 0.005005005 1.400400
## 5596 0.595595596 0.005005005 1.399399
## 5597 0.596596597 0.005005005 1.398398
## 5598 0.597597598 0.005005005 1.397397
## 5599 0.598598599 0.005005005 1.396396
## 5600 0.599599600 0.005005005 1.395395
## 5601 0.600600601 0.005005005 1.394394
## 5602 0.601601602 0.005005005 1.393393
## 5603 0.602602603 0.005005005 1.392392
## 5604 0.603603604 0.005005005 1.391391
## 5605 0.604604605 0.005005005 1.390390
## 5606 0.605605606 0.005005005 1.389389
## 5607 0.606606607 0.005005005 1.388388
## 5608 0.607607608 0.005005005 1.387387
## 5609 0.608608609 0.005005005 1.386386
## 5610 0.609609610 0.005005005 1.385385
## 5611 0.610610611 0.005005005 1.384384
## 5612 0.611611612 0.005005005 1.383383
## 5613 0.612612613 0.005005005 1.382382
## 5614 0.613613614 0.005005005 1.381381
## 5615 0.614614615 0.005005005 1.380380
## 5616 0.615615616 0.005005005 1.379379
## 5617 0.616616617 0.005005005 1.378378
## 5618 0.617617618 0.005005005 1.377377

```

```
## 5619 0.618618619 0.005005005 1.376376
## 5620 0.619619620 0.005005005 1.375375
## 5621 0.620620621 0.005005005 1.374374
## 5622 0.621621622 0.005005005 1.373373
## 5623 0.622622623 0.005005005 1.372372
## 5624 0.623623624 0.005005005 1.371371
## 5625 0.624624625 0.005005005 1.370370
## 5626 0.625625626 0.005005005 1.369369
## 5627 0.626626627 0.005005005 1.368368
## 5628 0.627627628 0.005005005 1.367367
## 5629 0.628628629 0.005005005 1.366366
## 5630 0.629629630 0.005005005 1.365365
## 5631 0.630630631 0.005005005 1.364364
## 5632 0.631631632 0.005005005 1.363363
## 5633 0.632632633 0.005005005 1.362362
## 5634 0.633633634 0.005005005 1.361361
## 5635 0.634634635 0.005005005 1.360360
## 5636 0.635635636 0.005005005 1.359359
## 5637 0.636636637 0.005005005 1.358358
## 5638 0.637637638 0.005005005 1.357357
## 5639 0.638638639 0.005005005 1.356356
## 5640 0.639639640 0.005005005 1.355355
## 5641 0.640640641 0.005005005 1.354354
## 5642 0.641641642 0.005005005 1.353353
## 5643 0.642642643 0.005005005 1.352352
## 5644 0.643643644 0.005005005 1.351351
## 5645 0.644644645 0.005005005 1.350350
## 5646 0.645645646 0.005005005 1.349349
## 5647 0.646646647 0.005005005 1.348348
## 5648 0.647647648 0.005005005 1.347347
## 5649 0.648648649 0.005005005 1.346346
## 5650 0.649649650 0.005005005 1.345345
## 5651 0.650650651 0.005005005 1.344344
## 5652 0.651651652 0.005005005 1.343343
## 5653 0.652652653 0.005005005 1.342342
## 5654 0.653653654 0.005005005 1.341341
## 5655 0.654654655 0.005005005 1.340340
## 5656 0.6556555656 0.005005005 1.339339
## 5657 0.656656657 0.005005005 1.338338
## 5658 0.657657658 0.005005005 1.337337
## 5659 0.658658659 0.005005005 1.336336
## 5660 0.659659660 0.005005005 1.335335
## 5661 0.660660661 0.005005005 1.334334
## 5662 0.661661662 0.005005005 1.333333
## 5663 0.662662663 0.005005005 1.332332
## 5664 0.663663664 0.005005005 1.331331
```

```

## 5665  0.664664665 0.005005005 1.330330
## 5666  0.665665666 0.005005005 1.329329
## 5667  0.666666667 0.005005005 1.328328
## 5668  0.667667668 0.005005005 1.327327
## 5669  0.668668669 0.005005005 1.326326
## 5670  0.669669670 0.005005005 1.325325
## 5671  0.670670671 0.005005005 1.324324
## 5672  0.671671672 0.005005005 1.323323
## 5673  0.672672673 0.005005005 1.322322
## 5674  0.673673674 0.005005005 1.321321
## 5675  0.674674675 0.005005005 1.320320
## 5676  0.675675676 0.005005005 1.319319
## 5677  0.676676677 0.005005005 1.318318
## 5678  0.677677678 0.005005005 1.317317
## 5679  0.678678679 0.005005005 1.316316
## 5680  0.679679680 0.005005005 1.315315
## 5681  0.680680681 0.005005005 1.314314
## 5682  0.681681682 0.005005005 1.313313
## 5683  0.682682683 0.005005005 1.312312
## 5684  0.683683684 0.005005005 1.311311
## 5685  0.684684685 0.005005005 1.310310
## 5686  0.685685686 0.005005005 1.309309
## 5687  0.686686687 0.005005005 1.308308
## 5688  0.687687688 0.005005005 1.307307
## 5689  0.688688689 0.005005005 1.306306
## 5690  0.689689690 0.005005005 1.305305
## 5691  0.690690691 0.005005005 1.304304
## 5692  0.691691692 0.005005005 1.303303
## 5693  0.692692693 0.005005005 1.302302
## 5694  0.693693694 0.005005005 1.301301
## 5695  0.694694695 0.005005005 1.300300
## 5696  0.695695696 0.005005005 1.299299
## 5697  0.696696697 0.005005005 1.298298
## 5698  0.697697698 0.005005005 1.297297
## 5699  0.698698699 0.005005005 1.296296
## 5700  0.699699700 0.005005005 1.295295
## 5701  0.700700701 0.005005005 1.294294
## 5702  0.701701702 0.005005005 1.293293
## 5703  0.702702703 0.005005005 1.292292
## 5704  0.703703704 0.005005005 1.291291
## 5705  0.704704705 0.005005005 1.290290
## 5706  0.705705706 0.005005005 1.289289
## 5707  0.706706707 0.005005005 1.288288
## 5708  0.707707708 0.005005005 1.287287
## 5709  0.708708709 0.005005005 1.286286
## 5710  0.709709710 0.005005005 1.285285

```

```
## 5711  0.710710711 0.005005005 1.284284
## 5712  0.711711712 0.005005005 1.283283
## 5713  0.712712713 0.005005005 1.282282
## 5714  0.713713714 0.005005005 1.281281
## 5715  0.714714715 0.005005005 1.280280
## 5716  0.715715716 0.005005005 1.279279
## 5717  0.716716717 0.005005005 1.278278
## 5718  0.717717718 0.005005005 1.277277
## 5719  0.718718719 0.005005005 1.276276
## 5720  0.719719720 0.005005005 1.275275
## 5721  0.720720721 0.005005005 1.274274
## 5722  0.721721722 0.005005005 1.273273
## 5723  0.722722723 0.005005005 1.272272
## 5724  0.723723724 0.005005005 1.271271
## 5725  0.724724725 0.005005005 1.270270
## 5726  0.725725726 0.005005005 1.269269
## 5727  0.726726727 0.005005005 1.268268
## 5728  0.727727728 0.005005005 1.267267
## 5729  0.728728729 0.005005005 1.266266
## 5730  0.729729730 0.005005005 1.265265
## 5731  0.730730731 0.005005005 1.264264
## 5732  0.731731732 0.005005005 1.263263
## 5733  0.732732733 0.005005005 1.262262
## 5734  0.733733734 0.005005005 1.261261
## 5735  0.734734735 0.005005005 1.260260
## 5736  0.735735736 0.005005005 1.259259
## 5737  0.736736737 0.005005005 1.258258
## 5738  0.737737738 0.005005005 1.257257
## 5739  0.738738739 0.005005005 1.256256
## 5740  0.739739740 0.005005005 1.255255
## 5741  0.740740741 0.005005005 1.254254
## 5742  0.741741742 0.005005005 1.253253
## 5743  0.742742743 0.005005005 1.252252
## 5744  0.743743744 0.005005005 1.251251
## 5745  0.744744745 0.005005005 1.250250
## 5746  0.745745746 0.005005005 1.249249
## 5747  0.746746747 0.005005005 1.248248
## 5748  0.747747748 0.005005005 1.247247
## 5749  0.748748749 0.005005005 1.246246
## 5750  0.749749750 0.005005005 1.245245
## 5751  0.750750751 0.005005005 1.244244
## 5752  0.751751752 0.005005005 1.243243
## 5753  0.752752753 0.005005005 1.242242
## 5754  0.753753754 0.005005005 1.241241
## 5755  0.754754755 0.005005005 1.240240
## 5756  0.755755756 0.005005005 1.239239
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 237

```
## 5757 0.756756757 0.005005005 1.238238
## 5758 0.757757758 0.005005005 1.237237
## 5759 0.758758759 0.005005005 1.236236
## 5760 0.759759760 0.005005005 1.235235
## 5761 0.760760761 0.005005005 1.234234
## 5762 0.761761762 0.005005005 1.233233
## 5763 0.762762763 0.005005005 1.232232
## 5764 0.763763764 0.005005005 1.231231
## 5765 0.764764765 0.005005005 1.230230
## 5766 0.765765766 0.005005005 1.229229
## 5767 0.766766767 0.005005005 1.228228
## 5768 0.767767768 0.005005005 1.227227
## 5769 0.768768769 0.005005005 1.226226
## 5770 0.769769770 0.005005005 1.225225
## 5771 0.770770771 0.005005005 1.224224
## 5772 0.771771772 0.005005005 1.223223
## 5773 0.772772773 0.005005005 1.222222
## 5774 0.773773774 0.005005005 1.221221
## 5775 0.774774775 0.005005005 1.220220
## 5776 0.775775776 0.005005005 1.219219
## 5777 0.776776777 0.005005005 1.218218
## 5778 0.777777778 0.005005005 1.217217
## 5779 0.778778779 0.005005005 1.216216
## 5780 0.779779780 0.005005005 1.215215
## 5781 0.780780781 0.005005005 1.214214
## 5782 0.781781782 0.005005005 1.213213
## 5783 0.782782783 0.005005005 1.212212
## 5784 0.783783784 0.005005005 1.211211
## 5785 0.784784785 0.005005005 1.210210
## 5786 0.785785786 0.005005005 1.209209
## 5787 0.786786787 0.005005005 1.208208
## 5788 0.787787788 0.005005005 1.207207
## 5789 0.788788789 0.005005005 1.206206
## 5790 0.789789790 0.005005005 1.205205
## 5791 0.790790791 0.005005005 1.204204
## 5792 0.791791792 0.005005005 1.203203
## 5793 0.792792793 0.005005005 1.202202
## 5794 0.793793794 0.005005005 1.201201
## 5795 0.794794795 0.005005005 1.200200
## 5796 0.795795796 0.005005005 1.199199
## 5797 0.796796797 0.005005005 1.198198
## 5798 0.797797798 0.005005005 1.197197
## 5799 0.798798799 0.005005005 1.196196
## 5800 0.799799800 0.005005005 1.195195
## 5801 0.800800801 0.005005005 1.194194
## 5802 0.801801802 0.005005005 1.193193
```

```
## 5803 0.802802803 0.005005005 1.192192
## 5804 0.803803804 0.005005005 1.191191
## 5805 0.804804805 0.005005005 1.190190
## 5806 0.805805806 0.005005005 1.189189
## 5807 0.806806807 0.005005005 1.188188
## 5808 0.807807808 0.005005005 1.187187
## 5809 0.808808809 0.005005005 1.186186
## 5810 0.809809810 0.005005005 1.185185
## 5811 0.810810811 0.005005005 1.184184
## 5812 0.811811812 0.005005005 1.183183
## 5813 0.812812813 0.005005005 1.182182
## 5814 0.813813814 0.005005005 1.181181
## 5815 0.814814815 0.005005005 1.180180
## 5816 0.815815816 0.005005005 1.179179
## 5817 0.816816817 0.005005005 1.178178
## 5818 0.817817818 0.005005005 1.177177
## 5819 0.818818819 0.005005005 1.176176
## 5820 0.819819820 0.005005005 1.175175
## 5821 0.820820821 0.005005005 1.174174
## 5822 0.821821822 0.005005005 1.173173
## 5823 0.822822823 0.005005005 1.172172
## 5824 0.823823824 0.005005005 1.171171
## 5825 0.824824825 0.005005005 1.170170
## 5826 0.825825826 0.005005005 1.169169
## 5827 0.826826827 0.005005005 1.168168
## 5828 0.827827828 0.005005005 1.167167
## 5829 0.828828829 0.005005005 1.166166
## 5830 0.829829830 0.005005005 1.165165
## 5831 0.830830831 0.005005005 1.164164
## 5832 0.831831832 0.005005005 1.163163
## 5833 0.832832833 0.005005005 1.162162
## 5834 0.833833834 0.005005005 1.161161
## 5835 0.834834835 0.005005005 1.160160
## 5836 0.835835836 0.005005005 1.159159
## 5837 0.836836837 0.005005005 1.158158
## 5838 0.837837838 0.005005005 1.157157
## 5839 0.838838839 0.005005005 1.156156
## 5840 0.839839840 0.005005005 1.155155
## 5841 0.840840841 0.005005005 1.154154
## 5842 0.841841842 0.005005005 1.153153
## 5843 0.842842843 0.005005005 1.152152
## 5844 0.843843844 0.005005005 1.151151
## 5845 0.844844845 0.005005005 1.150150
## 5846 0.845845846 0.005005005 1.149149
## 5847 0.846846847 0.005005005 1.148148
## 5848 0.847847848 0.005005005 1.147147
```

```

## 5849  0.848848849 0.005005005 1.146146
## 5850  0.849849850 0.005005005 1.145145
## 5851  0.850850851 0.005005005 1.144144
## 5852  0.851851852 0.005005005 1.143143
## 5853  0.852852853 0.005005005 1.142142
## 5854  0.853853854 0.005005005 1.141141
## 5855  0.854854855 0.005005005 1.140140
## 5856  0.855855856 0.005005005 1.139139
## 5857  0.856856857 0.005005005 1.138138
## 5858  0.857857858 0.005005005 1.137137
## 5859  0.858858859 0.005005005 1.136136
## 5860  0.859859860 0.005005005 1.135135
## 5861  0.860860861 0.005005005 1.134134
## 5862  0.861861862 0.005005005 1.133133
## 5863  0.862862863 0.005005005 1.132132
## 5864  0.863863864 0.005005005 1.131131
## 5865  0.864864865 0.005005005 1.130130
## 5866  0.865865866 0.005005005 1.129129
## 5867  0.866866867 0.005005005 1.128128
## 5868  0.867867868 0.005005005 1.127127
## 5869  0.868868869 0.005005005 1.126126
## 5870  0.869869870 0.005005005 1.125125
## 5871  0.870870871 0.005005005 1.124124
## 5872  0.871871872 0.005005005 1.123123
## 5873  0.872872873 0.005005005 1.122122
## 5874  0.873873874 0.005005005 1.121121
## 5875  0.874874875 0.005005005 1.120120
## 5876  0.875875876 0.005005005 1.119119
## 5877  0.876876877 0.005005005 1.118118
## 5878  0.877877878 0.005005005 1.117117
## 5879  0.878878879 0.005005005 1.116116
## 5880  0.879879880 0.005005005 1.115115
## 5881  0.880880881 0.005005005 1.114114
## 5882  0.881881882 0.005005005 1.113113
## 5883  0.882882883 0.005005005 1.112112
## 5884  0.883883884 0.005005005 1.111111
## 5885  0.884884885 0.005005005 1.110110
## 5886  0.885885886 0.005005005 1.109109
## 5887  0.886886887 0.005005005 1.108108
## 5888  0.887887888 0.005005005 1.107107
## 5889  0.888888889 0.005005005 1.106106
## 5890  0.889889890 0.005005005 1.105105
## 5891  0.890890891 0.005005005 1.104104
## 5892  0.891891892 0.005005005 1.103103
## 5893  0.892892893 0.005005005 1.102102
## 5894  0.893893894 0.005005005 1.101101

```

```
## 5895  0.894894895 0.005005005 1.100100
## 5896  0.895895896 0.005005005 1.099099
## 5897  0.896896897 0.005005005 1.098098
## 5898  0.897897898 0.005005005 1.097097
## 5899  0.898898899 0.005005005 1.096096
## 5900  0.899899900 0.005005005 1.095095
## 5901  0.900900901 0.005005005 1.094094
## 5902  0.901901902 0.005005005 1.093093
## 5903  0.902902903 0.005005005 1.092092
## 5904  0.903903904 0.005005005 1.091091
## 5905  0.904904905 0.005005005 1.090090
## 5906  0.905905906 0.005005005 1.089089
## 5907  0.906906907 0.005005005 1.088088
## 5908  0.907907908 0.005005005 1.087087
## 5909  0.908908909 0.005005005 1.086086
## 5910  0.909909910 0.005005005 1.085085
## 5911  0.910910911 0.005005005 1.084084
## 5912  0.911911912 0.005005005 1.083083
## 5913  0.912912913 0.005005005 1.082082
## 5914  0.913913914 0.005005005 1.081081
## 5915  0.914914915 0.005005005 1.080080
## 5916  0.915915916 0.005005005 1.079079
## 5917  0.916916917 0.005005005 1.078078
## 5918  0.917917918 0.005005005 1.077077
## 5919  0.918918919 0.005005005 1.076076
## 5920  0.919919920 0.005005005 1.075075
## 5921  0.920920921 0.005005005 1.074074
## 5922  0.921921922 0.005005005 1.073073
## 5923  0.922922923 0.005005005 1.072072
## 5924  0.923923924 0.005005005 1.071071
## 5925  0.924924925 0.005005005 1.070070
## 5926  0.925925926 0.005005005 1.069069
## 5927  0.926926927 0.005005005 1.068068
## 5928  0.927927928 0.005005005 1.067067
## 5929  0.928928929 0.005005005 1.066066
## 5930  0.929929930 0.005005005 1.065065
## 5931  0.930930931 0.005005005 1.064064
## 5932  0.931931932 0.005005005 1.063063
## 5933  0.932932933 0.005005005 1.062062
## 5934  0.933933934 0.005005005 1.061061
## 5935  0.934934935 0.005005005 1.060060
## 5936  0.935935936 0.005005005 1.059059
## 5937  0.936936937 0.005005005 1.058058
## 5938  0.937937938 0.005005005 1.057057
## 5939  0.938938939 0.005005005 1.056056
## 5940  0.939939940 0.005005005 1.055055
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 241

```
## 5941  0.940940941 0.005005005 1.054054
## 5942  0.941941942 0.005005005 1.053053
## 5943  0.942942943 0.005005005 1.052052
## 5944  0.943943944 0.005005005 1.051051
## 5945  0.944944945 0.005005005 1.050050
## 5946  0.945945946 0.005005005 1.049049
## 5947  0.946946947 0.005005005 1.048048
## 5948  0.947947948 0.005005005 1.047047
## 5949  0.948948949 0.005005005 1.046046
## 5950  0.949949950 0.005005005 1.045045
## 5951  0.950950951 0.005005005 1.044044
## 5952  0.951951952 0.005005005 1.043043
## 5953  0.952952953 0.005005005 1.042042
## 5954  0.953953954 0.005005005 1.041041
## 5955  0.954954955 0.005005005 1.040040
## 5956  0.955955956 0.005005005 1.039039
## 5957  0.956956957 0.005005005 1.038038
## 5958  0.957957958 0.005005005 1.037037
## 5959  0.958958959 0.005005005 1.036036
## 5960  0.959959960 0.005005005 1.035035
## 5961  0.960960961 0.005005005 1.034034
## 5962  0.961961962 0.005005005 1.033033
## 5963  0.962962963 0.005005005 1.032032
## 5964  0.963963964 0.005005005 1.031031
## 5965  0.964964965 0.005005005 1.030030
## 5966  0.965965966 0.005005005 1.029029
## 5967  0.966966967 0.005005005 1.028028
## 5968  0.967967968 0.005005005 1.027027
## 5969  0.968968969 0.005005005 1.026026
## 5970  0.969969970 0.005005005 1.025025
## 5971  0.970970971 0.005005005 1.024024
## 5972  0.971971972 0.005005005 1.023023
## 5973  0.972972973 0.005005005 1.022022
## 5974  0.973973974 0.005005005 1.021021
## 5975  0.974974975 0.005005005 1.020020
## 5976  0.975975976 0.005005005 1.019019
## 5977  0.976976977 0.005005005 1.018018
## 5978  0.977977978 0.005005005 1.017017
## 5979  0.978978979 0.005005005 1.016016
## 5980  0.979979980 0.005005005 1.015015
## 5981  0.980980981 0.005005005 1.014014
## 5982  0.981981982 0.005005005 1.013013
## 5983  0.982982983 0.005005005 1.012012
## 5984  0.983983984 0.005005005 1.011011
## 5985  0.984984985 0.005005005 1.010010
## 5986  0.985985986 0.005005005 1.009009
```

```
## 5987  0.986986987 0.005005005 1.008008
## 5988  0.987987988 0.005005005 1.007007
## 5989  0.988988989 0.005005005 1.006006
## 5990  0.989989990 0.005005005 1.005005
## 5991  0.990990991 0.005005005 1.004004
## 5992  0.991991992 0.005005005 1.003003
## 5993  0.992992993 0.005005005 1.002002
## 5994  0.993993994 0.005005005 1.001001
## 5995  0.994994995 0.005005005 1.000000
## 5996  0.995995996 0.005005005 0.998999
## 5997  0.996996997 0.005005005 0.997998
## 5998  0.997997998 0.005005005 0.996997
## 5999  0.998998999 0.005005005 0.995996
## 6000  1.000000000 0.005005005 0.994995
## 6001  0.000000000 0.006006006 1.993994
## 6002  0.001001001 0.006006006 1.992993
## 6003  0.002002002 0.006006006 1.991992
## 6004  0.003003003 0.006006006 1.990991
## 6005  0.004004004 0.006006006 1.989990
## 6006  0.005005005 0.006006006 1.988989
## 6007  0.006006006 0.006006006 1.987988
## 6008  0.007007007 0.006006006 1.986987
## 6009  0.008008008 0.006006006 1.985986
## 6010  0.009009009 0.006006006 1.984985
## 6011  0.010010010 0.006006006 1.983984
## 6012  0.011011011 0.006006006 1.982983
## 6013  0.012012012 0.006006006 1.981982
## 6014  0.013013013 0.006006006 1.980981
## 6015  0.014014014 0.006006006 1.979980
## 6016  0.015015015 0.006006006 1.978979
## 6017  0.016016016 0.006006006 1.977978
## 6018  0.017017017 0.006006006 1.976977
## 6019  0.018018018 0.006006006 1.975976
## 6020  0.019019019 0.006006006 1.974975
## 6021  0.020020020 0.006006006 1.973974
## 6022  0.021021021 0.006006006 1.972973
## 6023  0.022022022 0.006006006 1.971972
## 6024  0.023023023 0.006006006 1.970971
## 6025  0.024024024 0.006006006 1.969970
## 6026  0.025025025 0.006006006 1.968969
## 6027  0.026026026 0.006006006 1.967968
## 6028  0.027027027 0.006006006 1.966967
## 6029  0.028028028 0.006006006 1.965966
## 6030  0.029029029 0.006006006 1.964965
## 6031  0.030030030 0.006006006 1.963964
## 6032  0.031031031 0.006006006 1.962963
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 243

```
## 6033 0.032032032 0.006006006 1.961962
## 6034 0.033033033 0.006006006 1.960961
## 6035 0.034034034 0.006006006 1.959960
## 6036 0.035035035 0.006006006 1.958959
## 6037 0.036036036 0.006006006 1.957958
## 6038 0.037037037 0.006006006 1.956957
## 6039 0.038038038 0.006006006 1.955956
## 6040 0.039039039 0.006006006 1.954955
## 6041 0.040040040 0.006006006 1.953954
## 6042 0.041041041 0.006006006 1.952953
## 6043 0.042042042 0.006006006 1.951952
## 6044 0.043043043 0.006006006 1.950951
## 6045 0.044044044 0.006006006 1.949950
## 6046 0.045045045 0.006006006 1.948949
## 6047 0.046046046 0.006006006 1.947948
## 6048 0.047047047 0.006006006 1.946947
## 6049 0.048048048 0.006006006 1.945946
## 6050 0.049049049 0.006006006 1.944945
## 6051 0.050050050 0.006006006 1.943944
## 6052 0.051051051 0.006006006 1.942943
## 6053 0.052052052 0.006006006 1.941942
## 6054 0.053053053 0.006006006 1.940941
## 6055 0.054054054 0.006006006 1.939940
## 6056 0.055055055 0.006006006 1.938939
## 6057 0.056056056 0.006006006 1.937938
## 6058 0.057057057 0.006006006 1.936937
## 6059 0.058058058 0.006006006 1.935936
## 6060 0.059059059 0.006006006 1.934935
## 6061 0.060060060 0.006006006 1.933934
## 6062 0.061061061 0.006006006 1.932933
## 6063 0.062062062 0.006006006 1.931932
## 6064 0.063063063 0.006006006 1.930931
## 6065 0.064064064 0.006006006 1.929930
## 6066 0.065065065 0.006006006 1.928929
## 6067 0.066066066 0.006006006 1.927928
## 6068 0.067067067 0.006006006 1.926927
## 6069 0.068068068 0.006006006 1.925926
## 6070 0.069069069 0.006006006 1.924925
## 6071 0.070070070 0.006006006 1.923924
## 6072 0.071071071 0.006006006 1.922923
## 6073 0.072072072 0.006006006 1.921922
## 6074 0.073073073 0.006006006 1.920921
## 6075 0.074074074 0.006006006 1.919920
## 6076 0.075075075 0.006006006 1.918919
## 6077 0.076076076 0.006006006 1.917918
## 6078 0.077077077 0.006006006 1.916917
```

```
## 6079  0.078078078 0.006006006 1.915916
## 6080  0.079079079 0.006006006 1.914915
## 6081  0.080080080 0.006006006 1.913914
## 6082  0.081081081 0.006006006 1.912913
## 6083  0.082082082 0.006006006 1.911912
## 6084  0.083083083 0.006006006 1.910911
## 6085  0.084084084 0.006006006 1.909910
## 6086  0.085085085 0.006006006 1.908909
## 6087  0.086086086 0.006006006 1.907908
## 6088  0.087087087 0.006006006 1.906907
## 6089  0.088088088 0.006006006 1.905906
## 6090  0.089089089 0.006006006 1.904905
## 6091  0.090090090 0.006006006 1.903904
## 6092  0.091091091 0.006006006 1.902903
## 6093  0.092092092 0.006006006 1.901902
## 6094  0.093093093 0.006006006 1.900901
## 6095  0.094094094 0.006006006 1.899900
## 6096  0.095095095 0.006006006 1.898899
## 6097  0.096096096 0.006006006 1.897898
## 6098  0.097097097 0.006006006 1.896897
## 6099  0.098098098 0.006006006 1.895896
## 6100  0.099099099 0.006006006 1.894895
## 6101  0.100100100 0.006006006 1.893894
## 6102  0.101101101 0.006006006 1.892893
## 6103  0.102102102 0.006006006 1.891892
## 6104  0.103103103 0.006006006 1.890891
## 6105  0.104104104 0.006006006 1.889890
## 6106  0.105105105 0.006006006 1.888889
## 6107  0.106106106 0.006006006 1.887888
## 6108  0.107107107 0.006006006 1.886887
## 6109  0.108108108 0.006006006 1.885886
## 6110  0.109109109 0.006006006 1.884885
## 6111  0.110110110 0.006006006 1.883884
## 6112  0.111111111 0.006006006 1.882883
## 6113  0.112112112 0.006006006 1.881882
## 6114  0.113113113 0.006006006 1.880881
## 6115  0.114114114 0.006006006 1.879880
## 6116  0.115115115 0.006006006 1.878879
## 6117  0.116116116 0.006006006 1.877878
## 6118  0.117117117 0.006006006 1.876877
## 6119  0.118118118 0.006006006 1.875876
## 6120  0.119119119 0.006006006 1.874875
## 6121  0.120120120 0.006006006 1.873874
## 6122  0.121121121 0.006006006 1.872873
## 6123  0.122122122 0.006006006 1.871872
## 6124  0.123123123 0.006006006 1.870871
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 245

```
## 6125 0.124124124 0.006006006 1.869870
## 6126 0.125125125 0.006006006 1.868869
## 6127 0.126126126 0.006006006 1.867868
## 6128 0.127127127 0.006006006 1.866867
## 6129 0.128128128 0.006006006 1.865866
## 6130 0.129129129 0.006006006 1.864865
## 6131 0.130130130 0.006006006 1.863864
## 6132 0.131131131 0.006006006 1.862863
## 6133 0.132132132 0.006006006 1.861862
## 6134 0.133133133 0.006006006 1.860861
## 6135 0.134134134 0.006006006 1.859860
## 6136 0.135135135 0.006006006 1.858859
## 6137 0.136136136 0.006006006 1.857858
## 6138 0.137137137 0.006006006 1.856857
## 6139 0.138138138 0.006006006 1.855856
## 6140 0.139139139 0.006006006 1.854855
## 6141 0.140140140 0.006006006 1.853854
## 6142 0.141141141 0.006006006 1.852853
## 6143 0.142142142 0.006006006 1.851852
## 6144 0.143143143 0.006006006 1.850851
## 6145 0.144144144 0.006006006 1.849850
## 6146 0.145145145 0.006006006 1.848849
## 6147 0.146146146 0.006006006 1.847848
## 6148 0.147147147 0.006006006 1.846847
## 6149 0.148148148 0.006006006 1.845846
## 6150 0.149149149 0.006006006 1.844845
## 6151 0.150150150 0.006006006 1.843844
## 6152 0.151151151 0.006006006 1.842843
## 6153 0.152152152 0.006006006 1.841842
## 6154 0.153153153 0.006006006 1.840841
## 6155 0.154154154 0.006006006 1.839840
## 6156 0.155155155 0.006006006 1.838839
## 6157 0.156156156 0.006006006 1.837838
## 6158 0.157157157 0.006006006 1.836837
## 6159 0.158158158 0.006006006 1.835836
## 6160 0.159159159 0.006006006 1.834835
## 6161 0.160160160 0.006006006 1.833834
## 6162 0.161161161 0.006006006 1.832833
## 6163 0.162162162 0.006006006 1.831832
## 6164 0.163163163 0.006006006 1.830831
## 6165 0.164164164 0.006006006 1.829830
## 6166 0.165165165 0.006006006 1.828829
## 6167 0.166166166 0.006006006 1.827828
## 6168 0.167167167 0.006006006 1.826827
## 6169 0.168168168 0.006006006 1.825826
## 6170 0.169169169 0.006006006 1.824825
```

```
## 6171 0.170170170 0.006006006 1.823824
## 6172 0.171171171 0.006006006 1.822823
## 6173 0.172172172 0.006006006 1.821822
## 6174 0.173173173 0.006006006 1.820821
## 6175 0.174174174 0.006006006 1.819820
## 6176 0.175175175 0.006006006 1.818819
## 6177 0.176176176 0.006006006 1.817818
## 6178 0.177177177 0.006006006 1.816817
## 6179 0.178178178 0.006006006 1.815816
## 6180 0.179179179 0.006006006 1.814815
## 6181 0.180180180 0.006006006 1.813814
## 6182 0.181181181 0.006006006 1.812813
## 6183 0.182182182 0.006006006 1.811812
## 6184 0.183183183 0.006006006 1.810811
## 6185 0.184184184 0.006006006 1.809810
## 6186 0.185185185 0.006006006 1.808809
## 6187 0.186186186 0.006006006 1.807808
## 6188 0.187187187 0.006006006 1.806807
## 6189 0.188188188 0.006006006 1.805806
## 6190 0.189189189 0.006006006 1.804805
## 6191 0.190190190 0.006006006 1.803804
## 6192 0.191191191 0.006006006 1.802803
## 6193 0.192192192 0.006006006 1.801802
## 6194 0.193193193 0.006006006 1.800801
## 6195 0.194194194 0.006006006 1.799800
## 6196 0.195195195 0.006006006 1.798799
## 6197 0.196196196 0.006006006 1.797798
## 6198 0.197197197 0.006006006 1.796797
## 6199 0.198198198 0.006006006 1.795796
## 6200 0.199199199 0.006006006 1.794795
## 6201 0.200200200 0.006006006 1.793794
## 6202 0.201201201 0.006006006 1.792793
## 6203 0.202202202 0.006006006 1.791792
## 6204 0.203203203 0.006006006 1.790791
## 6205 0.204204204 0.006006006 1.789790
## 6206 0.205205205 0.006006006 1.788789
## 6207 0.206206206 0.006006006 1.787788
## 6208 0.207207207 0.006006006 1.786787
## 6209 0.208208208 0.006006006 1.785786
## 6210 0.209209209 0.006006006 1.784785
## 6211 0.210210210 0.006006006 1.783784
## 6212 0.211211211 0.006006006 1.782783
## 6213 0.212212212 0.006006006 1.781782
## 6214 0.213213213 0.006006006 1.780781
## 6215 0.214214214 0.006006006 1.779780
## 6216 0.215215215 0.006006006 1.778779
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 247

```

## 6217 0.216216216 0.006006006 1.777778
## 6218 0.217217217 0.006006006 1.776777
## 6219 0.218218218 0.006006006 1.775776
## 6220 0.219219219 0.006006006 1.774775
## 6221 0.220220220 0.006006006 1.773774
## 6222 0.221221221 0.006006006 1.772773
## 6223 0.222222222 0.006006006 1.771772
## 6224 0.223223223 0.006006006 1.770771
## 6225 0.224224224 0.006006006 1.769770
## 6226 0.225225225 0.006006006 1.768769
## 6227 0.226226226 0.006006006 1.767768
## 6228 0.227227227 0.006006006 1.766767
## 6229 0.228228228 0.006006006 1.765766
## 6230 0.229229229 0.006006006 1.764765
## 6231 0.230230230 0.006006006 1.763764
## 6232 0.231231231 0.006006006 1.762763
## 6233 0.232232232 0.006006006 1.761762
## 6234 0.233233233 0.006006006 1.760761
## 6235 0.234234234 0.006006006 1.759760
## 6236 0.235235235 0.006006006 1.758759
## 6237 0.236236236 0.006006006 1.757758
## 6238 0.237237237 0.006006006 1.756757
## 6239 0.238238238 0.006006006 1.755756
## 6240 0.239239239 0.006006006 1.754755
## 6241 0.240240240 0.006006006 1.753754
## 6242 0.241241241 0.006006006 1.752753
## 6243 0.242242242 0.006006006 1.751752
## 6244 0.243243243 0.006006006 1.750751
## 6245 0.244244244 0.006006006 1.749750
## 6246 0.245245245 0.006006006 1.748749
## 6247 0.246246246 0.006006006 1.747748
## 6248 0.247247247 0.006006006 1.746747
## 6249 0.248248248 0.006006006 1.745746
## 6250 0.249249249 0.006006006 1.744745
## 6251 0.250250250 0.006006006 1.743744
## 6252 0.251251251 0.006006006 1.742743
## 6253 0.252252252 0.006006006 1.741742
## 6254 0.253253253 0.006006006 1.740741
## 6255 0.254254254 0.006006006 1.739740
## 6256 0.255255255 0.006006006 1.738739
## 6257 0.256256256 0.006006006 1.737738
## 6258 0.257257257 0.006006006 1.736737
## 6259 0.258258258 0.006006006 1.735736
## 6260 0.259259259 0.006006006 1.734735
## 6261 0.260260260 0.006006006 1.733734
## 6262 0.261261261 0.006006006 1.732733

```

```
## 6263 0.262262262 0.006006006 1.731732
## 6264 0.263263263 0.006006006 1.730731
## 6265 0.264264264 0.006006006 1.729730
## 6266 0.265265265 0.006006006 1.728729
## 6267 0.266266266 0.006006006 1.727728
## 6268 0.267267267 0.006006006 1.726727
## 6269 0.268268268 0.006006006 1.725726
## 6270 0.269269269 0.006006006 1.724725
## 6271 0.270270270 0.006006006 1.723724
## 6272 0.271271271 0.006006006 1.722723
## 6273 0.272272272 0.006006006 1.721722
## 6274 0.273273273 0.006006006 1.720721
## 6275 0.274274274 0.006006006 1.719720
## 6276 0.275275275 0.006006006 1.718719
## 6277 0.276276276 0.006006006 1.717718
## 6278 0.277277277 0.006006006 1.716717
## 6279 0.278278278 0.006006006 1.715716
## 6280 0.279279279 0.006006006 1.714715
## 6281 0.280280280 0.006006006 1.713714
## 6282 0.281281281 0.006006006 1.712713
## 6283 0.282282282 0.006006006 1.711712
## 6284 0.283283283 0.006006006 1.710711
## 6285 0.284284284 0.006006006 1.709710
## 6286 0.285285285 0.006006006 1.708709
## 6287 0.286286286 0.006006006 1.707708
## 6288 0.287287287 0.006006006 1.706707
## 6289 0.288288288 0.006006006 1.705706
## 6290 0.289289289 0.006006006 1.704705
## 6291 0.290290290 0.006006006 1.703704
## 6292 0.291291291 0.006006006 1.702703
## 6293 0.292292292 0.006006006 1.701702
## 6294 0.293293293 0.006006006 1.700701
## 6295 0.294294294 0.006006006 1.699700
## 6296 0.295295295 0.006006006 1.698699
## 6297 0.296296296 0.006006006 1.697698
## 6298 0.297297297 0.006006006 1.696697
## 6299 0.298298298 0.006006006 1.695696
## 6300 0.299299299 0.006006006 1.694695
## 6301 0.300300300 0.006006006 1.693694
## 6302 0.301301301 0.006006006 1.692693
## 6303 0.302302302 0.006006006 1.691692
## 6304 0.303303303 0.006006006 1.690691
## 6305 0.304304304 0.006006006 1.689690
## 6306 0.305305305 0.006006006 1.688689
## 6307 0.306306306 0.006006006 1.687688
## 6308 0.307307307 0.006006006 1.686687
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 249

```
## 6309 0.308308308 0.006006006 1.685686
## 6310 0.309309309 0.006006006 1.684685
## 6311 0.310310310 0.006006006 1.683684
## 6312 0.311311311 0.006006006 1.682683
## 6313 0.312312312 0.006006006 1.681682
## 6314 0.313313313 0.006006006 1.680681
## 6315 0.314314314 0.006006006 1.679680
## 6316 0.315315315 0.006006006 1.678679
## 6317 0.316316316 0.006006006 1.677678
## 6318 0.317317317 0.006006006 1.676677
## 6319 0.318318318 0.006006006 1.675676
## 6320 0.319319319 0.006006006 1.674675
## 6321 0.320320320 0.006006006 1.673674
## 6322 0.321321321 0.006006006 1.672673
## 6323 0.322322322 0.006006006 1.671672
## 6324 0.323323323 0.006006006 1.670671
## 6325 0.324324324 0.006006006 1.669670
## 6326 0.325325325 0.006006006 1.668669
## 6327 0.326326326 0.006006006 1.667668
## 6328 0.327327327 0.006006006 1.666667
## 6329 0.328328328 0.006006006 1.665666
## 6330 0.329329329 0.006006006 1.664665
## 6331 0.330330330 0.006006006 1.663664
## 6332 0.331331331 0.006006006 1.662663
## 6333 0.332332332 0.006006006 1.661662
## 6334 0.333333333 0.006006006 1.660661
## 6335 0.334334334 0.006006006 1.659660
## 6336 0.335335335 0.006006006 1.658659
## 6337 0.336336336 0.006006006 1.657658
## 6338 0.337337337 0.006006006 1.656657
## 6339 0.338338338 0.006006006 1.655656
## 6340 0.339339339 0.006006006 1.654655
## 6341 0.340340340 0.006006006 1.653654
## 6342 0.341341341 0.006006006 1.652653
## 6343 0.342342342 0.006006006 1.651652
## 6344 0.343343343 0.006006006 1.650651
## 6345 0.344344344 0.006006006 1.649650
## 6346 0.345345345 0.006006006 1.648649
## 6347 0.346346346 0.006006006 1.647648
## 6348 0.347347347 0.006006006 1.646647
## 6349 0.348348348 0.006006006 1.645646
## 6350 0.349349349 0.006006006 1.644645
## 6351 0.350350350 0.006006006 1.643644
## 6352 0.351351351 0.006006006 1.642643
## 6353 0.352352352 0.006006006 1.641642
## 6354 0.353353353 0.006006006 1.640641
```

```
## 6355 0.354354354 0.006006006 1.639640
## 6356 0.355355355 0.006006006 1.638639
## 6357 0.356356356 0.006006006 1.637638
## 6358 0.357357357 0.006006006 1.636637
## 6359 0.358358358 0.006006006 1.635636
## 6360 0.359359359 0.006006006 1.634635
## 6361 0.360360360 0.006006006 1.633634
## 6362 0.361361361 0.006006006 1.632633
## 6363 0.362362362 0.006006006 1.631632
## 6364 0.363363363 0.006006006 1.630631
## 6365 0.364364364 0.006006006 1.629630
## 6366 0.365365365 0.006006006 1.628629
## 6367 0.366366366 0.006006006 1.627628
## 6368 0.367367367 0.006006006 1.626627
## 6369 0.368368368 0.006006006 1.625626
## 6370 0.369369369 0.006006006 1.624625
## 6371 0.370370370 0.006006006 1.623624
## 6372 0.371371371 0.006006006 1.622623
## 6373 0.372372372 0.006006006 1.621622
## 6374 0.373373373 0.006006006 1.620621
## 6375 0.374374374 0.006006006 1.619620
## 6376 0.375375375 0.006006006 1.618619
## 6377 0.376376376 0.006006006 1.617618
## 6378 0.377377377 0.006006006 1.616617
## 6379 0.378378378 0.006006006 1.615616
## 6380 0.379379379 0.006006006 1.614615
## 6381 0.380380380 0.006006006 1.613614
## 6382 0.381381381 0.006006006 1.612613
## 6383 0.382382382 0.006006006 1.611612
## 6384 0.383383383 0.006006006 1.610611
## 6385 0.384384384 0.006006006 1.609610
## 6386 0.385385385 0.006006006 1.608609
## 6387 0.386386386 0.006006006 1.607608
## 6388 0.387387387 0.006006006 1.606607
## 6389 0.388388388 0.006006006 1.605606
## 6390 0.389389389 0.006006006 1.604605
## 6391 0.390390390 0.006006006 1.603604
## 6392 0.391391391 0.006006006 1.602603
## 6393 0.392392392 0.006006006 1.601602
## 6394 0.393393393 0.006006006 1.600601
## 6395 0.394394394 0.006006006 1.599600
## 6396 0.395395395 0.006006006 1.598599
## 6397 0.396396396 0.006006006 1.597598
## 6398 0.397397397 0.006006006 1.596597
## 6399 0.398398398 0.006006006 1.595596
## 6400 0.399399399 0.006006006 1.594595
```

```

## 6401 0.400400400 0.006006006 1.593594
## 6402 0.401401401 0.006006006 1.592593
## 6403 0.402402402 0.006006006 1.591592
## 6404 0.403403403 0.006006006 1.590591
## 6405 0.404404404 0.006006006 1.589590
## 6406 0.405405405 0.006006006 1.588589
## 6407 0.406406406 0.006006006 1.587588
## 6408 0.407407407 0.006006006 1.586587
## 6409 0.408408408 0.006006006 1.585586
## 6410 0.409409409 0.006006006 1.584585
## 6411 0.410410410 0.006006006 1.583584
## 6412 0.411411411 0.006006006 1.582583
## 6413 0.412412412 0.006006006 1.581582
## 6414 0.413413413 0.006006006 1.580581
## 6415 0.414414414 0.006006006 1.579580
## 6416 0.415415415 0.006006006 1.578579
## 6417 0.416416416 0.006006006 1.577578
## 6418 0.417417417 0.006006006 1.576577
## 6419 0.418418418 0.006006006 1.575576
## 6420 0.419419419 0.006006006 1.574575
## 6421 0.420420420 0.006006006 1.573574
## 6422 0.421421421 0.006006006 1.572573
## 6423 0.422422422 0.006006006 1.571572
## 6424 0.423423423 0.006006006 1.570571
## 6425 0.424424424 0.006006006 1.569570
## 6426 0.425425425 0.006006006 1.568569
## 6427 0.426426426 0.006006006 1.567568
## 6428 0.427427427 0.006006006 1.566567
## 6429 0.428428428 0.006006006 1.565566
## 6430 0.429429429 0.006006006 1.564565
## 6431 0.430430430 0.006006006 1.563564
## 6432 0.431431431 0.006006006 1.562563
## 6433 0.432432432 0.006006006 1.561562
## 6434 0.433433433 0.006006006 1.560561
## 6435 0.434434434 0.006006006 1.559560
## 6436 0.435435435 0.006006006 1.558559
## 6437 0.436436436 0.006006006 1.557558
## 6438 0.437437437 0.006006006 1.556557
## 6439 0.438438438 0.006006006 1.555556
## 6440 0.439439439 0.006006006 1.554555
## 6441 0.440440440 0.006006006 1.553554
## 6442 0.441441441 0.006006006 1.552553
## 6443 0.442442442 0.006006006 1.551552
## 6444 0.443443443 0.006006006 1.550551
## 6445 0.444444444 0.006006006 1.549550
## 6446 0.445445445 0.006006006 1.548549

```

```
## 6447 0.446446446 0.006006006 1.547548
## 6448 0.447447447 0.006006006 1.546547
## 6449 0.448448448 0.006006006 1.545546
## 6450 0.449449449 0.006006006 1.544545
## 6451 0.450450450 0.006006006 1.543544
## 6452 0.451451451 0.006006006 1.542543
## 6453 0.452452452 0.006006006 1.541542
## 6454 0.453453453 0.006006006 1.540541
## 6455 0.454454454 0.006006006 1.539540
## 6456 0.455455455 0.006006006 1.538539
## 6457 0.456456456 0.006006006 1.537538
## 6458 0.457457457 0.006006006 1.536537
## 6459 0.458458458 0.006006006 1.535536
## 6460 0.459459459 0.006006006 1.534535
## 6461 0.460460460 0.006006006 1.533534
## 6462 0.461461461 0.006006006 1.532533
## 6463 0.462462462 0.006006006 1.531532
## 6464 0.463463463 0.006006006 1.530531
## 6465 0.464464464 0.006006006 1.529530
## 6466 0.465465465 0.006006006 1.528529
## 6467 0.466466466 0.006006006 1.527528
## 6468 0.467467467 0.006006006 1.526527
## 6469 0.468468468 0.006006006 1.525526
## 6470 0.469469469 0.006006006 1.524525
## 6471 0.470470470 0.006006006 1.523524
## 6472 0.471471471 0.006006006 1.522523
## 6473 0.472472472 0.006006006 1.521522
## 6474 0.473473473 0.006006006 1.520521
## 6475 0.474474474 0.006006006 1.519520
## 6476 0.475475475 0.006006006 1.518519
## 6477 0.476476476 0.006006006 1.517518
## 6478 0.477477477 0.006006006 1.516517
## 6479 0.478478478 0.006006006 1.515516
## 6480 0.479479479 0.006006006 1.514515
## 6481 0.480480480 0.006006006 1.513514
## 6482 0.481481481 0.006006006 1.512513
## 6483 0.482482482 0.006006006 1.511512
## 6484 0.483483483 0.006006006 1.510511
## 6485 0.484484484 0.006006006 1.509510
## 6486 0.485485485 0.006006006 1.508509
## 6487 0.486486486 0.006006006 1.507508
## 6488 0.487487487 0.006006006 1.506507
## 6489 0.488488488 0.006006006 1.505506
## 6490 0.489489489 0.006006006 1.504505
## 6491 0.490490490 0.006006006 1.503504
## 6492 0.491491491 0.006006006 1.502503
```

```

## 6493 0.492492492 0.006006006 1.501502
## 6494 0.493493493 0.006006006 1.500501
## 6495 0.494494494 0.006006006 1.499499
## 6496 0.495495495 0.006006006 1.498498
## 6497 0.496496496 0.006006006 1.497497
## 6498 0.497497497 0.006006006 1.496496
## 6499 0.498498498 0.006006006 1.495495
## 6500 0.499499499 0.006006006 1.494494
## 6501 0.500500501 0.006006006 1.493493
## 6502 0.501501502 0.006006006 1.492492
## 6503 0.502502503 0.006006006 1.491491
## 6504 0.503503504 0.006006006 1.490490
## 6505 0.504504505 0.006006006 1.489489
## 6506 0.505505506 0.006006006 1.488488
## 6507 0.506506507 0.006006006 1.487487
## 6508 0.507507508 0.006006006 1.486486
## 6509 0.508508509 0.006006006 1.485485
## 6510 0.509509510 0.006006006 1.484484
## 6511 0.510510511 0.006006006 1.483483
## 6512 0.511511512 0.006006006 1.482482
## 6513 0.512512513 0.006006006 1.481481
## 6514 0.513513514 0.006006006 1.480480
## 6515 0.514514515 0.006006006 1.479479
## 6516 0.515515516 0.006006006 1.478478
## 6517 0.516516517 0.006006006 1.477477
## 6518 0.517517518 0.006006006 1.476476
## 6519 0.518518519 0.006006006 1.475475
## 6520 0.519519520 0.006006006 1.474474
## 6521 0.520520521 0.006006006 1.473473
## 6522 0.521521522 0.006006006 1.472472
## 6523 0.522522523 0.006006006 1.471471
## 6524 0.523523524 0.006006006 1.470470
## 6525 0.524524525 0.006006006 1.469469
## 6526 0.525525526 0.006006006 1.468468
## 6527 0.526526527 0.006006006 1.467467
## 6528 0.527527528 0.006006006 1.466466
## 6529 0.528528529 0.006006006 1.465465
## 6530 0.529529530 0.006006006 1.464464
## 6531 0.530530531 0.006006006 1.463463
## 6532 0.531531532 0.006006006 1.462462
## 6533 0.532532533 0.006006006 1.461461
## 6534 0.533533534 0.006006006 1.460460
## 6535 0.534534535 0.006006006 1.459459
## 6536 0.535535536 0.006006006 1.458458
## 6537 0.536536537 0.006006006 1.457457
## 6538 0.537537538 0.006006006 1.456456

```

```
## 6539 0.538538539 0.006006006 1.455455
## 6540 0.539539540 0.006006006 1.454454
## 6541 0.540540541 0.006006006 1.453453
## 6542 0.541541542 0.006006006 1.452452
## 6543 0.542542543 0.006006006 1.451451
## 6544 0.543543544 0.006006006 1.450450
## 6545 0.544544545 0.006006006 1.449449
## 6546 0.545545546 0.006006006 1.448448
## 6547 0.546546547 0.006006006 1.447447
## 6548 0.547547548 0.006006006 1.446446
## 6549 0.548548549 0.006006006 1.445445
## 6550 0.549549550 0.006006006 1.444444
## 6551 0.550550551 0.006006006 1.443443
## 6552 0.551551552 0.006006006 1.442442
## 6553 0.552552553 0.006006006 1.441441
## 6554 0.553553554 0.006006006 1.440440
## 6555 0.554554555 0.006006006 1.439439
## 6556 0.555555556 0.006006006 1.438438
## 6557 0.556556557 0.006006006 1.437437
## 6558 0.557557558 0.006006006 1.436436
## 6559 0.558558559 0.006006006 1.435435
## 6560 0.559559560 0.006006006 1.434434
## 6561 0.560560561 0.006006006 1.433433
## 6562 0.561561562 0.006006006 1.432432
## 6563 0.562562563 0.006006006 1.431431
## 6564 0.563563564 0.006006006 1.430430
## 6565 0.564564565 0.006006006 1.429429
## 6566 0.565565566 0.006006006 1.428428
## 6567 0.566566567 0.006006006 1.427427
## 6568 0.567567568 0.006006006 1.426426
## 6569 0.568568569 0.006006006 1.425425
## 6570 0.569569570 0.006006006 1.424424
## 6571 0.570570571 0.006006006 1.423423
## 6572 0.571571572 0.006006006 1.422422
## 6573 0.572572573 0.006006006 1.421421
## 6574 0.573573574 0.006006006 1.420420
## 6575 0.574574575 0.006006006 1.419419
## 6576 0.575575576 0.006006006 1.418418
## 6577 0.576576577 0.006006006 1.417417
## 6578 0.577577578 0.006006006 1.416416
## 6579 0.578578579 0.006006006 1.415415
## 6580 0.579579580 0.006006006 1.414414
## 6581 0.580580581 0.006006006 1.413413
## 6582 0.581581582 0.006006006 1.412412
## 6583 0.582582583 0.006006006 1.411411
## 6584 0.583583584 0.006006006 1.410410
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 255

```
## 6585 0.584584585 0.006006006 1.409409
## 6586 0.585585586 0.006006006 1.408408
## 6587 0.586586587 0.006006006 1.407407
## 6588 0.587587588 0.006006006 1.406406
## 6589 0.588588589 0.006006006 1.405405
## 6590 0.589589590 0.006006006 1.404404
## 6591 0.590590591 0.006006006 1.403403
## 6592 0.591591592 0.006006006 1.402402
## 6593 0.592592593 0.006006006 1.401401
## 6594 0.593593594 0.006006006 1.400400
## 6595 0.594594595 0.006006006 1.399399
## 6596 0.595595596 0.006006006 1.398398
## 6597 0.596596597 0.006006006 1.397397
## 6598 0.597597598 0.006006006 1.396396
## 6599 0.598598599 0.006006006 1.395395
## 6600 0.599599600 0.006006006 1.394394
## 6601 0.600600601 0.006006006 1.393393
## 6602 0.601601602 0.006006006 1.392392
## 6603 0.602602603 0.006006006 1.391391
## 6604 0.603603604 0.006006006 1.390390
## 6605 0.604604605 0.006006006 1.389389
## 6606 0.605605606 0.006006006 1.388388
## 6607 0.606606607 0.006006006 1.387387
## 6608 0.607607608 0.006006006 1.386386
## 6609 0.608608609 0.006006006 1.385385
## 6610 0.609609610 0.006006006 1.384384
## 6611 0.610610611 0.006006006 1.383383
## 6612 0.611611612 0.006006006 1.382382
## 6613 0.612612613 0.006006006 1.381381
## 6614 0.613613614 0.006006006 1.380380
## 6615 0.614614615 0.006006006 1.379379
## 6616 0.615615616 0.006006006 1.378378
## 6617 0.616616617 0.006006006 1.377377
## 6618 0.617617618 0.006006006 1.376376
## 6619 0.618618619 0.006006006 1.375375
## 6620 0.619619620 0.006006006 1.374374
## 6621 0.620620621 0.006006006 1.373373
## 6622 0.621621622 0.006006006 1.372372
## 6623 0.622622623 0.006006006 1.371371
## 6624 0.623623624 0.006006006 1.370370
## 6625 0.624624625 0.006006006 1.369369
## 6626 0.625625626 0.006006006 1.368368
## 6627 0.626626627 0.006006006 1.367367
## 6628 0.627627628 0.006006006 1.366366
## 6629 0.628628629 0.006006006 1.365365
## 6630 0.629629630 0.006006006 1.364364
```

```
## 6631 0.630630631 0.006006006 1.363363
## 6632 0.631631632 0.006006006 1.362362
## 6633 0.632632633 0.006006006 1.361361
## 6634 0.633633634 0.006006006 1.360360
## 6635 0.634634635 0.006006006 1.359359
## 6636 0.635635636 0.006006006 1.358358
## 6637 0.636636637 0.006006006 1.357357
## 6638 0.637637638 0.006006006 1.356356
## 6639 0.638638639 0.006006006 1.355355
## 6640 0.639639640 0.006006006 1.354354
## 6641 0.640640641 0.006006006 1.353353
## 6642 0.641641642 0.006006006 1.352352
## 6643 0.642642643 0.006006006 1.351351
## 6644 0.643643644 0.006006006 1.350350
## 6645 0.644644645 0.006006006 1.349349
## 6646 0.645645646 0.006006006 1.348348
## 6647 0.646646647 0.006006006 1.347347
## 6648 0.647647648 0.006006006 1.346346
## 6649 0.648648649 0.006006006 1.345345
## 6650 0.649649650 0.006006006 1.344344
## 6651 0.650650651 0.006006006 1.343343
## 6652 0.651651652 0.006006006 1.342342
## 6653 0.652652653 0.006006006 1.341341
## 6654 0.653653654 0.006006006 1.340340
## 6655 0.654654655 0.006006006 1.339339
## 6656 0.655655656 0.006006006 1.338338
## 6657 0.656656657 0.006006006 1.337337
## 6658 0.657657658 0.006006006 1.336336
## 6659 0.658658659 0.006006006 1.335335
## 6660 0.659659660 0.006006006 1.334334
## 6661 0.660660661 0.006006006 1.333333
## 6662 0.661661662 0.006006006 1.332332
## 6663 0.662662663 0.006006006 1.331331
## 6664 0.663663664 0.006006006 1.330330
## 6665 0.664664665 0.006006006 1.329329
## 6666 0.665665666 0.006006006 1.328328
## 6667 0.666666667 0.006006006 1.327327
## 6668 0.667667668 0.006006006 1.326326
## 6669 0.668668669 0.006006006 1.325325
## 6670 0.669669670 0.006006006 1.324324
## 6671 0.670670671 0.006006006 1.323323
## 6672 0.671671672 0.006006006 1.322322
## 6673 0.672672673 0.006006006 1.321321
## 6674 0.673673674 0.006006006 1.320320
## 6675 0.674674675 0.006006006 1.319319
## 6676 0.675675676 0.006006006 1.318318
```

```

## 6677 0.676676677 0.006006006 1.317317
## 6678 0.677677678 0.006006006 1.316316
## 6679 0.678678679 0.006006006 1.315315
## 6680 0.679679680 0.006006006 1.314314
## 6681 0.680680681 0.006006006 1.313313
## 6682 0.681681682 0.006006006 1.312312
## 6683 0.682682683 0.006006006 1.311311
## 6684 0.683683684 0.006006006 1.310310
## 6685 0.684684685 0.006006006 1.309309
## 6686 0.685685686 0.006006006 1.308308
## 6687 0.686686687 0.006006006 1.307307
## 6688 0.687687688 0.006006006 1.306306
## 6689 0.688688689 0.006006006 1.305305
## 6690 0.689689690 0.006006006 1.304304
## 6691 0.690690691 0.006006006 1.303303
## 6692 0.691691692 0.006006006 1.302302
## 6693 0.692692693 0.006006006 1.301301
## 6694 0.693693694 0.006006006 1.300300
## 6695 0.694694695 0.006006006 1.299299
## 6696 0.695695696 0.006006006 1.298298
## 6697 0.696696697 0.006006006 1.297297
## 6698 0.697697698 0.006006006 1.296296
## 6699 0.698698699 0.006006006 1.295295
## 6700 0.699699700 0.006006006 1.294294
## 6701 0.700700701 0.006006006 1.293293
## 6702 0.701701702 0.006006006 1.292292
## 6703 0.702702703 0.006006006 1.291291
## 6704 0.703703704 0.006006006 1.290290
## 6705 0.704704705 0.006006006 1.289289
## 6706 0.705705706 0.006006006 1.288288
## 6707 0.706706707 0.006006006 1.287287
## 6708 0.707707708 0.006006006 1.286286
## 6709 0.708708709 0.006006006 1.285285
## 6710 0.709709710 0.006006006 1.284284
## 6711 0.710710711 0.006006006 1.283283
## 6712 0.711711712 0.006006006 1.282282
## 6713 0.712712713 0.006006006 1.281281
## 6714 0.713713714 0.006006006 1.280280
## 6715 0.714714715 0.006006006 1.279279
## 6716 0.715715716 0.006006006 1.278278
## 6717 0.716716717 0.006006006 1.277277
## 6718 0.717717718 0.006006006 1.276276
## 6719 0.718718719 0.006006006 1.275275
## 6720 0.719719720 0.006006006 1.274274
## 6721 0.720720721 0.006006006 1.273273
## 6722 0.721721722 0.006006006 1.272272

```

```
## 6723 0.722722723 0.006006006 1.271271
## 6724 0.723723724 0.006006006 1.270270
## 6725 0.724724725 0.006006006 1.269269
## 6726 0.725725726 0.006006006 1.268268
## 6727 0.726726727 0.006006006 1.267267
## 6728 0.727727728 0.006006006 1.266266
## 6729 0.728728729 0.006006006 1.265265
## 6730 0.729729730 0.006006006 1.264264
## 6731 0.730730731 0.006006006 1.263263
## 6732 0.731731732 0.006006006 1.262262
## 6733 0.732732733 0.006006006 1.261261
## 6734 0.733733734 0.006006006 1.260260
## 6735 0.734734735 0.006006006 1.259259
## 6736 0.735735736 0.006006006 1.258258
## 6737 0.736736737 0.006006006 1.257257
## 6738 0.737737738 0.006006006 1.256256
## 6739 0.738738739 0.006006006 1.255255
## 6740 0.739739740 0.006006006 1.254254
## 6741 0.740740741 0.006006006 1.253253
## 6742 0.741741742 0.006006006 1.252252
## 6743 0.742742743 0.006006006 1.251251
## 6744 0.743743744 0.006006006 1.250250
## 6745 0.744744745 0.006006006 1.249249
## 6746 0.745745746 0.006006006 1.248248
## 6747 0.746746747 0.006006006 1.247247
## 6748 0.747747748 0.006006006 1.246246
## 6749 0.748748749 0.006006006 1.245245
## 6750 0.749749750 0.006006006 1.244244
## 6751 0.750750751 0.006006006 1.243243
## 6752 0.751751752 0.006006006 1.242242
## 6753 0.752752753 0.006006006 1.241241
## 6754 0.753753754 0.006006006 1.240240
## 6755 0.754754755 0.006006006 1.239239
## 6756 0.755755756 0.006006006 1.238238
## 6757 0.756756757 0.006006006 1.237237
## 6758 0.757757758 0.006006006 1.236236
## 6759 0.758758759 0.006006006 1.235235
## 6760 0.759759760 0.006006006 1.234234
## 6761 0.760760761 0.006006006 1.233233
## 6762 0.761761762 0.006006006 1.232232
## 6763 0.762762763 0.006006006 1.231231
## 6764 0.763763764 0.006006006 1.230230
## 6765 0.764764765 0.006006006 1.229229
## 6766 0.765765766 0.006006006 1.228228
## 6767 0.766766767 0.006006006 1.227227
## 6768 0.767767768 0.006006006 1.226226
```

```

## 6769  0.768768769  0.006006006  1.225225
## 6770  0.769769770  0.006006006  1.224224
## 6771  0.770770771  0.006006006  1.223223
## 6772  0.771771772  0.006006006  1.222222
## 6773  0.772772773  0.006006006  1.221221
## 6774  0.773773774  0.006006006  1.220220
## 6775  0.774774775  0.006006006  1.219219
## 6776  0.775775776  0.006006006  1.218218
## 6777  0.776776777  0.006006006  1.217217
## 6778  0.777777778  0.006006006  1.216216
## 6779  0.778778779  0.006006006  1.215215
## 6780  0.779779780  0.006006006  1.214214
## 6781  0.780780781  0.006006006  1.213213
## 6782  0.781781782  0.006006006  1.212212
## 6783  0.782782783  0.006006006  1.211211
## 6784  0.783783784  0.006006006  1.210210
## 6785  0.784784785  0.006006006  1.209209
## 6786  0.785785786  0.006006006  1.208208
## 6787  0.786786787  0.006006006  1.207207
## 6788  0.787787788  0.006006006  1.206206
## 6789  0.788788789  0.006006006  1.205205
## 6790  0.789789790  0.006006006  1.204204
## 6791  0.790790791  0.006006006  1.203203
## 6792  0.791791792  0.006006006  1.202202
## 6793  0.792792793  0.006006006  1.201201
## 6794  0.793793794  0.006006006  1.200200
## 6795  0.794794795  0.006006006  1.199199
## 6796  0.795795796  0.006006006  1.198198
## 6797  0.796796797  0.006006006  1.197197
## 6798  0.797797798  0.006006006  1.196196
## 6799  0.798798799  0.006006006  1.195195
## 6800  0.799799800  0.006006006  1.194194
## 6801  0.800800801  0.006006006  1.193193
## 6802  0.801801802  0.006006006  1.192192
## 6803  0.802802803  0.006006006  1.191191
## 6804  0.803803804  0.006006006  1.190190
## 6805  0.804804805  0.006006006  1.189189
## 6806  0.805805806  0.006006006  1.188188
## 6807  0.806806807  0.006006006  1.187187
## 6808  0.807807808  0.006006006  1.186186
## 6809  0.808808809  0.006006006  1.185185
## 6810  0.809809810  0.006006006  1.184184
## 6811  0.810810811  0.006006006  1.183183
## 6812  0.811811812  0.006006006  1.182182
## 6813  0.812812813  0.006006006  1.181181
## 6814  0.813813814  0.006006006  1.180180

```

```
## 6815  0.814814815 0.006006006 1.179179
## 6816  0.815815816 0.006006006 1.178178
## 6817  0.816816817 0.006006006 1.177177
## 6818  0.817817818 0.006006006 1.176176
## 6819  0.818818819 0.006006006 1.175175
## 6820  0.819819820 0.006006006 1.174174
## 6821  0.820820821 0.006006006 1.173173
## 6822  0.821821822 0.006006006 1.172172
## 6823  0.822822823 0.006006006 1.171171
## 6824  0.823823824 0.006006006 1.170170
## 6825  0.824824825 0.006006006 1.169169
## 6826  0.825825826 0.006006006 1.168168
## 6827  0.826826827 0.006006006 1.167167
## 6828  0.827827828 0.006006006 1.166166
## 6829  0.828828829 0.006006006 1.165165
## 6830  0.829829830 0.006006006 1.164164
## 6831  0.830830831 0.006006006 1.163163
## 6832  0.831831832 0.006006006 1.162162
## 6833  0.832832833 0.006006006 1.161161
## 6834  0.833833834 0.006006006 1.160160
## 6835  0.834834835 0.006006006 1.159159
## 6836  0.835835836 0.006006006 1.158158
## 6837  0.836836837 0.006006006 1.157157
## 6838  0.837837838 0.006006006 1.156156
## 6839  0.838838839 0.006006006 1.155155
## 6840  0.839839840 0.006006006 1.154154
## 6841  0.840840841 0.006006006 1.153153
## 6842  0.841841842 0.006006006 1.152152
## 6843  0.842842843 0.006006006 1.151151
## 6844  0.843843844 0.006006006 1.150150
## 6845  0.844844845 0.006006006 1.149149
## 6846  0.845845846 0.006006006 1.148148
## 6847  0.846846847 0.006006006 1.147147
## 6848  0.847847848 0.006006006 1.146146
## 6849  0.848848849 0.006006006 1.145145
## 6850  0.849849850 0.006006006 1.144144
## 6851  0.850850851 0.006006006 1.143143
## 6852  0.851851852 0.006006006 1.142142
## 6853  0.852852853 0.006006006 1.141141
## 6854  0.853853854 0.006006006 1.140140
## 6855  0.854854855 0.006006006 1.139139
## 6856  0.855855856 0.006006006 1.138138
## 6857  0.856856857 0.006006006 1.137137
## 6858  0.857857858 0.006006006 1.136136
## 6859  0.858858859 0.006006006 1.135135
## 6860  0.859859860 0.006006006 1.134134
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 261

```

## 6861 0.860860861 0.006006006 1.133133
## 6862 0.861861862 0.006006006 1.132132
## 6863 0.862862863 0.006006006 1.131131
## 6864 0.863863864 0.006006006 1.130130
## 6865 0.864864865 0.006006006 1.129129
## 6866 0.865865866 0.006006006 1.128128
## 6867 0.866866867 0.006006006 1.127127
## 6868 0.867867868 0.006006006 1.126126
## 6869 0.868868869 0.006006006 1.125125
## 6870 0.869869870 0.006006006 1.124124
## 6871 0.870870871 0.006006006 1.123123
## 6872 0.871871872 0.006006006 1.122122
## 6873 0.872872873 0.006006006 1.121121
## 6874 0.873873874 0.006006006 1.120120
## 6875 0.874874875 0.006006006 1.119119
## 6876 0.875875876 0.006006006 1.118118
## 6877 0.876876877 0.006006006 1.117117
## 6878 0.877877878 0.006006006 1.116116
## 6879 0.878878879 0.006006006 1.115115
## 6880 0.879879880 0.006006006 1.114114
## 6881 0.880880881 0.006006006 1.113113
## 6882 0.881881882 0.006006006 1.112112
## 6883 0.882882883 0.006006006 1.111111
## 6884 0.883883884 0.006006006 1.110110
## 6885 0.884884885 0.006006006 1.109109
## 6886 0.885885886 0.006006006 1.108108
## 6887 0.886886887 0.006006006 1.107107
## 6888 0.887887888 0.006006006 1.106106
## 6889 0.888888889 0.006006006 1.105105
## 6890 0.889889890 0.006006006 1.104104
## 6891 0.890890891 0.006006006 1.103103
## 6892 0.891891892 0.006006006 1.102102
## 6893 0.892892893 0.006006006 1.101101
## 6894 0.893893894 0.006006006 1.100100
## 6895 0.894894895 0.006006006 1.099099
## 6896 0.895895896 0.006006006 1.098098
## 6897 0.896896897 0.006006006 1.097097
## 6898 0.897897898 0.006006006 1.096096
## 6899 0.898898899 0.006006006 1.095095
## 6900 0.899899900 0.006006006 1.094094
## 6901 0.900900901 0.006006006 1.093093
## 6902 0.901901902 0.006006006 1.092092
## 6903 0.902902903 0.006006006 1.091091
## 6904 0.903903904 0.006006006 1.090090
## 6905 0.904904905 0.006006006 1.089089
## 6906 0.905905906 0.006006006 1.088088

```

```
## 6907  0.906906907 0.006006006 1.087087
## 6908  0.907907908 0.006006006 1.086086
## 6909  0.908908909 0.006006006 1.085085
## 6910  0.909909910 0.006006006 1.084084
## 6911  0.910910911 0.006006006 1.083083
## 6912  0.911911912 0.006006006 1.082082
## 6913  0.912912913 0.006006006 1.081081
## 6914  0.913913914 0.006006006 1.080080
## 6915  0.914914915 0.006006006 1.079079
## 6916  0.915915916 0.006006006 1.078078
## 6917  0.916916917 0.006006006 1.077077
## 6918  0.917917918 0.006006006 1.076076
## 6919  0.918918919 0.006006006 1.075075
## 6920  0.919919920 0.006006006 1.074074
## 6921  0.920920921 0.006006006 1.073073
## 6922  0.921921922 0.006006006 1.072072
## 6923  0.922922923 0.006006006 1.071071
## 6924  0.923923924 0.006006006 1.070070
## 6925  0.924924925 0.006006006 1.069069
## 6926  0.925925926 0.006006006 1.068068
## 6927  0.926926927 0.006006006 1.067067
## 6928  0.927927928 0.006006006 1.066066
## 6929  0.928928929 0.006006006 1.065065
## 6930  0.929929930 0.006006006 1.064064
## 6931  0.930930931 0.006006006 1.063063
## 6932  0.931931932 0.006006006 1.062062
## 6933  0.932932933 0.006006006 1.061061
## 6934  0.933933934 0.006006006 1.060060
## 6935  0.934934935 0.006006006 1.059059
## 6936  0.935935936 0.006006006 1.058058
## 6937  0.936936937 0.006006006 1.057057
## 6938  0.937937938 0.006006006 1.056056
## 6939  0.938938939 0.006006006 1.055055
## 6940  0.939939940 0.006006006 1.054054
## 6941  0.940940941 0.006006006 1.053053
## 6942  0.941941942 0.006006006 1.052052
## 6943  0.942942943 0.006006006 1.051051
## 6944  0.943943944 0.006006006 1.050050
## 6945  0.9449444945 0.006006006 1.049049
## 6946  0.945945946 0.006006006 1.048048
## 6947  0.946946947 0.006006006 1.047047
## 6948  0.947947948 0.006006006 1.046046
## 6949  0.948948949 0.006006006 1.045045
## 6950  0.949949950 0.006006006 1.044044
## 6951  0.950950951 0.006006006 1.043043
## 6952  0.951951952 0.006006006 1.042042
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 263

```

## 6953 0.952952953 0.006006006 1.041041
## 6954 0.953953954 0.006006006 1.040040
## 6955 0.954954955 0.006006006 1.039039
## 6956 0.955955956 0.006006006 1.038038
## 6957 0.956956957 0.006006006 1.037037
## 6958 0.957957958 0.006006006 1.036036
## 6959 0.958958959 0.006006006 1.035035
## 6960 0.959959960 0.006006006 1.034034
## 6961 0.960960961 0.006006006 1.033033
## 6962 0.961961962 0.006006006 1.032032
## 6963 0.962962963 0.006006006 1.031031
## 6964 0.963963964 0.006006006 1.030030
## 6965 0.964964965 0.006006006 1.029029
## 6966 0.965965966 0.006006006 1.028028
## 6967 0.966966967 0.006006006 1.027027
## 6968 0.967967968 0.006006006 1.026026
## 6969 0.968968969 0.006006006 1.025025
## 6970 0.969969970 0.006006006 1.024024
## 6971 0.970970971 0.006006006 1.023023
## 6972 0.971971972 0.006006006 1.022022
## 6973 0.972972973 0.006006006 1.021021
## 6974 0.973973974 0.006006006 1.020020
## 6975 0.974974975 0.006006006 1.019019
## 6976 0.975975976 0.006006006 1.018018
## 6977 0.976976977 0.006006006 1.017017
## 6978 0.977977978 0.006006006 1.016016
## 6979 0.978978979 0.006006006 1.015015
## 6980 0.979979980 0.006006006 1.014014
## 6981 0.980980981 0.006006006 1.013013
## 6982 0.981981982 0.006006006 1.012012
## 6983 0.982982983 0.006006006 1.011011
## 6984 0.983983984 0.006006006 1.010010
## 6985 0.984984985 0.006006006 1.009009
## 6986 0.985985986 0.006006006 1.008008
## 6987 0.986986987 0.006006006 1.007007
## 6988 0.987987988 0.006006006 1.006006
## 6989 0.988988989 0.006006006 1.005005
## 6990 0.989989990 0.006006006 1.004004
## 6991 0.990990991 0.006006006 1.003003
## 6992 0.991991992 0.006006006 1.002002
## 6993 0.992992993 0.006006006 1.001001
## 6994 0.993993994 0.006006006 1.000000
## 6995 0.994994995 0.006006006 0.998999
## 6996 0.995995996 0.006006006 0.997998
## 6997 0.996996997 0.006006006 0.996997
## 6998 0.997997998 0.006006006 0.995996

```

```
## 6999  0.998998999 0.006006006 0.994995
## 7000  1.000000000 0.006006006 0.993994
## 7001  0.000000000 0.007007007 1.992993
## 7002  0.001001001 0.007007007 1.991992
## 7003  0.002002002 0.007007007 1.990991
## 7004  0.003003003 0.007007007 1.989990
## 7005  0.004004004 0.007007007 1.988989
## 7006  0.005005005 0.007007007 1.987988
## 7007  0.006006006 0.007007007 1.986987
## 7008  0.007007007 0.007007007 1.985986
## 7009  0.008008008 0.007007007 1.984985
## 7010  0.009009009 0.007007007 1.983984
## 7011  0.010010010 0.007007007 1.982983
## 7012  0.011011011 0.007007007 1.981982
## 7013  0.012012012 0.007007007 1.980981
## 7014  0.013013013 0.007007007 1.979980
## 7015  0.014014014 0.007007007 1.978979
## 7016  0.015015015 0.007007007 1.977978
## 7017  0.016016016 0.007007007 1.976977
## 7018  0.017017017 0.007007007 1.975976
## 7019  0.018018018 0.007007007 1.974975
## 7020  0.019019019 0.007007007 1.973974
## 7021  0.020020020 0.007007007 1.972973
## 7022  0.021021021 0.007007007 1.971972
## 7023  0.022022022 0.007007007 1.970971
## 7024  0.023023023 0.007007007 1.969970
## 7025  0.024024024 0.007007007 1.968969
## 7026  0.025025025 0.007007007 1.967968
## 7027  0.026026026 0.007007007 1.966967
## 7028  0.027027027 0.007007007 1.965966
## 7029  0.028028028 0.007007007 1.964965
## 7030  0.029029029 0.007007007 1.963964
## 7031  0.030030030 0.007007007 1.962963
## 7032  0.031031031 0.007007007 1.961962
## 7033  0.032032032 0.007007007 1.960961
## 7034  0.033033033 0.007007007 1.959960
## 7035  0.034034034 0.007007007 1.958959
## 7036  0.035035035 0.007007007 1.957958
## 7037  0.036036036 0.007007007 1.956957
## 7038  0.037037037 0.007007007 1.955956
## 7039  0.038038038 0.007007007 1.954955
## 7040  0.039039039 0.007007007 1.953954
## 7041  0.040040040 0.007007007 1.952953
## 7042  0.041041041 0.007007007 1.951952
## 7043  0.042042042 0.007007007 1.950951
## 7044  0.043043043 0.007007007 1.949950
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 265

```
## 7045 0.044044044 0.007007007 1.948949
## 7046 0.045045045 0.007007007 1.947948
## 7047 0.046046046 0.007007007 1.946947
## 7048 0.047047047 0.007007007 1.945946
## 7049 0.048048048 0.007007007 1.944945
## 7050 0.049049049 0.007007007 1.943944
## 7051 0.050050050 0.007007007 1.942943
## 7052 0.051051051 0.007007007 1.941942
## 7053 0.052052052 0.007007007 1.940941
## 7054 0.053053053 0.007007007 1.939940
## 7055 0.054054054 0.007007007 1.938939
## 7056 0.055055055 0.007007007 1.937938
## 7057 0.056056056 0.007007007 1.936937
## 7058 0.057057057 0.007007007 1.935936
## 7059 0.058058058 0.007007007 1.934935
## 7060 0.059059059 0.007007007 1.933934
## 7061 0.060060060 0.007007007 1.932933
## 7062 0.061061061 0.007007007 1.931932
## 7063 0.062062062 0.007007007 1.930931
## 7064 0.063063063 0.007007007 1.929930
## 7065 0.064064064 0.007007007 1.928929
## 7066 0.065065065 0.007007007 1.927928
## 7067 0.066066066 0.007007007 1.926927
## 7068 0.067067067 0.007007007 1.925926
## 7069 0.068068068 0.007007007 1.924925
## 7070 0.069069069 0.007007007 1.923924
## 7071 0.070070070 0.007007007 1.922923
## 7072 0.071071071 0.007007007 1.921922
## 7073 0.072072072 0.007007007 1.920921
## 7074 0.073073073 0.007007007 1.919920
## 7075 0.074074074 0.007007007 1.918919
## 7076 0.075075075 0.007007007 1.917918
## 7077 0.076076076 0.007007007 1.916917
## 7078 0.077077077 0.007007007 1.915916
## 7079 0.078078078 0.007007007 1.914915
## 7080 0.079079079 0.007007007 1.913914
## 7081 0.080080080 0.007007007 1.912913
## 7082 0.081081081 0.007007007 1.911912
## 7083 0.082082082 0.007007007 1.910911
## 7084 0.083083083 0.007007007 1.909910
## 7085 0.084084084 0.007007007 1.908909
## 7086 0.085085085 0.007007007 1.907908
## 7087 0.086086086 0.007007007 1.906907
## 7088 0.087087087 0.007007007 1.905906
## 7089 0.088088088 0.007007007 1.904905
## 7090 0.089089089 0.007007007 1.903904
```

```
## 7091 0.090090090 0.007007007 1.902903
## 7092 0.091091091 0.007007007 1.901902
## 7093 0.092092092 0.007007007 1.900901
## 7094 0.093093093 0.007007007 1.899900
## 7095 0.094094094 0.007007007 1.898899
## 7096 0.095095095 0.007007007 1.897898
## 7097 0.096096096 0.007007007 1.896897
## 7098 0.097097097 0.007007007 1.895896
## 7099 0.098098098 0.007007007 1.894895
## 7100 0.099099099 0.007007007 1.893894
## 7101 0.100100100 0.007007007 1.892893
## 7102 0.101101101 0.007007007 1.891892
## 7103 0.102102102 0.007007007 1.890891
## 7104 0.103103103 0.007007007 1.889890
## 7105 0.104104104 0.007007007 1.888889
## 7106 0.105105105 0.007007007 1.887888
## 7107 0.106106106 0.007007007 1.886887
## 7108 0.107107107 0.007007007 1.885886
## 7109 0.108108108 0.007007007 1.884885
## 7110 0.109109109 0.007007007 1.883884
## 7111 0.110110110 0.007007007 1.882883
## 7112 0.111111111 0.007007007 1.881882
## 7113 0.112112112 0.007007007 1.880881
## 7114 0.113113113 0.007007007 1.879880
## 7115 0.114114114 0.007007007 1.878879
## 7116 0.115115115 0.007007007 1.877878
## 7117 0.116116116 0.007007007 1.876877
## 7118 0.117117117 0.007007007 1.875876
## 7119 0.118118118 0.007007007 1.874875
## 7120 0.119119119 0.007007007 1.873874
## 7121 0.120120120 0.007007007 1.872873
## 7122 0.121121121 0.007007007 1.871872
## 7123 0.122122122 0.007007007 1.870871
## 7124 0.123123123 0.007007007 1.869870
## 7125 0.124124124 0.007007007 1.868869
## 7126 0.125125125 0.007007007 1.867868
## 7127 0.126126126 0.007007007 1.866867
## 7128 0.127127127 0.007007007 1.865866
## 7129 0.128128128 0.007007007 1.864865
## 7130 0.129129129 0.007007007 1.863864
## 7131 0.130130130 0.007007007 1.862863
## 7132 0.131131131 0.007007007 1.861862
## 7133 0.132132132 0.007007007 1.860861
## 7134 0.133133133 0.007007007 1.859860
## 7135 0.134134134 0.007007007 1.858859
## 7136 0.135135135 0.007007007 1.857858
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 267

```

## 7137 0.136136136 0.007007007 1.856857
## 7138 0.137137137 0.007007007 1.855856
## 7139 0.138138138 0.007007007 1.854855
## 7140 0.139139139 0.007007007 1.853854
## 7141 0.140140140 0.007007007 1.852853
## 7142 0.141141141 0.007007007 1.851852
## 7143 0.142142142 0.007007007 1.850851
## 7144 0.143143143 0.007007007 1.849850
## 7145 0.144144144 0.007007007 1.848849
## 7146 0.145145145 0.007007007 1.847848
## 7147 0.146146146 0.007007007 1.846847
## 7148 0.147147147 0.007007007 1.845846
## 7149 0.148148148 0.007007007 1.844845
## 7150 0.149149149 0.007007007 1.843844
## 7151 0.150150150 0.007007007 1.842843
## 7152 0.151151151 0.007007007 1.841842
## 7153 0.152152152 0.007007007 1.840841
## 7154 0.153153153 0.007007007 1.839840
## 7155 0.154154154 0.007007007 1.838839
## 7156 0.155155155 0.007007007 1.837838
## 7157 0.156156156 0.007007007 1.836837
## 7158 0.157157157 0.007007007 1.835836
## 7159 0.158158158 0.007007007 1.834835
## 7160 0.159159159 0.007007007 1.833834
## 7161 0.160160160 0.007007007 1.832833
## 7162 0.161161161 0.007007007 1.831832
## 7163 0.162162162 0.007007007 1.830831
## 7164 0.163163163 0.007007007 1.829830
## 7165 0.164164164 0.007007007 1.828829
## 7166 0.165165165 0.007007007 1.827828
## 7167 0.166166166 0.007007007 1.826827
## 7168 0.167167167 0.007007007 1.825826
## 7169 0.168168168 0.007007007 1.824825
## 7170 0.169169169 0.007007007 1.823824
## 7171 0.170170170 0.007007007 1.822823
## 7172 0.171171171 0.007007007 1.821822
## 7173 0.172172172 0.007007007 1.820821
## 7174 0.173173173 0.007007007 1.819820
## 7175 0.174174174 0.007007007 1.818819
## 7176 0.175175175 0.007007007 1.817818
## 7177 0.176176176 0.007007007 1.816817
## 7178 0.177177177 0.007007007 1.815816
## 7179 0.178178178 0.007007007 1.814815
## 7180 0.179179179 0.007007007 1.813814
## 7181 0.180180180 0.007007007 1.812813
## 7182 0.181181181 0.007007007 1.811812

```

```
## 7183 0.182182182 0.007007007 1.810811
## 7184 0.183183183 0.007007007 1.809810
## 7185 0.184184184 0.007007007 1.808809
## 7186 0.185185185 0.007007007 1.807808
## 7187 0.186186186 0.007007007 1.806807
## 7188 0.187187187 0.007007007 1.805806
## 7189 0.188188188 0.007007007 1.804805
## 7190 0.189189189 0.007007007 1.803804
## 7191 0.190190190 0.007007007 1.802803
## 7192 0.191191191 0.007007007 1.801802
## 7193 0.192192192 0.007007007 1.800801
## 7194 0.193193193 0.007007007 1.799800
## 7195 0.194194194 0.007007007 1.798799
## 7196 0.195195195 0.007007007 1.797798
## 7197 0.196196196 0.007007007 1.796797
## 7198 0.197197197 0.007007007 1.795796
## 7199 0.198198198 0.007007007 1.794795
## 7200 0.199199199 0.007007007 1.793794
## 7201 0.200200200 0.007007007 1.792793
## 7202 0.201201201 0.007007007 1.791792
## 7203 0.202202202 0.007007007 1.790791
## 7204 0.203203203 0.007007007 1.789790
## 7205 0.204204204 0.007007007 1.788789
## 7206 0.205205205 0.007007007 1.787788
## 7207 0.206206206 0.007007007 1.786787
## 7208 0.207207207 0.007007007 1.785786
## 7209 0.208208208 0.007007007 1.784785
## 7210 0.209209209 0.007007007 1.783784
## 7211 0.210210210 0.007007007 1.782783
## 7212 0.211211211 0.007007007 1.781782
## 7213 0.212212212 0.007007007 1.780781
## 7214 0.213213213 0.007007007 1.779780
## 7215 0.214214214 0.007007007 1.778779
## 7216 0.215215215 0.007007007 1.777778
## 7217 0.216216216 0.007007007 1.776777
## 7218 0.217217217 0.007007007 1.775776
## 7219 0.218218218 0.007007007 1.774775
## 7220 0.219219219 0.007007007 1.773774
## 7221 0.220220220 0.007007007 1.772773
## 7222 0.221221221 0.007007007 1.771772
## 7223 0.222222222 0.007007007 1.770771
## 7224 0.223223223 0.007007007 1.769770
## 7225 0.224224224 0.007007007 1.768769
## 7226 0.225225225 0.007007007 1.767768
## 7227 0.226226226 0.007007007 1.766767
## 7228 0.227227227 0.007007007 1.765766
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 269

```

## 7229 0.228228228 0.007007007 1.764765
## 7230 0.229229229 0.007007007 1.763764
## 7231 0.230230230 0.007007007 1.762763
## 7232 0.231231231 0.007007007 1.761762
## 7233 0.232232232 0.007007007 1.760761
## 7234 0.233233233 0.007007007 1.759760
## 7235 0.234234234 0.007007007 1.758759
## 7236 0.235235235 0.007007007 1.757758
## 7237 0.236236236 0.007007007 1.756757
## 7238 0.237237237 0.007007007 1.755756
## 7239 0.238238238 0.007007007 1.754755
## 7240 0.239239239 0.007007007 1.753754
## 7241 0.240240240 0.007007007 1.752753
## 7242 0.241241241 0.007007007 1.751752
## 7243 0.242242242 0.007007007 1.750751
## 7244 0.243243243 0.007007007 1.749750
## 7245 0.244244244 0.007007007 1.748749
## 7246 0.245245245 0.007007007 1.747748
## 7247 0.246246246 0.007007007 1.746747
## 7248 0.247247247 0.007007007 1.745746
## 7249 0.248248248 0.007007007 1.744745
## 7250 0.249249249 0.007007007 1.743744
## 7251 0.250250250 0.007007007 1.742743
## 7252 0.251251251 0.007007007 1.741742
## 7253 0.252252252 0.007007007 1.740741
## 7254 0.253253253 0.007007007 1.739740
## 7255 0.254254254 0.007007007 1.738739
## 7256 0.255255255 0.007007007 1.737738
## 7257 0.256256256 0.007007007 1.736737
## 7258 0.257257257 0.007007007 1.735736
## 7259 0.258258258 0.007007007 1.734735
## 7260 0.259259259 0.007007007 1.733734
## 7261 0.260260260 0.007007007 1.732733
## 7262 0.261261261 0.007007007 1.731732
## 7263 0.262262262 0.007007007 1.730731
## 7264 0.263263263 0.007007007 1.729730
## 7265 0.264264264 0.007007007 1.728729
## 7266 0.265265265 0.007007007 1.727728
## 7267 0.266266266 0.007007007 1.726727
## 7268 0.267267267 0.007007007 1.725726
## 7269 0.268268268 0.007007007 1.724725
## 7270 0.269269269 0.007007007 1.723724
## 7271 0.270270270 0.007007007 1.722723
## 7272 0.271271271 0.007007007 1.721722
## 7273 0.272272272 0.007007007 1.720721
## 7274 0.273273273 0.007007007 1.719720

```

```
## 7275 0.274274274 0.007007007 1.718719
## 7276 0.275275275 0.007007007 1.717718
## 7277 0.276276276 0.007007007 1.716717
## 7278 0.277277277 0.007007007 1.715716
## 7279 0.278278278 0.007007007 1.714715
## 7280 0.279279279 0.007007007 1.713714
## 7281 0.280280280 0.007007007 1.712713
## 7282 0.281281281 0.007007007 1.711712
## 7283 0.282282282 0.007007007 1.710711
## 7284 0.283283283 0.007007007 1.709710
## 7285 0.284284284 0.007007007 1.708709
## 7286 0.285285285 0.007007007 1.707708
## 7287 0.286286286 0.007007007 1.706707
## 7288 0.287287287 0.007007007 1.705706
## 7289 0.288288288 0.007007007 1.704705
## 7290 0.289289289 0.007007007 1.703704
## 7291 0.290290290 0.007007007 1.702703
## 7292 0.291291291 0.007007007 1.701702
## 7293 0.292292292 0.007007007 1.700701
## 7294 0.293293293 0.007007007 1.699700
## 7295 0.294294294 0.007007007 1.698699
## 7296 0.295295295 0.007007007 1.697698
## 7297 0.296296296 0.007007007 1.696697
## 7298 0.297297297 0.007007007 1.695696
## 7299 0.298298298 0.007007007 1.694695
## 7300 0.299299299 0.007007007 1.693694
## 7301 0.300300300 0.007007007 1.692693
## 7302 0.301301301 0.007007007 1.691692
## 7303 0.302302302 0.007007007 1.690691
## 7304 0.303303303 0.007007007 1.689690
## 7305 0.304304304 0.007007007 1.688689
## 7306 0.305305305 0.007007007 1.687688
## 7307 0.306306306 0.007007007 1.686687
## 7308 0.307307307 0.007007007 1.685686
## 7309 0.308308308 0.007007007 1.684685
## 7310 0.309309309 0.007007007 1.683684
## 7311 0.310310310 0.007007007 1.682683
## 7312 0.311311311 0.007007007 1.681682
## 7313 0.312312312 0.007007007 1.680681
## 7314 0.313313313 0.007007007 1.679680
## 7315 0.314314314 0.007007007 1.678679
## 7316 0.315315315 0.007007007 1.677678
## 7317 0.316316316 0.007007007 1.676677
## 7318 0.317317317 0.007007007 1.675676
## 7319 0.318318318 0.007007007 1.674675
## 7320 0.319319319 0.007007007 1.673674
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 271

```
## 7321 0.320320320 0.007007007 1.672673
## 7322 0.321321321 0.007007007 1.671672
## 7323 0.322322322 0.007007007 1.670671
## 7324 0.323323323 0.007007007 1.669670
## 7325 0.324324324 0.007007007 1.668669
## 7326 0.325325325 0.007007007 1.667668
## 7327 0.326326326 0.007007007 1.666667
## 7328 0.327327327 0.007007007 1.665666
## 7329 0.328328328 0.007007007 1.664665
## 7330 0.329329329 0.007007007 1.663664
## 7331 0.330330330 0.007007007 1.662663
## 7332 0.331331331 0.007007007 1.661662
## 7333 0.332332332 0.007007007 1.660661
## 7334 0.333333333 0.007007007 1.659660
## 7335 0.334334334 0.007007007 1.658659
## 7336 0.335335335 0.007007007 1.657658
## 7337 0.336336336 0.007007007 1.656657
## 7338 0.337337337 0.007007007 1.655656
## 7339 0.338338338 0.007007007 1.654655
## 7340 0.339339339 0.007007007 1.653654
## 7341 0.340340340 0.007007007 1.652653
## 7342 0.341341341 0.007007007 1.651652
## 7343 0.342342342 0.007007007 1.650651
## 7344 0.343343343 0.007007007 1.649650
## 7345 0.344344344 0.007007007 1.648649
## 7346 0.345345345 0.007007007 1.647648
## 7347 0.346346346 0.007007007 1.646647
## 7348 0.347347347 0.007007007 1.645646
## 7349 0.348348348 0.007007007 1.644645
## 7350 0.349349349 0.007007007 1.643644
## 7351 0.350350350 0.007007007 1.642643
## 7352 0.351351351 0.007007007 1.641642
## 7353 0.352352352 0.007007007 1.640641
## 7354 0.353353353 0.007007007 1.639640
## 7355 0.354354354 0.007007007 1.638639
## 7356 0.355355355 0.007007007 1.637638
## 7357 0.356356356 0.007007007 1.636637
## 7358 0.357357357 0.007007007 1.635636
## 7359 0.358358358 0.007007007 1.634635
## 7360 0.359359359 0.007007007 1.633634
## 7361 0.360360360 0.007007007 1.632633
## 7362 0.361361361 0.007007007 1.631632
## 7363 0.362362362 0.007007007 1.630631
## 7364 0.363363363 0.007007007 1.629630
## 7365 0.364364364 0.007007007 1.628629
## 7366 0.365365365 0.007007007 1.627628
```

```
## 7367 0.366366366 0.007007007 1.626627
## 7368 0.367367367 0.007007007 1.625626
## 7369 0.368368368 0.007007007 1.624625
## 7370 0.369369369 0.007007007 1.623624
## 7371 0.370370370 0.007007007 1.622623
## 7372 0.371371371 0.007007007 1.621622
## 7373 0.372372372 0.007007007 1.620621
## 7374 0.373373373 0.007007007 1.619620
## 7375 0.374374374 0.007007007 1.618619
## 7376 0.375375375 0.007007007 1.617618
## 7377 0.376376376 0.007007007 1.616617
## 7378 0.377377377 0.007007007 1.615616
## 7379 0.378378378 0.007007007 1.614615
## 7380 0.379379379 0.007007007 1.613614
## 7381 0.380380380 0.007007007 1.612613
## 7382 0.381381381 0.007007007 1.611612
## 7383 0.382382382 0.007007007 1.610611
## 7384 0.383383383 0.007007007 1.609610
## 7385 0.384384384 0.007007007 1.608609
## 7386 0.385385385 0.007007007 1.607608
## 7387 0.386386386 0.007007007 1.606607
## 7388 0.387387387 0.007007007 1.605606
## 7389 0.388388388 0.007007007 1.604605
## 7390 0.389389389 0.007007007 1.603604
## 7391 0.390390390 0.007007007 1.602603
## 7392 0.391391391 0.007007007 1.601602
## 7393 0.392392392 0.007007007 1.600601
## 7394 0.393393393 0.007007007 1.599600
## 7395 0.394394394 0.007007007 1.598599
## 7396 0.395395395 0.007007007 1.597598
## 7397 0.396396396 0.007007007 1.596597
## 7398 0.397397397 0.007007007 1.595596
## 7399 0.398398398 0.007007007 1.594595
## 7400 0.399399399 0.007007007 1.593594
## 7401 0.400400400 0.007007007 1.592593
## 7402 0.401401401 0.007007007 1.591592
## 7403 0.402402402 0.007007007 1.590591
## 7404 0.403403403 0.007007007 1.589590
## 7405 0.404404404 0.007007007 1.588589
## 7406 0.405405405 0.007007007 1.587588
## 7407 0.406406406 0.007007007 1.586587
## 7408 0.407407407 0.007007007 1.585586
## 7409 0.408408408 0.007007007 1.584585
## 7410 0.409409409 0.007007007 1.583584
## 7411 0.410410410 0.007007007 1.582583
## 7412 0.411411411 0.007007007 1.581582
```

```

## 7413 0.412412412 0.007007007 1.580581
## 7414 0.413413413 0.007007007 1.579580
## 7415 0.414414414 0.007007007 1.578579
## 7416 0.415415415 0.007007007 1.577578
## 7417 0.416416416 0.007007007 1.576577
## 7418 0.417417417 0.007007007 1.575576
## 7419 0.418418418 0.007007007 1.574575
## 7420 0.419419419 0.007007007 1.573574
## 7421 0.420420420 0.007007007 1.572573
## 7422 0.421421421 0.007007007 1.571572
## 7423 0.422422422 0.007007007 1.570571
## 7424 0.423423423 0.007007007 1.569570
## 7425 0.424424424 0.007007007 1.568569
## 7426 0.425425425 0.007007007 1.567568
## 7427 0.426426426 0.007007007 1.566567
## 7428 0.427427427 0.007007007 1.565566
## 7429 0.428428428 0.007007007 1.564565
## 7430 0.429429429 0.007007007 1.563564
## 7431 0.430430430 0.007007007 1.562563
## 7432 0.431431431 0.007007007 1.561562
## 7433 0.432432432 0.007007007 1.560561
## 7434 0.433433433 0.007007007 1.559560
## 7435 0.434434434 0.007007007 1.558559
## 7436 0.435435435 0.007007007 1.557558
## 7437 0.436436436 0.007007007 1.556557
## 7438 0.437437437 0.007007007 1.555556
## 7439 0.438438438 0.007007007 1.554555
## 7440 0.439439439 0.007007007 1.553554
## 7441 0.440440440 0.007007007 1.552553
## 7442 0.441441441 0.007007007 1.551552
## 7443 0.442442442 0.007007007 1.550551
## 7444 0.443443443 0.007007007 1.549550
## 7445 0.444444444 0.007007007 1.548549
## 7446 0.445445445 0.007007007 1.547548
## 7447 0.446446446 0.007007007 1.546547
## 7448 0.447447447 0.007007007 1.545546
## 7449 0.448448448 0.007007007 1.544545
## 7450 0.449449449 0.007007007 1.543544
## 7451 0.450450450 0.007007007 1.542543
## 7452 0.451451451 0.007007007 1.541542
## 7453 0.452452452 0.007007007 1.540541
## 7454 0.453453453 0.007007007 1.539540
## 7455 0.454454454 0.007007007 1.538539
## 7456 0.455455455 0.007007007 1.537538
## 7457 0.456456456 0.007007007 1.536537
## 7458 0.457457457 0.007007007 1.535536

```

```
## 7459  0.458458458 0.007007007 1.534535
## 7460  0.459459459 0.007007007 1.533534
## 7461  0.460460460 0.007007007 1.532533
## 7462  0.461461461 0.007007007 1.531532
## 7463  0.462462462 0.007007007 1.530531
## 7464  0.463463463 0.007007007 1.529530
## 7465  0.464464464 0.007007007 1.528529
## 7466  0.465465465 0.007007007 1.527528
## 7467  0.466466466 0.007007007 1.526527
## 7468  0.467467467 0.007007007 1.525526
## 7469  0.468468468 0.007007007 1.524525
## 7470  0.469469469 0.007007007 1.523524
## 7471  0.470470470 0.007007007 1.522523
## 7472  0.471471471 0.007007007 1.521522
## 7473  0.472472472 0.007007007 1.520521
## 7474  0.473473473 0.007007007 1.519520
## 7475  0.474474474 0.007007007 1.518519
## 7476  0.475475475 0.007007007 1.517518
## 7477  0.476476476 0.007007007 1.516517
## 7478  0.477477477 0.007007007 1.515516
## 7479  0.478478478 0.007007007 1.514515
## 7480  0.479479479 0.007007007 1.513514
## 7481  0.480480480 0.007007007 1.512513
## 7482  0.481481481 0.007007007 1.511512
## 7483  0.482482482 0.007007007 1.510511
## 7484  0.483483483 0.007007007 1.509510
## 7485  0.484484484 0.007007007 1.508509
## 7486  0.485485485 0.007007007 1.507508
## 7487  0.486486486 0.007007007 1.506507
## 7488  0.487487487 0.007007007 1.505506
## 7489  0.488488488 0.007007007 1.504505
## 7490  0.489489489 0.007007007 1.503504
## 7491  0.490490490 0.007007007 1.502503
## 7492  0.491491491 0.007007007 1.501502
## 7493  0.492492492 0.007007007 1.500501
## 7494  0.493493493 0.007007007 1.499499
## 7495  0.494494494 0.007007007 1.498498
## 7496  0.495495495 0.007007007 1.497497
## 7497  0.496496496 0.007007007 1.496496
## 7498  0.497497497 0.007007007 1.495495
## 7499  0.498498498 0.007007007 1.494494
## 7500  0.499499499 0.007007007 1.493493
## 7501  0.500500501 0.007007007 1.492492
## 7502  0.501501502 0.007007007 1.491491
## 7503  0.502502503 0.007007007 1.490490
## 7504  0.503503504 0.007007007 1.489489
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 275

```
## 7505 0.504504505 0.007007007 1.488488
## 7506 0.505505506 0.007007007 1.487487
## 7507 0.506506507 0.007007007 1.486486
## 7508 0.507507508 0.007007007 1.485485
## 7509 0.508508509 0.007007007 1.484484
## 7510 0.509509510 0.007007007 1.483483
## 7511 0.510510511 0.007007007 1.482482
## 7512 0.511511512 0.007007007 1.481481
## 7513 0.512512513 0.007007007 1.480480
## 7514 0.513513514 0.007007007 1.479479
## 7515 0.514514515 0.007007007 1.478478
## 7516 0.515515516 0.007007007 1.477477
## 7517 0.516516517 0.007007007 1.476476
## 7518 0.517517518 0.007007007 1.475475
## 7519 0.518518519 0.007007007 1.474474
## 7520 0.519519520 0.007007007 1.473473
## 7521 0.520520521 0.007007007 1.472472
## 7522 0.521521522 0.007007007 1.471471
## 7523 0.522522523 0.007007007 1.470470
## 7524 0.523523524 0.007007007 1.469469
## 7525 0.524524525 0.007007007 1.468468
## 7526 0.525525526 0.007007007 1.467467
## 7527 0.526526527 0.007007007 1.466466
## 7528 0.527527528 0.007007007 1.465465
## 7529 0.528528529 0.007007007 1.464464
## 7530 0.529529530 0.007007007 1.463463
## 7531 0.530530531 0.007007007 1.462462
## 7532 0.531531532 0.007007007 1.461461
## 7533 0.532532533 0.007007007 1.460460
## 7534 0.533533534 0.007007007 1.459459
## 7535 0.534534535 0.007007007 1.458458
## 7536 0.535535536 0.007007007 1.457457
## 7537 0.536536537 0.007007007 1.456456
## 7538 0.537537538 0.007007007 1.455455
## 7539 0.538538539 0.007007007 1.454454
## 7540 0.539539540 0.007007007 1.453453
## 7541 0.540540541 0.007007007 1.452452
## 7542 0.541541542 0.007007007 1.451451
## 7543 0.542542543 0.007007007 1.450450
## 7544 0.543543544 0.007007007 1.449449
## 7545 0.544544545 0.007007007 1.448448
## 7546 0.545545546 0.007007007 1.447447
## 7547 0.546546547 0.007007007 1.446446
## 7548 0.547547548 0.007007007 1.445445
## 7549 0.548548549 0.007007007 1.444444
## 7550 0.549549550 0.007007007 1.443443
```

```
## 7551 0.550550551 0.007007007 1.442442
## 7552 0.551551552 0.007007007 1.441441
## 7553 0.552552553 0.007007007 1.440440
## 7554 0.553553554 0.007007007 1.439439
## 7555 0.554554555 0.007007007 1.438438
## 7556 0.555555556 0.007007007 1.437437
## 7557 0.556556557 0.007007007 1.436436
## 7558 0.557557558 0.007007007 1.435435
## 7559 0.558558559 0.007007007 1.434434
## 7560 0.559559560 0.007007007 1.433433
## 7561 0.560560561 0.007007007 1.432432
## 7562 0.561561562 0.007007007 1.431431
## 7563 0.562562563 0.007007007 1.430430
## 7564 0.563563564 0.007007007 1.429429
## 7565 0.564564565 0.007007007 1.428428
## 7566 0.565565566 0.007007007 1.427427
## 7567 0.566566567 0.007007007 1.426426
## 7568 0.567567568 0.007007007 1.425425
## 7569 0.568568569 0.007007007 1.424424
## 7570 0.569569570 0.007007007 1.423423
## 7571 0.570570571 0.007007007 1.422422
## 7572 0.571571572 0.007007007 1.421421
## 7573 0.572572573 0.007007007 1.420420
## 7574 0.573573574 0.007007007 1.419419
## 7575 0.574574575 0.007007007 1.418418
## 7576 0.575575576 0.007007007 1.417417
## 7577 0.576576577 0.007007007 1.416416
## 7578 0.577577578 0.007007007 1.415415
## 7579 0.578578579 0.007007007 1.414414
## 7580 0.579579580 0.007007007 1.413413
## 7581 0.580580581 0.007007007 1.412412
## 7582 0.581581582 0.007007007 1.411411
## 7583 0.582582583 0.007007007 1.410410
## 7584 0.583583584 0.007007007 1.409409
## 7585 0.584584585 0.007007007 1.408408
## 7586 0.585585586 0.007007007 1.407407
## 7587 0.586586587 0.007007007 1.406406
## 7588 0.587587588 0.007007007 1.405405
## 7589 0.588588589 0.007007007 1.404404
## 7590 0.589589590 0.007007007 1.403403
## 7591 0.590590591 0.007007007 1.402402
## 7592 0.591591592 0.007007007 1.401401
## 7593 0.592592593 0.007007007 1.400400
## 7594 0.593593594 0.007007007 1.399399
## 7595 0.594594595 0.007007007 1.398398
## 7596 0.595595596 0.007007007 1.397397
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 277

```

## 7597 0.596596597 0.007007007 1.396396
## 7598 0.597597598 0.007007007 1.395395
## 7599 0.598598599 0.007007007 1.394394
## 7600 0.599599600 0.007007007 1.393393
## 7601 0.600600601 0.007007007 1.392392
## 7602 0.601601602 0.007007007 1.391391
## 7603 0.602602603 0.007007007 1.390390
## 7604 0.603603604 0.007007007 1.389389
## 7605 0.604604605 0.007007007 1.388388
## 7606 0.605605606 0.007007007 1.387387
## 7607 0.606606607 0.007007007 1.386386
## 7608 0.607607608 0.007007007 1.385385
## 7609 0.608608609 0.007007007 1.384384
## 7610 0.609609610 0.007007007 1.383383
## 7611 0.610610611 0.007007007 1.382382
## 7612 0.611611612 0.007007007 1.381381
## 7613 0.612612613 0.007007007 1.380380
## 7614 0.613613614 0.007007007 1.379379
## 7615 0.614614615 0.007007007 1.378378
## 7616 0.615615616 0.007007007 1.377377
## 7617 0.616616617 0.007007007 1.376376
## 7618 0.617617618 0.007007007 1.375375
## 7619 0.618618619 0.007007007 1.374374
## 7620 0.619619620 0.007007007 1.373373
## 7621 0.620620621 0.007007007 1.372372
## 7622 0.621621622 0.007007007 1.371371
## 7623 0.622622623 0.007007007 1.370370
## 7624 0.623623624 0.007007007 1.369369
## 7625 0.624624625 0.007007007 1.368368
## 7626 0.625625626 0.007007007 1.367367
## 7627 0.626626627 0.007007007 1.366366
## 7628 0.627627628 0.007007007 1.365365
## 7629 0.628628629 0.007007007 1.364364
## 7630 0.629629630 0.007007007 1.363363
## 7631 0.630630631 0.007007007 1.362362
## 7632 0.631631632 0.007007007 1.361361
## 7633 0.632632633 0.007007007 1.360360
## 7634 0.633633634 0.007007007 1.359359
## 7635 0.634634635 0.007007007 1.358358
## 7636 0.635635636 0.007007007 1.357357
## 7637 0.636636637 0.007007007 1.356356
## 7638 0.637637638 0.007007007 1.355355
## 7639 0.638638639 0.007007007 1.354354
## 7640 0.639639640 0.007007007 1.353353
## 7641 0.640640641 0.007007007 1.352352
## 7642 0.641641642 0.007007007 1.351351

```

```
## 7643 0.642642643 0.007007007 1.350350
## 7644 0.643643644 0.007007007 1.349349
## 7645 0.644644645 0.007007007 1.348348
## 7646 0.645645646 0.007007007 1.347347
## 7647 0.646646647 0.007007007 1.346346
## 7648 0.647647648 0.007007007 1.345345
## 7649 0.648648649 0.007007007 1.344344
## 7650 0.649649650 0.007007007 1.343343
## 7651 0.650650651 0.007007007 1.342342
## 7652 0.651651652 0.007007007 1.341341
## 7653 0.652652653 0.007007007 1.340340
## 7654 0.653653654 0.007007007 1.339339
## 7655 0.654654655 0.007007007 1.338338
## 7656 0.655655656 0.007007007 1.337337
## 7657 0.656656657 0.007007007 1.336336
## 7658 0.657657658 0.007007007 1.335335
## 7659 0.658658659 0.007007007 1.334334
## 7660 0.659659660 0.007007007 1.333333
## 7661 0.660660661 0.007007007 1.332332
## 7662 0.661661662 0.007007007 1.331331
## 7663 0.662662663 0.007007007 1.330330
## 7664 0.663663664 0.007007007 1.329329
## 7665 0.664664665 0.007007007 1.328328
## 7666 0.665665666 0.007007007 1.327327
## 7667 0.666666667 0.007007007 1.326326
## 7668 0.667667668 0.007007007 1.325325
## 7669 0.668668669 0.007007007 1.324324
## 7670 0.669669670 0.007007007 1.323323
## 7671 0.670670671 0.007007007 1.322322
## 7672 0.671671672 0.007007007 1.321321
## 7673 0.672672673 0.007007007 1.320320
## 7674 0.673673674 0.007007007 1.319319
## 7675 0.674674675 0.007007007 1.318318
## 7676 0.675675676 0.007007007 1.317317
## 7677 0.676676677 0.007007007 1.316316
## 7678 0.677677678 0.007007007 1.315315
## 7679 0.678678679 0.007007007 1.314314
## 7680 0.679679680 0.007007007 1.313313
## 7681 0.680680681 0.007007007 1.312312
## 7682 0.681681682 0.007007007 1.311311
## 7683 0.682682683 0.007007007 1.310310
## 7684 0.683683684 0.007007007 1.309309
## 7685 0.684684685 0.007007007 1.308308
## 7686 0.685685686 0.007007007 1.307307
## 7687 0.686686687 0.007007007 1.306306
## 7688 0.687687688 0.007007007 1.305305
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 279

```
## 7689  0.688688689  0.007007007 1.304304
## 7690  0.689689690  0.007007007 1.303303
## 7691  0.690690691  0.007007007 1.302302
## 7692  0.691691692  0.007007007 1.301301
## 7693  0.692692693  0.007007007 1.300300
## 7694  0.693693694  0.007007007 1.299299
## 7695  0.694694695  0.007007007 1.298298
## 7696  0.695695696  0.007007007 1.297297
## 7697  0.696696697  0.007007007 1.296296
## 7698  0.697697698  0.007007007 1.295295
## 7699  0.698698699  0.007007007 1.294294
## 7700  0.699699700  0.007007007 1.293293
## 7701  0.700700701  0.007007007 1.292292
## 7702  0.701701702  0.007007007 1.291291
## 7703  0.702702703  0.007007007 1.290290
## 7704  0.703703704  0.007007007 1.289289
## 7705  0.704704705  0.007007007 1.288288
## 7706  0.705705706  0.007007007 1.287287
## 7707  0.706706707  0.007007007 1.286286
## 7708  0.707707708  0.007007007 1.285285
## 7709  0.708708709  0.007007007 1.284284
## 7710  0.709709710  0.007007007 1.283283
## 7711  0.710710711  0.007007007 1.282282
## 7712  0.711711712  0.007007007 1.281281
## 7713  0.712712713  0.007007007 1.280280
## 7714  0.713713714  0.007007007 1.279279
## 7715  0.714714715  0.007007007 1.278278
## 7716  0.715715716  0.007007007 1.277277
## 7717  0.716716717  0.007007007 1.276276
## 7718  0.717717718  0.007007007 1.275275
## 7719  0.718718719  0.007007007 1.274274
## 7720  0.719719720  0.007007007 1.273273
## 7721  0.720720721  0.007007007 1.272272
## 7722  0.721721722  0.007007007 1.271271
## 7723  0.722722723  0.007007007 1.270270
## 7724  0.723723724  0.007007007 1.269269
## 7725  0.724724725  0.007007007 1.268268
## 7726  0.725725726  0.007007007 1.267267
## 7727  0.726726727  0.007007007 1.266266
## 7728  0.727727728  0.007007007 1.265265
## 7729  0.728728729  0.007007007 1.264264
## 7730  0.729729730  0.007007007 1.263263
## 7731  0.730730731  0.007007007 1.262262
## 7732  0.731731732  0.007007007 1.261261
## 7733  0.732732733  0.007007007 1.260260
## 7734  0.733733734  0.007007007 1.259259
```

```
## 7735 0.734734735 0.007007007 1.258258
## 7736 0.735735736 0.007007007 1.257257
## 7737 0.736736737 0.007007007 1.256256
## 7738 0.737737738 0.007007007 1.255255
## 7739 0.738738739 0.007007007 1.254254
## 7740 0.739739740 0.007007007 1.253253
## 7741 0.740740741 0.007007007 1.252252
## 7742 0.741741742 0.007007007 1.251251
## 7743 0.742742743 0.007007007 1.250250
## 7744 0.743743744 0.007007007 1.249249
## 7745 0.744744745 0.007007007 1.248248
## 7746 0.745745746 0.007007007 1.247247
## 7747 0.746746747 0.007007007 1.246246
## 7748 0.747747748 0.007007007 1.245245
## 7749 0.748748749 0.007007007 1.244244
## 7750 0.749749750 0.007007007 1.243243
## 7751 0.750750751 0.007007007 1.242242
## 7752 0.751751752 0.007007007 1.241241
## 7753 0.752752753 0.007007007 1.240240
## 7754 0.753753754 0.007007007 1.239239
## 7755 0.754754755 0.007007007 1.238238
## 7756 0.7557555756 0.007007007 1.237237
## 7757 0.756756757 0.007007007 1.236236
## 7758 0.757757758 0.007007007 1.235235
## 7759 0.758758759 0.007007007 1.234234
## 7760 0.759759760 0.007007007 1.233233
## 7761 0.760760761 0.007007007 1.232232
## 7762 0.761761762 0.007007007 1.231231
## 7763 0.762762763 0.007007007 1.230230
## 7764 0.763763764 0.007007007 1.229229
## 7765 0.764764765 0.007007007 1.228228
## 7766 0.765765766 0.007007007 1.227227
## 7767 0.766766767 0.007007007 1.226226
## 7768 0.767767768 0.007007007 1.225225
## 7769 0.768768769 0.007007007 1.224224
## 7770 0.769769770 0.007007007 1.223223
## 7771 0.770770771 0.007007007 1.222222
## 7772 0.771771772 0.007007007 1.221221
## 7773 0.772772773 0.007007007 1.220220
## 7774 0.773773774 0.007007007 1.219219
## 7775 0.774774775 0.007007007 1.218218
## 7776 0.775775776 0.007007007 1.217217
## 7777 0.776776777 0.007007007 1.216216
## 7778 0.777777778 0.007007007 1.215215
## 7779 0.778778779 0.007007007 1.214214
## 7780 0.779779780 0.007007007 1.213213
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 281

```
## 7781 0.780780781 0.007007007 1.212212
## 7782 0.781781782 0.007007007 1.211211
## 7783 0.782782783 0.007007007 1.210210
## 7784 0.783783784 0.007007007 1.209209
## 7785 0.784784785 0.007007007 1.208208
## 7786 0.785785786 0.007007007 1.207207
## 7787 0.786786787 0.007007007 1.206206
## 7788 0.787787788 0.007007007 1.205205
## 7789 0.788788789 0.007007007 1.204204
## 7790 0.789789790 0.007007007 1.203203
## 7791 0.790790791 0.007007007 1.202202
## 7792 0.791791792 0.007007007 1.201201
## 7793 0.792792793 0.007007007 1.200200
## 7794 0.793793794 0.007007007 1.199199
## 7795 0.794794795 0.007007007 1.198198
## 7796 0.795795796 0.007007007 1.197197
## 7797 0.796796797 0.007007007 1.196196
## 7798 0.797797798 0.007007007 1.195195
## 7799 0.798798799 0.007007007 1.194194
## 7800 0.799799800 0.007007007 1.193193
## 7801 0.800800801 0.007007007 1.192192
## 7802 0.801801802 0.007007007 1.191191
## 7803 0.802802803 0.007007007 1.190190
## 7804 0.803803804 0.007007007 1.189189
## 7805 0.804804805 0.007007007 1.188188
## 7806 0.805805806 0.007007007 1.187187
## 7807 0.806806807 0.007007007 1.186186
## 7808 0.807807808 0.007007007 1.185185
## 7809 0.808808809 0.007007007 1.184184
## 7810 0.809809810 0.007007007 1.183183
## 7811 0.810810811 0.007007007 1.182182
## 7812 0.811811812 0.007007007 1.181181
## 7813 0.812812813 0.007007007 1.180180
## 7814 0.813813814 0.007007007 1.179179
## 7815 0.814814815 0.007007007 1.178178
## 7816 0.815815816 0.007007007 1.177177
## 7817 0.816816817 0.007007007 1.176176
## 7818 0.817817818 0.007007007 1.175175
## 7819 0.818818819 0.007007007 1.174174
## 7820 0.819819820 0.007007007 1.173173
## 7821 0.820820821 0.007007007 1.172172
## 7822 0.821821822 0.007007007 1.171171
## 7823 0.822822823 0.007007007 1.170170
## 7824 0.823823824 0.007007007 1.169169
## 7825 0.824824825 0.007007007 1.168168
## 7826 0.825825826 0.007007007 1.167167
```

```
## 7827 0.826826827 0.007007007 1.166166
## 7828 0.827827828 0.007007007 1.165165
## 7829 0.828828829 0.007007007 1.164164
## 7830 0.829829830 0.007007007 1.163163
## 7831 0.830830831 0.007007007 1.162162
## 7832 0.831831832 0.007007007 1.161161
## 7833 0.832832833 0.007007007 1.160160
## 7834 0.833833834 0.007007007 1.159159
## 7835 0.834834835 0.007007007 1.158158
## 7836 0.835835836 0.007007007 1.157157
## 7837 0.836836837 0.007007007 1.156156
## 7838 0.837837838 0.007007007 1.155155
## 7839 0.838838839 0.007007007 1.154154
## 7840 0.839839840 0.007007007 1.153153
## 7841 0.840840841 0.007007007 1.152152
## 7842 0.841841842 0.007007007 1.151151
## 7843 0.842842843 0.007007007 1.150150
## 7844 0.843843844 0.007007007 1.149149
## 7845 0.844844845 0.007007007 1.148148
## 7846 0.845845846 0.007007007 1.147147
## 7847 0.846846847 0.007007007 1.146146
## 7848 0.847847848 0.007007007 1.145145
## 7849 0.848848849 0.007007007 1.144144
## 7850 0.849849850 0.007007007 1.143143
## 7851 0.850850851 0.007007007 1.142142
## 7852 0.851851852 0.007007007 1.141141
## 7853 0.852852853 0.007007007 1.140140
## 7854 0.853853854 0.007007007 1.139139
## 7855 0.854854855 0.007007007 1.138138
## 7856 0.855855856 0.007007007 1.137137
## 7857 0.856856857 0.007007007 1.136136
## 7858 0.857857858 0.007007007 1.135135
## 7859 0.858858859 0.007007007 1.134134
## 7860 0.859859860 0.007007007 1.133133
## 7861 0.860860861 0.007007007 1.132132
## 7862 0.861861862 0.007007007 1.131131
## 7863 0.862862863 0.007007007 1.130130
## 7864 0.863863864 0.007007007 1.129129
## 7865 0.864864865 0.007007007 1.128128
## 7866 0.865865866 0.007007007 1.127127
## 7867 0.866866867 0.007007007 1.126126
## 7868 0.867867868 0.007007007 1.125125
## 7869 0.868868869 0.007007007 1.124124
## 7870 0.869869870 0.007007007 1.123123
## 7871 0.870870871 0.007007007 1.122122
## 7872 0.871871872 0.007007007 1.121121
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 283

```
## 7873  0.872872873 0.007007007 1.120120
## 7874  0.873873874 0.007007007 1.119119
## 7875  0.874874875 0.007007007 1.118118
## 7876  0.875875876 0.007007007 1.117117
## 7877  0.876876877 0.007007007 1.116116
## 7878  0.877877878 0.007007007 1.115115
## 7879  0.878878879 0.007007007 1.114114
## 7880  0.879879880 0.007007007 1.113113
## 7881  0.880880881 0.007007007 1.112112
## 7882  0.881881882 0.007007007 1.111111
## 7883  0.882882883 0.007007007 1.110110
## 7884  0.883883884 0.007007007 1.109109
## 7885  0.884884885 0.007007007 1.108108
## 7886  0.885885886 0.007007007 1.107107
## 7887  0.886886887 0.007007007 1.106106
## 7888  0.887887888 0.007007007 1.105105
## 7889  0.888888889 0.007007007 1.104104
## 7890  0.889889890 0.007007007 1.103103
## 7891  0.890890891 0.007007007 1.102102
## 7892  0.891891892 0.007007007 1.101101
## 7893  0.892892893 0.007007007 1.100100
## 7894  0.893893894 0.007007007 1.099099
## 7895  0.894894895 0.007007007 1.098098
## 7896  0.895895896 0.007007007 1.097097
## 7897  0.896896897 0.007007007 1.096096
## 7898  0.897897898 0.007007007 1.095095
## 7899  0.898898899 0.007007007 1.094094
## 7900  0.899899900 0.007007007 1.093093
## 7901  0.900900901 0.007007007 1.092092
## 7902  0.901901902 0.007007007 1.091091
## 7903  0.902902903 0.007007007 1.090090
## 7904  0.903903904 0.007007007 1.089089
## 7905  0.904904905 0.007007007 1.088088
## 7906  0.905905906 0.007007007 1.087087
## 7907  0.906906907 0.007007007 1.086086
## 7908  0.907907908 0.007007007 1.085085
## 7909  0.908908909 0.007007007 1.084084
## 7910  0.909909910 0.007007007 1.083083
## 7911  0.910910911 0.007007007 1.082082
## 7912  0.911911912 0.007007007 1.081081
## 7913  0.912912913 0.007007007 1.080080
## 7914  0.913913914 0.007007007 1.079079
## 7915  0.914914915 0.007007007 1.078078
## 7916  0.915915916 0.007007007 1.077077
## 7917  0.916916917 0.007007007 1.076076
## 7918  0.917917918 0.007007007 1.075075
```

```
## 7919  0.918918919 0.007007007 1.074074
## 7920  0.919919920 0.007007007 1.073073
## 7921  0.920920921 0.007007007 1.072072
## 7922  0.921921922 0.007007007 1.071071
## 7923  0.922922923 0.007007007 1.070070
## 7924  0.923923924 0.007007007 1.069069
## 7925  0.924924925 0.007007007 1.068068
## 7926  0.925925926 0.007007007 1.067067
## 7927  0.926926927 0.007007007 1.066066
## 7928  0.927927928 0.007007007 1.065065
## 7929  0.928928929 0.007007007 1.064064
## 7930  0.929929930 0.007007007 1.063063
## 7931  0.930930931 0.007007007 1.062062
## 7932  0.931931932 0.007007007 1.061061
## 7933  0.932932933 0.007007007 1.060060
## 7934  0.933933934 0.007007007 1.059059
## 7935  0.934934935 0.007007007 1.058058
## 7936  0.935935936 0.007007007 1.057057
## 7937  0.936936937 0.007007007 1.056056
## 7938  0.937937938 0.007007007 1.055055
## 7939  0.938938939 0.007007007 1.054054
## 7940  0.939939940 0.007007007 1.053053
## 7941  0.940940941 0.007007007 1.052052
## 7942  0.941941942 0.007007007 1.051051
## 7943  0.942942943 0.007007007 1.050050
## 7944  0.943943944 0.007007007 1.049049
## 7945  0.944944945 0.007007007 1.048048
## 7946  0.945945946 0.007007007 1.047047
## 7947  0.946946947 0.007007007 1.046046
## 7948  0.947947948 0.007007007 1.045045
## 7949  0.948948949 0.007007007 1.044044
## 7950  0.949949950 0.007007007 1.043043
## 7951  0.950950951 0.007007007 1.042042
## 7952  0.951951952 0.007007007 1.041041
## 7953  0.952952953 0.007007007 1.040040
## 7954  0.953953954 0.007007007 1.039039
## 7955  0.954954955 0.007007007 1.038038
## 7956  0.9559555956 0.007007007 1.037037
## 7957  0.956956957 0.007007007 1.036036
## 7958  0.957957958 0.007007007 1.035035
## 7959  0.958958959 0.007007007 1.034034
## 7960  0.959959960 0.007007007 1.033033
## 7961  0.960960961 0.007007007 1.032032
## 7962  0.961961962 0.007007007 1.031031
## 7963  0.962962963 0.007007007 1.030030
## 7964  0.963963964 0.007007007 1.029029
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 285

```
## 7965 0.964964965 0.007007007 1.028028
## 7966 0.965965966 0.007007007 1.027027
## 7967 0.966966967 0.007007007 1.026026
## 7968 0.967967968 0.007007007 1.025025
## 7969 0.968968969 0.007007007 1.024024
## 7970 0.969969970 0.007007007 1.023023
## 7971 0.970970971 0.007007007 1.022022
## 7972 0.971971972 0.007007007 1.021021
## 7973 0.972972973 0.007007007 1.020020
## 7974 0.973973974 0.007007007 1.019019
## 7975 0.974974975 0.007007007 1.018018
## 7976 0.975975976 0.007007007 1.017017
## 7977 0.976976977 0.007007007 1.016016
## 7978 0.977977978 0.007007007 1.015015
## 7979 0.978978979 0.007007007 1.014014
## 7980 0.979979980 0.007007007 1.013013
## 7981 0.980980981 0.007007007 1.012012
## 7982 0.981981982 0.007007007 1.011011
## 7983 0.982982983 0.007007007 1.010010
## 7984 0.983983984 0.007007007 1.009009
## 7985 0.984984985 0.007007007 1.008008
## 7986 0.985985986 0.007007007 1.007007
## 7987 0.986986987 0.007007007 1.006006
## 7988 0.987987988 0.007007007 1.005005
## 7989 0.988988989 0.007007007 1.004004
## 7990 0.989989990 0.007007007 1.003003
## 7991 0.990990991 0.007007007 1.002002
## 7992 0.991991992 0.007007007 1.001001
## 7993 0.992992993 0.007007007 1.000000
## 7994 0.993993994 0.007007007 0.998999
## 7995 0.994994995 0.007007007 0.997998
## 7996 0.995995996 0.007007007 0.996997
## 7997 0.996996997 0.007007007 0.995996
## 7998 0.997997998 0.007007007 0.994995
## 7999 0.998998999 0.007007007 0.993994
## 8000 1.000000000 0.007007007 0.992993
## 8001 0.000000000 0.008008008 1.991992
## 8002 0.001001001 0.008008008 1.990991
## 8003 0.002002002 0.008008008 1.989990
## 8004 0.003003003 0.008008008 1.988989
## 8005 0.004004004 0.008008008 1.987988
## 8006 0.005005005 0.008008008 1.986987
## 8007 0.006006006 0.008008008 1.985986
## 8008 0.007007007 0.008008008 1.984985
## 8009 0.008008008 0.008008008 1.983984
## 8010 0.009009009 0.008008008 1.982983
```

```
## 8011  0.010010010 0.008008008 1.981982
## 8012  0.011011011 0.008008008 1.980981
## 8013  0.012012012 0.008008008 1.979980
## 8014  0.013013013 0.008008008 1.978979
## 8015  0.014014014 0.008008008 1.977978
## 8016  0.015015015 0.008008008 1.976977
## 8017  0.016016016 0.008008008 1.975976
## 8018  0.017017017 0.008008008 1.974975
## 8019  0.018018018 0.008008008 1.973974
## 8020  0.019019019 0.008008008 1.972973
## 8021  0.020020020 0.008008008 1.971972
## 8022  0.021021021 0.008008008 1.970971
## 8023  0.022022022 0.008008008 1.969970
## 8024  0.023023023 0.008008008 1.968969
## 8025  0.024024024 0.008008008 1.967968
## 8026  0.025025025 0.008008008 1.966967
## 8027  0.026026026 0.008008008 1.965966
## 8028  0.027027027 0.008008008 1.964965
## 8029  0.028028028 0.008008008 1.963964
## 8030  0.029029029 0.008008008 1.962963
## 8031  0.030030030 0.008008008 1.961962
## 8032  0.031031031 0.008008008 1.960961
## 8033  0.032032032 0.008008008 1.959960
## 8034  0.033033033 0.008008008 1.958959
## 8035  0.034034034 0.008008008 1.957958
## 8036  0.035035035 0.008008008 1.956957
## 8037  0.036036036 0.008008008 1.955956
## 8038  0.037037037 0.008008008 1.954955
## 8039  0.038038038 0.008008008 1.953954
## 8040  0.039039039 0.008008008 1.952953
## 8041  0.040040040 0.008008008 1.951952
## 8042  0.041041041 0.008008008 1.950951
## 8043  0.042042042 0.008008008 1.949950
## 8044  0.043043043 0.008008008 1.948949
## 8045  0.044044044 0.008008008 1.947948
## 8046  0.045045045 0.008008008 1.946947
## 8047  0.046046046 0.008008008 1.945946
## 8048  0.047047047 0.008008008 1.944945
## 8049  0.048048048 0.008008008 1.943944
## 8050  0.049049049 0.008008008 1.942943
## 8051  0.050050050 0.008008008 1.941942
## 8052  0.051051051 0.008008008 1.940941
## 8053  0.052052052 0.008008008 1.939940
## 8054  0.053053053 0.008008008 1.938939
## 8055  0.054054054 0.008008008 1.937938
## 8056  0.055055055 0.008008008 1.936937
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 287

```
## 8057 0.056056056 0.008008008 1.935936
## 8058 0.057057057 0.008008008 1.934935
## 8059 0.058058058 0.008008008 1.933934
## 8060 0.059059059 0.008008008 1.932933
## 8061 0.060060060 0.008008008 1.931932
## 8062 0.061061061 0.008008008 1.930931
## 8063 0.062062062 0.008008008 1.929930
## 8064 0.063063063 0.008008008 1.928929
## 8065 0.064064064 0.008008008 1.927928
## 8066 0.065065065 0.008008008 1.926927
## 8067 0.066066066 0.008008008 1.925926
## 8068 0.067067067 0.008008008 1.924925
## 8069 0.068068068 0.008008008 1.923924
## 8070 0.069069069 0.008008008 1.922923
## 8071 0.070070070 0.008008008 1.921922
## 8072 0.071071071 0.008008008 1.920921
## 8073 0.072072072 0.008008008 1.919920
## 8074 0.073073073 0.008008008 1.918919
## 8075 0.074074074 0.008008008 1.917918
## 8076 0.075075075 0.008008008 1.916917
## 8077 0.076076076 0.008008008 1.915916
## 8078 0.077077077 0.008008008 1.914915
## 8079 0.078078078 0.008008008 1.913914
## 8080 0.079079079 0.008008008 1.912913
## 8081 0.080080080 0.008008008 1.911912
## 8082 0.081081081 0.008008008 1.910911
## 8083 0.082082082 0.008008008 1.909910
## 8084 0.083083083 0.008008008 1.908909
## 8085 0.084084084 0.008008008 1.907908
## 8086 0.085085085 0.008008008 1.906907
## 8087 0.086086086 0.008008008 1.905906
## 8088 0.087087087 0.008008008 1.904905
## 8089 0.088088088 0.008008008 1.903904
## 8090 0.089089089 0.008008008 1.902903
## 8091 0.090090090 0.008008008 1.901902
## 8092 0.091091091 0.008008008 1.900901
## 8093 0.092092092 0.008008008 1.899900
## 8094 0.093093093 0.008008008 1.898899
## 8095 0.094094094 0.008008008 1.897898
## 8096 0.095095095 0.008008008 1.896897
## 8097 0.096096096 0.008008008 1.895896
## 8098 0.097097097 0.008008008 1.894895
## 8099 0.098098098 0.008008008 1.893894
## 8100 0.099099099 0.008008008 1.892893
## 8101 0.100100100 0.008008008 1.891892
## 8102 0.101101101 0.008008008 1.890891
```

```
## 8103 0.102102102 0.008008008 1.889890
## 8104 0.103103103 0.008008008 1.888889
## 8105 0.104104104 0.008008008 1.887888
## 8106 0.105105105 0.008008008 1.886887
## 8107 0.106106106 0.008008008 1.885886
## 8108 0.107107107 0.008008008 1.884885
## 8109 0.108108108 0.008008008 1.883884
## 8110 0.109109109 0.008008008 1.882883
## 8111 0.110110110 0.008008008 1.881882
## 8112 0.111111111 0.008008008 1.880881
## 8113 0.112112112 0.008008008 1.879880
## 8114 0.113113113 0.008008008 1.878879
## 8115 0.114114114 0.008008008 1.877878
## 8116 0.115115115 0.008008008 1.876877
## 8117 0.116116116 0.008008008 1.875876
## 8118 0.117117117 0.008008008 1.874875
## 8119 0.118118118 0.008008008 1.873874
## 8120 0.119119119 0.008008008 1.872873
## 8121 0.120120120 0.008008008 1.871872
## 8122 0.121121121 0.008008008 1.870871
## 8123 0.122122122 0.008008008 1.869870
## 8124 0.123123123 0.008008008 1.868869
## 8125 0.124124124 0.008008008 1.867868
## 8126 0.125125125 0.008008008 1.866867
## 8127 0.126126126 0.008008008 1.865866
## 8128 0.127127127 0.008008008 1.864865
## 8129 0.128128128 0.008008008 1.863864
## 8130 0.129129129 0.008008008 1.862863
## 8131 0.130130130 0.008008008 1.861862
## 8132 0.131131131 0.008008008 1.860861
## 8133 0.132132132 0.008008008 1.859860
## 8134 0.133133133 0.008008008 1.858859
## 8135 0.134134134 0.008008008 1.857858
## 8136 0.135135135 0.008008008 1.856857
## 8137 0.136136136 0.008008008 1.855856
## 8138 0.137137137 0.008008008 1.854855
## 8139 0.138138138 0.008008008 1.853854
## 8140 0.139139139 0.008008008 1.852853
## 8141 0.140140140 0.008008008 1.851852
## 8142 0.141141141 0.008008008 1.850851
## 8143 0.142142142 0.008008008 1.849850
## 8144 0.143143143 0.008008008 1.848849
## 8145 0.144144144 0.008008008 1.847848
## 8146 0.145145145 0.008008008 1.846847
## 8147 0.146146146 0.008008008 1.845846
## 8148 0.147147147 0.008008008 1.844845
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 289

```
## 8149 0.148148148 0.008008008 1.843844
## 8150 0.149149149 0.008008008 1.842843
## 8151 0.150150150 0.008008008 1.841842
## 8152 0.151151151 0.008008008 1.840841
## 8153 0.152152152 0.008008008 1.839840
## 8154 0.153153153 0.008008008 1.838839
## 8155 0.154154154 0.008008008 1.837838
## 8156 0.155155155 0.008008008 1.836837
## 8157 0.156156156 0.008008008 1.835836
## 8158 0.157157157 0.008008008 1.834835
## 8159 0.158158158 0.008008008 1.833834
## 8160 0.159159159 0.008008008 1.832833
## 8161 0.160160160 0.008008008 1.831832
## 8162 0.161161161 0.008008008 1.830831
## 8163 0.162162162 0.008008008 1.829830
## 8164 0.163163163 0.008008008 1.828829
## 8165 0.164164164 0.008008008 1.827828
## 8166 0.165165165 0.008008008 1.826827
## 8167 0.166166166 0.008008008 1.825826
## 8168 0.167167167 0.008008008 1.824825
## 8169 0.168168168 0.008008008 1.823824
## 8170 0.169169169 0.008008008 1.822823
## 8171 0.170170170 0.008008008 1.821822
## 8172 0.171171171 0.008008008 1.820821
## 8173 0.172172172 0.008008008 1.819820
## 8174 0.173173173 0.008008008 1.818819
## 8175 0.174174174 0.008008008 1.817818
## 8176 0.175175175 0.008008008 1.816817
## 8177 0.176176176 0.008008008 1.815816
## 8178 0.177177177 0.008008008 1.814815
## 8179 0.178178178 0.008008008 1.813814
## 8180 0.179179179 0.008008008 1.812813
## 8181 0.180180180 0.008008008 1.811812
## 8182 0.181181181 0.008008008 1.810811
## 8183 0.182182182 0.008008008 1.809810
## 8184 0.183183183 0.008008008 1.808809
## 8185 0.184184184 0.008008008 1.807808
## 8186 0.185185185 0.008008008 1.806807
## 8187 0.186186186 0.008008008 1.805806
## 8188 0.187187187 0.008008008 1.804805
## 8189 0.188188188 0.008008008 1.803804
## 8190 0.189189189 0.008008008 1.802803
## 8191 0.190190190 0.008008008 1.801802
## 8192 0.191191191 0.008008008 1.800801
## 8193 0.192192192 0.008008008 1.799800
## 8194 0.193193193 0.008008008 1.798799
```

```
## 8195  0.194194194 0.008008008 1.797798
## 8196  0.195195195 0.008008008 1.796797
## 8197  0.196196196 0.008008008 1.795796
## 8198  0.197197197 0.008008008 1.794795
## 8199  0.198198198 0.008008008 1.793794
## 8200  0.199199199 0.008008008 1.792793
## 8201  0.200200200 0.008008008 1.791792
## 8202  0.201201201 0.008008008 1.790791
## 8203  0.202202202 0.008008008 1.789790
## 8204  0.203203203 0.008008008 1.788789
## 8205  0.204204204 0.008008008 1.787788
## 8206  0.205205205 0.008008008 1.786787
## 8207  0.206206206 0.008008008 1.785786
## 8208  0.207207207 0.008008008 1.784785
## 8209  0.208208208 0.008008008 1.783784
## 8210  0.209209209 0.008008008 1.782783
## 8211  0.210210210 0.008008008 1.781782
## 8212  0.211211211 0.008008008 1.780781
## 8213  0.212212212 0.008008008 1.779780
## 8214  0.213213213 0.008008008 1.778779
## 8215  0.214214214 0.008008008 1.777778
## 8216  0.215215215 0.008008008 1.776777
## 8217  0.216216216 0.008008008 1.775776
## 8218  0.217217217 0.008008008 1.774775
## 8219  0.218218218 0.008008008 1.773774
## 8220  0.219219219 0.008008008 1.772773
## 8221  0.220220220 0.008008008 1.771772
## 8222  0.221221221 0.008008008 1.770771
## 8223  0.222222222 0.008008008 1.769770
## 8224  0.223223223 0.008008008 1.768769
## 8225  0.224224224 0.008008008 1.767768
## 8226  0.225225225 0.008008008 1.766767
## 8227  0.226226226 0.008008008 1.765766
## 8228  0.227227227 0.008008008 1.764765
## 8229  0.228228228 0.008008008 1.763764
## 8230  0.229229229 0.008008008 1.762763
## 8231  0.230230230 0.008008008 1.761762
## 8232  0.231231231 0.008008008 1.760761
## 8233  0.232232232 0.008008008 1.759760
## 8234  0.233233233 0.008008008 1.758759
## 8235  0.234234234 0.008008008 1.757758
## 8236  0.235235235 0.008008008 1.756757
## 8237  0.236236236 0.008008008 1.755756
## 8238  0.237237237 0.008008008 1.754755
## 8239  0.238238238 0.008008008 1.753754
## 8240  0.239239239 0.008008008 1.752753
```

```

## 8241 0.240240240 0.008008008 1.751752
## 8242 0.241241241 0.008008008 1.750751
## 8243 0.242242242 0.008008008 1.749750
## 8244 0.243243243 0.008008008 1.748749
## 8245 0.244244244 0.008008008 1.747748
## 8246 0.245245245 0.008008008 1.746747
## 8247 0.246246246 0.008008008 1.745746
## 8248 0.247247247 0.008008008 1.744745
## 8249 0.248248248 0.008008008 1.743744
## 8250 0.249249249 0.008008008 1.742743
## 8251 0.250250250 0.008008008 1.741742
## 8252 0.251251251 0.008008008 1.740741
## 8253 0.252252252 0.008008008 1.739740
## 8254 0.253253253 0.008008008 1.738739
## 8255 0.254254254 0.008008008 1.737738
## 8256 0.255255255 0.008008008 1.736737
## 8257 0.256256256 0.008008008 1.735736
## 8258 0.257257257 0.008008008 1.734735
## 8259 0.258258258 0.008008008 1.733734
## 8260 0.259259259 0.008008008 1.732733
## 8261 0.260260260 0.008008008 1.731732
## 8262 0.261261261 0.008008008 1.730731
## 8263 0.262262262 0.008008008 1.729730
## 8264 0.263263263 0.008008008 1.728729
## 8265 0.264264264 0.008008008 1.727728
## 8266 0.265265265 0.008008008 1.726727
## 8267 0.266266266 0.008008008 1.725726
## 8268 0.267267267 0.008008008 1.724725
## 8269 0.268268268 0.008008008 1.723724
## 8270 0.269269269 0.008008008 1.722723
## 8271 0.270270270 0.008008008 1.721722
## 8272 0.271271271 0.008008008 1.720721
## 8273 0.272272272 0.008008008 1.719720
## 8274 0.273273273 0.008008008 1.718719
## 8275 0.274274274 0.008008008 1.717718
## 8276 0.275275275 0.008008008 1.716717
## 8277 0.276276276 0.008008008 1.715716
## 8278 0.277277277 0.008008008 1.714715
## 8279 0.278278278 0.008008008 1.713714
## 8280 0.279279279 0.008008008 1.712713
## 8281 0.280280280 0.008008008 1.711712
## 8282 0.281281281 0.008008008 1.710711
## 8283 0.282282282 0.008008008 1.709710
## 8284 0.283283283 0.008008008 1.708709
## 8285 0.284284284 0.008008008 1.707708
## 8286 0.285285285 0.008008008 1.706707

```

```
## 8287 0.286286286 0.008008008 1.705706
## 8288 0.287287287 0.008008008 1.704705
## 8289 0.288288288 0.008008008 1.703704
## 8290 0.289289289 0.008008008 1.702703
## 8291 0.290290290 0.008008008 1.701702
## 8292 0.291291291 0.008008008 1.700701
## 8293 0.292292292 0.008008008 1.699700
## 8294 0.293293293 0.008008008 1.698699
## 8295 0.294294294 0.008008008 1.697698
## 8296 0.295295295 0.008008008 1.696697
## 8297 0.296296296 0.008008008 1.695696
## 8298 0.297297297 0.008008008 1.694695
## 8299 0.298298298 0.008008008 1.693694
## 8300 0.299299299 0.008008008 1.692693
## 8301 0.300300300 0.008008008 1.691692
## 8302 0.301301301 0.008008008 1.690691
## 8303 0.302302302 0.008008008 1.689690
## 8304 0.303303303 0.008008008 1.688689
## 8305 0.304304304 0.008008008 1.687688
## 8306 0.305305305 0.008008008 1.686687
## 8307 0.306306306 0.008008008 1.685686
## 8308 0.307307307 0.008008008 1.684685
## 8309 0.308308308 0.008008008 1.683684
## 8310 0.309309309 0.008008008 1.682683
## 8311 0.310310310 0.008008008 1.681682
## 8312 0.311311311 0.008008008 1.680681
## 8313 0.312312312 0.008008008 1.679680
## 8314 0.313313313 0.008008008 1.678679
## 8315 0.314314314 0.008008008 1.677678
## 8316 0.315315315 0.008008008 1.676677
## 8317 0.316316316 0.008008008 1.675676
## 8318 0.317317317 0.008008008 1.674675
## 8319 0.318318318 0.008008008 1.673674
## 8320 0.319319319 0.008008008 1.672673
## 8321 0.320320320 0.008008008 1.671672
## 8322 0.321321321 0.008008008 1.670671
## 8323 0.322322322 0.008008008 1.669670
## 8324 0.323323323 0.008008008 1.668669
## 8325 0.324324324 0.008008008 1.667668
## 8326 0.325325325 0.008008008 1.666667
## 8327 0.326326326 0.008008008 1.665666
## 8328 0.327327327 0.008008008 1.664665
## 8329 0.328328328 0.008008008 1.663664
## 8330 0.329329329 0.008008008 1.662663
## 8331 0.330330330 0.008008008 1.661662
## 8332 0.331331331 0.008008008 1.660661
```

```

## 8333 0.332332332 0.008008008 1.659660
## 8334 0.333333333 0.008008008 1.658659
## 8335 0.334334334 0.008008008 1.657658
## 8336 0.335335335 0.008008008 1.656657
## 8337 0.336336336 0.008008008 1.655656
## 8338 0.337337337 0.008008008 1.654655
## 8339 0.338338338 0.008008008 1.653654
## 8340 0.339339339 0.008008008 1.652653
## 8341 0.340340340 0.008008008 1.651652
## 8342 0.341341341 0.008008008 1.650651
## 8343 0.342342342 0.008008008 1.649650
## 8344 0.343343343 0.008008008 1.648649
## 8345 0.344344344 0.008008008 1.647648
## 8346 0.345345345 0.008008008 1.646647
## 8347 0.346346346 0.008008008 1.645646
## 8348 0.347347347 0.008008008 1.644645
## 8349 0.348348348 0.008008008 1.643644
## 8350 0.349349349 0.008008008 1.642643
## 8351 0.350350350 0.008008008 1.641642
## 8352 0.351351351 0.008008008 1.640641
## 8353 0.352352352 0.008008008 1.639640
## 8354 0.353353353 0.008008008 1.638639
## 8355 0.354354354 0.008008008 1.637638
## 8356 0.355355355 0.008008008 1.636637
## 8357 0.356356356 0.008008008 1.635636
## 8358 0.357357357 0.008008008 1.634635
## 8359 0.358358358 0.008008008 1.633634
## 8360 0.359359359 0.008008008 1.632633
## 8361 0.360360360 0.008008008 1.631632
## 8362 0.361361361 0.008008008 1.630631
## 8363 0.362362362 0.008008008 1.629630
## 8364 0.363363363 0.008008008 1.628629
## 8365 0.364364364 0.008008008 1.627628
## 8366 0.365365365 0.008008008 1.626627
## 8367 0.366366366 0.008008008 1.625626
## 8368 0.367367367 0.008008008 1.624625
## 8369 0.368368368 0.008008008 1.623624
## 8370 0.369369369 0.008008008 1.622623
## 8371 0.370370370 0.008008008 1.621622
## 8372 0.371371371 0.008008008 1.620621
## 8373 0.372372372 0.008008008 1.619620
## 8374 0.373373373 0.008008008 1.618619
## 8375 0.374374374 0.008008008 1.617618
## 8376 0.375375375 0.008008008 1.616617
## 8377 0.376376376 0.008008008 1.615616
## 8378 0.377377377 0.008008008 1.614615

```

```
## 8379  0.378378378 0.008008008 1.613614
## 8380  0.379379379 0.008008008 1.612613
## 8381  0.380380380 0.008008008 1.611612
## 8382  0.381381381 0.008008008 1.610611
## 8383  0.382382382 0.008008008 1.609610
## 8384  0.383383383 0.008008008 1.608609
## 8385  0.384384384 0.008008008 1.607608
## 8386  0.385385385 0.008008008 1.606607
## 8387  0.386386386 0.008008008 1.605606
## 8388  0.387387387 0.008008008 1.604605
## 8389  0.388388388 0.008008008 1.603604
## 8390  0.389389389 0.008008008 1.602603
## 8391  0.390390390 0.008008008 1.601602
## 8392  0.391391391 0.008008008 1.600601
## 8393  0.392392392 0.008008008 1.599600
## 8394  0.393393393 0.008008008 1.598599
## 8395  0.394394394 0.008008008 1.597598
## 8396  0.395395395 0.008008008 1.596597
## 8397  0.396396396 0.008008008 1.595596
## 8398  0.397397397 0.008008008 1.594595
## 8399  0.398398398 0.008008008 1.593594
## 8400  0.399399399 0.008008008 1.592593
## 8401  0.400400400 0.008008008 1.591592
## 8402  0.401401401 0.008008008 1.590591
## 8403  0.402402402 0.008008008 1.589590
## 8404  0.403403403 0.008008008 1.588589
## 8405  0.404404404 0.008008008 1.587588
## 8406  0.405405405 0.008008008 1.586587
## 8407  0.406406406 0.008008008 1.585586
## 8408  0.407407407 0.008008008 1.584585
## 8409  0.408408408 0.008008008 1.583584
## 8410  0.409409409 0.008008008 1.582583
## 8411  0.410410410 0.008008008 1.581582
## 8412  0.411411411 0.008008008 1.580581
## 8413  0.412412412 0.008008008 1.579580
## 8414  0.413413413 0.008008008 1.578579
## 8415  0.414414414 0.008008008 1.577578
## 8416  0.415415415 0.008008008 1.576577
## 8417  0.416416416 0.008008008 1.575576
## 8418  0.417417417 0.008008008 1.574575
## 8419  0.418418418 0.008008008 1.573574
## 8420  0.419419419 0.008008008 1.572573
## 8421  0.420420420 0.008008008 1.571572
## 8422  0.421421421 0.008008008 1.570571
## 8423  0.422422422 0.008008008 1.569570
## 8424  0.423423423 0.008008008 1.568569
```

```

## 8425 0.424424424 0.008008008 1.567568
## 8426 0.425425425 0.008008008 1.566567
## 8427 0.426426426 0.008008008 1.565566
## 8428 0.427427427 0.008008008 1.564565
## 8429 0.428428428 0.008008008 1.563564
## 8430 0.429429429 0.008008008 1.562563
## 8431 0.430430430 0.008008008 1.561562
## 8432 0.431431431 0.008008008 1.560561
## 8433 0.432432432 0.008008008 1.559560
## 8434 0.433433433 0.008008008 1.558559
## 8435 0.434434434 0.008008008 1.557558
## 8436 0.435435435 0.008008008 1.556557
## 8437 0.436436436 0.008008008 1.555556
## 8438 0.437437437 0.008008008 1.554555
## 8439 0.438438438 0.008008008 1.553554
## 8440 0.439439439 0.008008008 1.552553
## 8441 0.440440440 0.008008008 1.551552
## 8442 0.441441441 0.008008008 1.550551
## 8443 0.442442442 0.008008008 1.549550
## 8444 0.443443443 0.008008008 1.548549
## 8445 0.444444444 0.008008008 1.547548
## 8446 0.445445445 0.008008008 1.546547
## 8447 0.446446446 0.008008008 1.545546
## 8448 0.447447447 0.008008008 1.544545
## 8449 0.448448448 0.008008008 1.543544
## 8450 0.449449449 0.008008008 1.542543
## 8451 0.450450450 0.008008008 1.541542
## 8452 0.451451451 0.008008008 1.540541
## 8453 0.452452452 0.008008008 1.539540
## 8454 0.453453453 0.008008008 1.538539
## 8455 0.454454454 0.008008008 1.537538
## 8456 0.455455455 0.008008008 1.536537
## 8457 0.456456456 0.008008008 1.535536
## 8458 0.457457457 0.008008008 1.534535
## 8459 0.458458458 0.008008008 1.533534
## 8460 0.459459459 0.008008008 1.532533
## 8461 0.460460460 0.008008008 1.531532
## 8462 0.461461461 0.008008008 1.530531
## 8463 0.462462462 0.008008008 1.529530
## 8464 0.463463463 0.008008008 1.528529
## 8465 0.464464464 0.008008008 1.527528
## 8466 0.465465465 0.008008008 1.526527
## 8467 0.466466466 0.008008008 1.525526
## 8468 0.467467467 0.008008008 1.524525
## 8469 0.468468468 0.008008008 1.523524
## 8470 0.469469469 0.008008008 1.522523

```

```
## 8471  0.470470470 0.008008008 1.521522
## 8472  0.471471471 0.008008008 1.520521
## 8473  0.472472472 0.008008008 1.519520
## 8474  0.473473473 0.008008008 1.518519
## 8475  0.474474474 0.008008008 1.517518
## 8476  0.475475475 0.008008008 1.516517
## 8477  0.476476476 0.008008008 1.515516
## 8478  0.477477477 0.008008008 1.514515
## 8479  0.478478478 0.008008008 1.513514
## 8480  0.479479479 0.008008008 1.512513
## 8481  0.480480480 0.008008008 1.511512
## 8482  0.481481481 0.008008008 1.510511
## 8483  0.482482482 0.008008008 1.509510
## 8484  0.483483483 0.008008008 1.508509
## 8485  0.484484484 0.008008008 1.507508
## 8486  0.485485485 0.008008008 1.506507
## 8487  0.486486486 0.008008008 1.505506
## 8488  0.487487487 0.008008008 1.504505
## 8489  0.488488488 0.008008008 1.503504
## 8490  0.489489489 0.008008008 1.502503
## 8491  0.490490490 0.008008008 1.501502
## 8492  0.491491491 0.008008008 1.500501
## 8493  0.492492492 0.008008008 1.499499
## 8494  0.493493493 0.008008008 1.498498
## 8495  0.494494494 0.008008008 1.497497
## 8496  0.495495495 0.008008008 1.496496
## 8497  0.496496496 0.008008008 1.495495
## 8498  0.497497497 0.008008008 1.494494
## 8499  0.498498498 0.008008008 1.493493
## 8500  0.499499499 0.008008008 1.492492
## 8501  0.500500501 0.008008008 1.491491
## 8502  0.501501502 0.008008008 1.490490
## 8503  0.502502503 0.008008008 1.489489
## 8504  0.503503504 0.008008008 1.488488
## 8505  0.504504505 0.008008008 1.487487
## 8506  0.505505506 0.008008008 1.486486
## 8507  0.506506507 0.008008008 1.485485
## 8508  0.507507508 0.008008008 1.484484
## 8509  0.508508509 0.008008008 1.483483
## 8510  0.509509510 0.008008008 1.482482
## 8511  0.510510511 0.008008008 1.481481
## 8512  0.511511512 0.008008008 1.480480
## 8513  0.512512513 0.008008008 1.479479
## 8514  0.513513514 0.008008008 1.478478
## 8515  0.514514515 0.008008008 1.477477
## 8516  0.515515516 0.008008008 1.476476
```

```

## 8517  0.516516517 0.008008008 1.475475
## 8518  0.517517518 0.008008008 1.474474
## 8519  0.518518519 0.008008008 1.473473
## 8520  0.519519520 0.008008008 1.472472
## 8521  0.520520521 0.008008008 1.471471
## 8522  0.521521522 0.008008008 1.470470
## 8523  0.522522523 0.008008008 1.469469
## 8524  0.523523524 0.008008008 1.468468
## 8525  0.524524525 0.008008008 1.467467
## 8526  0.525525526 0.008008008 1.466466
## 8527  0.526526527 0.008008008 1.465465
## 8528  0.527527528 0.008008008 1.464464
## 8529  0.528528529 0.008008008 1.463463
## 8530  0.529529530 0.008008008 1.462462
## 8531  0.530530531 0.008008008 1.461461
## 8532  0.531531532 0.008008008 1.460460
## 8533  0.532532533 0.008008008 1.459459
## 8534  0.533533534 0.008008008 1.458458
## 8535  0.534534535 0.008008008 1.457457
## 8536  0.535535536 0.008008008 1.456456
## 8537  0.536536537 0.008008008 1.455455
## 8538  0.537537538 0.008008008 1.454454
## 8539  0.538538539 0.008008008 1.453453
## 8540  0.539539540 0.008008008 1.452452
## 8541  0.540540541 0.008008008 1.451451
## 8542  0.541541542 0.008008008 1.450450
## 8543  0.542542543 0.008008008 1.449449
## 8544  0.543543544 0.008008008 1.448448
## 8545  0.544544545 0.008008008 1.447447
## 8546  0.545545546 0.008008008 1.446446
## 8547  0.546546547 0.008008008 1.445445
## 8548  0.547547548 0.008008008 1.444444
## 8549  0.548548549 0.008008008 1.443443
## 8550  0.549549550 0.008008008 1.442442
## 8551  0.550550551 0.008008008 1.441441
## 8552  0.551551552 0.008008008 1.440440
## 8553  0.552552553 0.008008008 1.439439
## 8554  0.553553554 0.008008008 1.438438
## 8555  0.554554555 0.008008008 1.437437
## 8556  0.555555556 0.008008008 1.436436
## 8557  0.556556557 0.008008008 1.435435
## 8558  0.557557558 0.008008008 1.434434
## 8559  0.558558559 0.008008008 1.433433
## 8560  0.559559560 0.008008008 1.432432
## 8561  0.560560561 0.008008008 1.431431
## 8562  0.561561562 0.008008008 1.430430

```

```
## 8563  0.562562563 0.008008008 1.429429
## 8564  0.563563564 0.008008008 1.428428
## 8565  0.564564565 0.008008008 1.427427
## 8566  0.565565566 0.008008008 1.426426
## 8567  0.566566567 0.008008008 1.425425
## 8568  0.567567568 0.008008008 1.424424
## 8569  0.568568569 0.008008008 1.423423
## 8570  0.569569570 0.008008008 1.422422
## 8571  0.570570571 0.008008008 1.421421
## 8572  0.571571572 0.008008008 1.420420
## 8573  0.572572573 0.008008008 1.419419
## 8574  0.573573574 0.008008008 1.418418
## 8575  0.574574575 0.008008008 1.417417
## 8576  0.575575576 0.008008008 1.416416
## 8577  0.576576577 0.008008008 1.415415
## 8578  0.577577578 0.008008008 1.414414
## 8579  0.578578579 0.008008008 1.413413
## 8580  0.579579580 0.008008008 1.412412
## 8581  0.580580581 0.008008008 1.411411
## 8582  0.581581582 0.008008008 1.410410
## 8583  0.582582583 0.008008008 1.409409
## 8584  0.583583584 0.008008008 1.408408
## 8585  0.584584585 0.008008008 1.407407
## 8586  0.585585586 0.008008008 1.406406
## 8587  0.586586587 0.008008008 1.405405
## 8588  0.587587588 0.008008008 1.404404
## 8589  0.588588589 0.008008008 1.403403
## 8590  0.589589590 0.008008008 1.402402
## 8591  0.590590591 0.008008008 1.401401
## 8592  0.591591592 0.008008008 1.400400
## 8593  0.592592593 0.008008008 1.399399
## 8594  0.593593594 0.008008008 1.398398
## 8595  0.594594595 0.008008008 1.397397
## 8596  0.595595596 0.008008008 1.396396
## 8597  0.596596597 0.008008008 1.395395
## 8598  0.597597598 0.008008008 1.394394
## 8599  0.598598599 0.008008008 1.393393
## 8600  0.599599600 0.008008008 1.392392
## 8601  0.600600601 0.008008008 1.391391
## 8602  0.601601602 0.008008008 1.390390
## 8603  0.602602603 0.008008008 1.389389
## 8604  0.603603604 0.008008008 1.388388
## 8605  0.604604605 0.008008008 1.387387
## 8606  0.605605606 0.008008008 1.386386
## 8607  0.606606607 0.008008008 1.385385
## 8608  0.607607608 0.008008008 1.384384
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 299

```
## 8609  0.608608609 0.008008008 1.383383
## 8610  0.609609610 0.008008008 1.382382
## 8611  0.610610611 0.008008008 1.381381
## 8612  0.611611612 0.008008008 1.380380
## 8613  0.612612613 0.008008008 1.379379
## 8614  0.613613614 0.008008008 1.378378
## 8615  0.614614615 0.008008008 1.377377
## 8616  0.615615616 0.008008008 1.376376
## 8617  0.616616617 0.008008008 1.375375
## 8618  0.617617618 0.008008008 1.374374
## 8619  0.618618619 0.008008008 1.373373
## 8620  0.619619620 0.008008008 1.372372
## 8621  0.620620621 0.008008008 1.371371
## 8622  0.621621622 0.008008008 1.370370
## 8623  0.622622623 0.008008008 1.369369
## 8624  0.623623624 0.008008008 1.368368
## 8625  0.624624625 0.008008008 1.367367
## 8626  0.625625626 0.008008008 1.366366
## 8627  0.626626627 0.008008008 1.365365
## 8628  0.627627628 0.008008008 1.364364
## 8629  0.628628629 0.008008008 1.363363
## 8630  0.629629630 0.008008008 1.362362
## 8631  0.630630631 0.008008008 1.361361
## 8632  0.631631632 0.008008008 1.360360
## 8633  0.632632633 0.008008008 1.359359
## 8634  0.6336333634 0.008008008 1.358358
## 8635  0.634634635 0.008008008 1.357357
## 8636  0.635635636 0.008008008 1.356356
## 8637  0.636636637 0.008008008 1.355355
## 8638  0.637637638 0.008008008 1.354354
## 8639  0.638638639 0.008008008 1.353353
## 8640  0.639639640 0.008008008 1.352352
## 8641  0.640640641 0.008008008 1.351351
## 8642  0.641641642 0.008008008 1.350350
## 8643  0.642642643 0.008008008 1.349349
## 8644  0.643643644 0.008008008 1.348348
## 8645  0.644644645 0.008008008 1.347347
## 8646  0.645645646 0.008008008 1.346346
## 8647  0.646646647 0.008008008 1.345345
## 8648  0.647647648 0.008008008 1.344344
## 8649  0.648648649 0.008008008 1.343343
## 8650  0.649649650 0.008008008 1.342342
## 8651  0.650650651 0.008008008 1.341341
## 8652  0.651651652 0.008008008 1.340340
## 8653  0.652652653 0.008008008 1.339339
## 8654  0.653653654 0.008008008 1.338338
```

```
## 8655  0.654654655 0.008008008 1.337337
## 8656  0.655655656 0.008008008 1.336336
## 8657  0.656656657 0.008008008 1.335335
## 8658  0.657657658 0.008008008 1.334334
## 8659  0.658658659 0.008008008 1.333333
## 8660  0.659659660 0.008008008 1.332332
## 8661  0.660660661 0.008008008 1.331331
## 8662  0.661661662 0.008008008 1.330330
## 8663  0.662662663 0.008008008 1.329329
## 8664  0.663663664 0.008008008 1.328328
## 8665  0.664664665 0.008008008 1.327327
## 8666  0.665665666 0.008008008 1.326326
## 8667  0.666666667 0.008008008 1.325325
## 8668  0.667667668 0.008008008 1.324324
## 8669  0.668668669 0.008008008 1.323323
## 8670  0.669669670 0.008008008 1.322322
## 8671  0.670670671 0.008008008 1.321321
## 8672  0.671671672 0.008008008 1.320320
## 8673  0.672672673 0.008008008 1.319319
## 8674  0.673673674 0.008008008 1.318318
## 8675  0.674674675 0.008008008 1.317317
## 8676  0.675675676 0.008008008 1.316316
## 8677  0.676676677 0.008008008 1.315315
## 8678  0.677677678 0.008008008 1.314314
## 8679  0.678678679 0.008008008 1.313313
## 8680  0.679679680 0.008008008 1.312312
## 8681  0.680680681 0.008008008 1.311311
## 8682  0.681681682 0.008008008 1.310310
## 8683  0.682682683 0.008008008 1.309309
## 8684  0.683683684 0.008008008 1.308308
## 8685  0.684684685 0.008008008 1.307307
## 8686  0.685685686 0.008008008 1.306306
## 8687  0.686686687 0.008008008 1.305305
## 8688  0.687687688 0.008008008 1.304304
## 8689  0.688688689 0.008008008 1.303303
## 8690  0.689689690 0.008008008 1.302302
## 8691  0.690690691 0.008008008 1.301301
## 8692  0.691691692 0.008008008 1.300300
## 8693  0.692692693 0.008008008 1.299299
## 8694  0.693693694 0.008008008 1.298298
## 8695  0.694694695 0.008008008 1.297297
## 8696  0.695695696 0.008008008 1.296296
## 8697  0.696696697 0.008008008 1.295295
## 8698  0.697697698 0.008008008 1.294294
## 8699  0.698698699 0.008008008 1.293293
## 8700  0.699699700 0.008008008 1.292292
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR301

```
## 8701 0.700700701 0.008008008 1.291291
## 8702 0.701701702 0.008008008 1.290290
## 8703 0.702702703 0.008008008 1.289289
## 8704 0.703703704 0.008008008 1.288288
## 8705 0.704704705 0.008008008 1.287287
## 8706 0.705705706 0.008008008 1.286286
## 8707 0.706706707 0.008008008 1.285285
## 8708 0.707707708 0.008008008 1.284284
## 8709 0.708708709 0.008008008 1.283283
## 8710 0.709709710 0.008008008 1.282282
## 8711 0.710710711 0.008008008 1.281281
## 8712 0.711711712 0.008008008 1.280280
## 8713 0.712712713 0.008008008 1.279279
## 8714 0.713713714 0.008008008 1.278278
## 8715 0.714714715 0.008008008 1.277277
## 8716 0.715715716 0.008008008 1.276276
## 8717 0.716716717 0.008008008 1.275275
## 8718 0.717717718 0.008008008 1.274274
## 8719 0.718718719 0.008008008 1.273273
## 8720 0.719719720 0.008008008 1.272272
## 8721 0.720720721 0.008008008 1.271271
## 8722 0.721721722 0.008008008 1.270270
## 8723 0.722722723 0.008008008 1.269269
## 8724 0.723723724 0.008008008 1.268268
## 8725 0.724724725 0.008008008 1.267267
## 8726 0.725725726 0.008008008 1.266266
## 8727 0.726726727 0.008008008 1.265265
## 8728 0.727727728 0.008008008 1.264264
## 8729 0.728728729 0.008008008 1.263263
## 8730 0.729729730 0.008008008 1.262262
## 8731 0.730730731 0.008008008 1.261261
## 8732 0.731731732 0.008008008 1.260260
## 8733 0.732732733 0.008008008 1.259259
## 8734 0.733733734 0.008008008 1.258258
## 8735 0.734734735 0.008008008 1.257257
## 8736 0.735735736 0.008008008 1.256256
## 8737 0.736736737 0.008008008 1.255255
## 8738 0.737737738 0.008008008 1.254254
## 8739 0.738738739 0.008008008 1.253253
## 8740 0.739739740 0.008008008 1.252252
## 8741 0.740740741 0.008008008 1.251251
## 8742 0.741741742 0.008008008 1.250250
## 8743 0.742742743 0.008008008 1.249249
## 8744 0.743743744 0.008008008 1.248248
## 8745 0.744744745 0.008008008 1.247247
## 8746 0.745745746 0.008008008 1.246246
```

```
## 8747  0.746746747 0.008008008 1.245245
## 8748  0.747747748 0.008008008 1.244244
## 8749  0.748748749 0.008008008 1.243243
## 8750  0.749749750 0.008008008 1.242242
## 8751  0.750750751 0.008008008 1.241241
## 8752  0.751751752 0.008008008 1.240240
## 8753  0.752752753 0.008008008 1.239239
## 8754  0.753753754 0.008008008 1.238238
## 8755  0.754754755 0.008008008 1.237237
## 8756  0.755755756 0.008008008 1.236236
## 8757  0.756756757 0.008008008 1.235235
## 8758  0.757757758 0.008008008 1.234234
## 8759  0.758758759 0.008008008 1.233233
## 8760  0.759759760 0.008008008 1.232232
## 8761  0.760760761 0.008008008 1.231231
## 8762  0.761761762 0.008008008 1.230230
## 8763  0.762762763 0.008008008 1.229229
## 8764  0.763763764 0.008008008 1.228228
## 8765  0.764764765 0.008008008 1.227227
## 8766  0.765765766 0.008008008 1.226226
## 8767  0.766766767 0.008008008 1.225225
## 8768  0.767767768 0.008008008 1.224224
## 8769  0.768768769 0.008008008 1.223223
## 8770  0.769769770 0.008008008 1.222222
## 8771  0.770770771 0.008008008 1.221221
## 8772  0.771771772 0.008008008 1.220220
## 8773  0.772772773 0.008008008 1.219219
## 8774  0.773773774 0.008008008 1.218218
## 8775  0.774774775 0.008008008 1.217217
## 8776  0.775775776 0.008008008 1.216216
## 8777  0.776776777 0.008008008 1.215215
## 8778  0.777777778 0.008008008 1.214214
## 8779  0.778778779 0.008008008 1.213213
## 8780  0.779779780 0.008008008 1.212212
## 8781  0.780780781 0.008008008 1.211211
## 8782  0.781781782 0.008008008 1.210210
## 8783  0.782782783 0.008008008 1.209209
## 8784  0.783783784 0.008008008 1.208208
## 8785  0.784784785 0.008008008 1.207207
## 8786  0.785785786 0.008008008 1.206206
## 8787  0.786786787 0.008008008 1.205205
## 8788  0.787787788 0.008008008 1.204204
## 8789  0.788788789 0.008008008 1.203203
## 8790  0.789789790 0.008008008 1.202202
## 8791  0.790790791 0.008008008 1.201201
## 8792  0.791791792 0.008008008 1.200200
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR303

```
## 8793 0.792792793 0.008008008 1.199199
## 8794 0.793793794 0.008008008 1.198198
## 8795 0.794794795 0.008008008 1.197197
## 8796 0.795795796 0.008008008 1.196196
## 8797 0.796796797 0.008008008 1.195195
## 8798 0.797797798 0.008008008 1.194194
## 8799 0.798798799 0.008008008 1.193193
## 8800 0.799799800 0.008008008 1.192192
## 8801 0.800800801 0.008008008 1.191191
## 8802 0.801801802 0.008008008 1.190190
## 8803 0.802802803 0.008008008 1.189189
## 8804 0.803803804 0.008008008 1.188188
## 8805 0.804804805 0.008008008 1.187187
## 8806 0.805805806 0.008008008 1.186186
## 8807 0.806806807 0.008008008 1.185185
## 8808 0.807807808 0.008008008 1.184184
## 8809 0.808808809 0.008008008 1.183183
## 8810 0.809809810 0.008008008 1.182182
## 8811 0.810810811 0.008008008 1.181181
## 8812 0.811811812 0.008008008 1.180180
## 8813 0.812812813 0.008008008 1.179179
## 8814 0.813813814 0.008008008 1.178178
## 8815 0.814814815 0.008008008 1.177177
## 8816 0.815815816 0.008008008 1.176176
## 8817 0.816816817 0.008008008 1.175175
## 8818 0.817817818 0.008008008 1.174174
## 8819 0.818818819 0.008008008 1.173173
## 8820 0.819819820 0.008008008 1.172172
## 8821 0.820820821 0.008008008 1.171171
## 8822 0.821821822 0.008008008 1.170170
## 8823 0.822822823 0.008008008 1.169169
## 8824 0.823823824 0.008008008 1.168168
## 8825 0.824824825 0.008008008 1.167167
## 8826 0.825825826 0.008008008 1.166166
## 8827 0.826826827 0.008008008 1.165165
## 8828 0.827827828 0.008008008 1.164164
## 8829 0.828828829 0.008008008 1.163163
## 8830 0.829829830 0.008008008 1.162162
## 8831 0.830830831 0.008008008 1.161161
## 8832 0.831831832 0.008008008 1.160160
## 8833 0.832832833 0.008008008 1.159159
## 8834 0.833833834 0.008008008 1.158158
## 8835 0.834834835 0.008008008 1.157157
## 8836 0.835835836 0.008008008 1.156156
## 8837 0.836836837 0.008008008 1.155155
## 8838 0.837837838 0.008008008 1.154154
```

```
## 8839  0.838838839 0.008008008 1.153153
## 8840  0.839839840 0.008008008 1.152152
## 8841  0.840840841 0.008008008 1.151151
## 8842  0.841841842 0.008008008 1.150150
## 8843  0.842842843 0.008008008 1.149149
## 8844  0.843843844 0.008008008 1.148148
## 8845  0.844844845 0.008008008 1.147147
## 8846  0.845845846 0.008008008 1.146146
## 8847  0.846846847 0.008008008 1.145145
## 8848  0.847847848 0.008008008 1.144144
## 8849  0.848848849 0.008008008 1.143143
## 8850  0.849849850 0.008008008 1.142142
## 8851  0.850850851 0.008008008 1.141141
## 8852  0.851851852 0.008008008 1.140140
## 8853  0.852852853 0.008008008 1.139139
## 8854  0.853853854 0.008008008 1.138138
## 8855  0.854854855 0.008008008 1.137137
## 8856  0.855855856 0.008008008 1.136136
## 8857  0.856856857 0.008008008 1.135135
## 8858  0.857857858 0.008008008 1.134134
## 8859  0.858858859 0.008008008 1.133133
## 8860  0.859859860 0.008008008 1.132132
## 8861  0.860860861 0.008008008 1.131131
## 8862  0.861861862 0.008008008 1.130130
## 8863  0.862862863 0.008008008 1.129129
## 8864  0.863863864 0.008008008 1.128128
## 8865  0.864864865 0.008008008 1.127127
## 8866  0.865865866 0.008008008 1.126126
## 8867  0.866866867 0.008008008 1.125125
## 8868  0.867867868 0.008008008 1.124124
## 8869  0.868868869 0.008008008 1.123123
## 8870  0.869869870 0.008008008 1.122122
## 8871  0.870870871 0.008008008 1.121121
## 8872  0.871871872 0.008008008 1.120120
## 8873  0.872872873 0.008008008 1.119119
## 8874  0.873873874 0.008008008 1.118118
## 8875  0.874874875 0.008008008 1.117117
## 8876  0.875875876 0.008008008 1.116116
## 8877  0.876876877 0.008008008 1.115115
## 8878  0.877877878 0.008008008 1.114114
## 8879  0.878878879 0.008008008 1.113113
## 8880  0.879879880 0.008008008 1.112112
## 8881  0.880880881 0.008008008 1.111111
## 8882  0.881881882 0.008008008 1.110110
## 8883  0.882882883 0.008008008 1.109109
## 8884  0.883883884 0.008008008 1.108108
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR305

```
## 8885  0.884884885  0.008008008 1.107107
## 8886  0.885885886  0.008008008 1.106106
## 8887  0.886886887  0.008008008 1.105105
## 8888  0.887887888  0.008008008 1.104104
## 8889  0.888888889  0.008008008 1.103103
## 8890  0.889889890  0.008008008 1.102102
## 8891  0.890890891  0.008008008 1.101101
## 8892  0.891891892  0.008008008 1.100100
## 8893  0.892892893  0.008008008 1.099099
## 8894  0.893893894  0.008008008 1.098098
## 8895  0.894894895  0.008008008 1.097097
## 8896  0.895895896  0.008008008 1.096096
## 8897  0.896896897  0.008008008 1.095095
## 8898  0.897897898  0.008008008 1.094094
## 8899  0.898898899  0.008008008 1.093093
## 8900  0.899899900  0.008008008 1.092092
## 8901  0.900900901  0.008008008 1.091091
## 8902  0.901901902  0.008008008 1.090090
## 8903  0.902902903  0.008008008 1.089089
## 8904  0.903903904  0.008008008 1.088088
## 8905  0.904904905  0.008008008 1.087087
## 8906  0.905905906  0.008008008 1.086086
## 8907  0.906906907  0.008008008 1.085085
## 8908  0.907907908  0.008008008 1.084084
## 8909  0.908908909  0.008008008 1.083083
## 8910  0.909909910  0.008008008 1.082082
## 8911  0.910910911  0.008008008 1.081081
## 8912  0.911911912  0.008008008 1.080080
## 8913  0.912912913  0.008008008 1.079079
## 8914  0.913913914  0.008008008 1.078078
## 8915  0.914914915  0.008008008 1.077077
## 8916  0.915915916  0.008008008 1.076076
## 8917  0.916916917  0.008008008 1.075075
## 8918  0.917917918  0.008008008 1.074074
## 8919  0.918918919  0.008008008 1.073073
## 8920  0.919919920  0.008008008 1.072072
## 8921  0.920920921  0.008008008 1.071071
## 8922  0.921921922  0.008008008 1.070070
## 8923  0.922922923  0.008008008 1.069069
## 8924  0.923923924  0.008008008 1.068068
## 8925  0.924924925  0.008008008 1.067067
## 8926  0.925925926  0.008008008 1.066066
## 8927  0.926926927  0.008008008 1.065065
## 8928  0.927927928  0.008008008 1.064064
## 8929  0.928928929  0.008008008 1.063063
## 8930  0.929929930  0.008008008 1.062062
```

```
## 8931  0.930930931 0.008008008 1.061061
## 8932  0.931931932 0.008008008 1.060060
## 8933  0.932932933 0.008008008 1.059059
## 8934  0.9339333934 0.008008008 1.058058
## 8935  0.934934935 0.008008008 1.057057
## 8936  0.935935936 0.008008008 1.056056
## 8937  0.936936937 0.008008008 1.055055
## 8938  0.937937938 0.008008008 1.054054
## 8939  0.938938939 0.008008008 1.053053
## 8940  0.939939940 0.008008008 1.052052
## 8941  0.940940941 0.008008008 1.051051
## 8942  0.941941942 0.008008008 1.050050
## 8943  0.942942943 0.008008008 1.049049
## 8944  0.943943944 0.008008008 1.048048
## 8945  0.944944945 0.008008008 1.047047
## 8946  0.945945946 0.008008008 1.046046
## 8947  0.946946947 0.008008008 1.045045
## 8948  0.947947948 0.008008008 1.044044
## 8949  0.948948949 0.008008008 1.043043
## 8950  0.949949950 0.008008008 1.042042
## 8951  0.950950951 0.008008008 1.041041
## 8952  0.951951952 0.008008008 1.040040
## 8953  0.952952953 0.008008008 1.039039
## 8954  0.953953954 0.008008008 1.038038
## 8955  0.954954955 0.008008008 1.037037
## 8956  0.9559555956 0.008008008 1.036036
## 8957  0.956956957 0.008008008 1.035035
## 8958  0.957957958 0.008008008 1.034034
## 8959  0.958958959 0.008008008 1.033033
## 8960  0.959959960 0.008008008 1.032032
## 8961  0.960960961 0.008008008 1.031031
## 8962  0.961961962 0.008008008 1.030030
## 8963  0.962962963 0.008008008 1.029029
## 8964  0.9639633964 0.008008008 1.028028
## 8965  0.964964965 0.008008008 1.027027
## 8966  0.965965966 0.008008008 1.026026
## 8967  0.966966967 0.008008008 1.025025
## 8968  0.967967968 0.008008008 1.024024
## 8969  0.968968969 0.008008008 1.023023
## 8970  0.969969970 0.008008008 1.022022
## 8971  0.970970971 0.008008008 1.021021
## 8972  0.971971972 0.008008008 1.020020
## 8973  0.972972973 0.008008008 1.019019
## 8974  0.973973974 0.008008008 1.018018
## 8975  0.974974975 0.008008008 1.017017
## 8976  0.975975976 0.008008008 1.016016
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR307

```

## 8977  0.976976977 0.008008008 1.015015
## 8978  0.977977978 0.008008008 1.014014
## 8979  0.978978979 0.008008008 1.013013
## 8980  0.979979980 0.008008008 1.012012
## 8981  0.980980981 0.008008008 1.011011
## 8982  0.981981982 0.008008008 1.010010
## 8983  0.982982983 0.008008008 1.009009
## 8984  0.983983984 0.008008008 1.008008
## 8985  0.984984985 0.008008008 1.007007
## 8986  0.985985986 0.008008008 1.006006
## 8987  0.986986987 0.008008008 1.005005
## 8988  0.987987988 0.008008008 1.004004
## 8989  0.988988989 0.008008008 1.003003
## 8990  0.989989990 0.008008008 1.002002
## 8991  0.990990991 0.008008008 1.001001
## 8992  0.991991992 0.008008008 1.000000
## 8993  0.992992993 0.008008008 0.998999
## 8994  0.993993994 0.008008008 0.997998
## 8995  0.994994995 0.008008008 0.996997
## 8996  0.995995996 0.008008008 0.995996
## 8997  0.996996997 0.008008008 0.994995
## 8998  0.997997998 0.008008008 0.993994
## 8999  0.998998999 0.008008008 0.992993
## 9000  1.000000000 0.008008008 0.991992
## 9001  0.000000000 0.009009009 1.990991
## 9002  0.001001001 0.009009009 1.989990
## 9003  0.002002002 0.009009009 1.988989
## 9004  0.003003003 0.009009009 1.987988
## 9005  0.004004004 0.009009009 1.986987
## 9006  0.005005005 0.009009009 1.985986
## 9007  0.006006006 0.009009009 1.984985
## 9008  0.007007007 0.009009009 1.983984
## 9009  0.008008008 0.009009009 1.982983
## 9010  0.009009009 0.009009009 1.981982
## 9011  0.010010010 0.009009009 1.980981
## 9012  0.011011011 0.009009009 1.979980
## 9013  0.012012012 0.009009009 1.978979
## 9014  0.013013013 0.009009009 1.977978
## 9015  0.014014014 0.009009009 1.976977
## 9016  0.015015015 0.009009009 1.975976
## 9017  0.016016016 0.009009009 1.974975
## 9018  0.017017017 0.009009009 1.973974
## 9019  0.018018018 0.009009009 1.972973
## 9020  0.019019019 0.009009009 1.971972
## 9021  0.020020020 0.009009009 1.970971
## 9022  0.021021021 0.009009009 1.969970

```

```
## 9023 0.022022022 0.009009009 1.968969
## 9024 0.023023023 0.009009009 1.967968
## 9025 0.024024024 0.009009009 1.966967
## 9026 0.025025025 0.009009009 1.965966
## 9027 0.026026026 0.009009009 1.964965
## 9028 0.027027027 0.009009009 1.963964
## 9029 0.028028028 0.009009009 1.962963
## 9030 0.029029029 0.009009009 1.961962
## 9031 0.030030030 0.009009009 1.960961
## 9032 0.031031031 0.009009009 1.959960
## 9033 0.032032032 0.009009009 1.958959
## 9034 0.033033033 0.009009009 1.957958
## 9035 0.034034034 0.009009009 1.956957
## 9036 0.035035035 0.009009009 1.955956
## 9037 0.036036036 0.009009009 1.954955
## 9038 0.037037037 0.009009009 1.953954
## 9039 0.038038038 0.009009009 1.952953
## 9040 0.039039039 0.009009009 1.951952
## 9041 0.040040040 0.009009009 1.950951
## 9042 0.041041041 0.009009009 1.949950
## 9043 0.042042042 0.009009009 1.948949
## 9044 0.043043043 0.009009009 1.947948
## 9045 0.044044044 0.009009009 1.946947
## 9046 0.045045045 0.009009009 1.945946
## 9047 0.046046046 0.009009009 1.944945
## 9048 0.047047047 0.009009009 1.943944
## 9049 0.048048048 0.009009009 1.942943
## 9050 0.049049049 0.009009009 1.941942
## 9051 0.050050050 0.009009009 1.940941
## 9052 0.051051051 0.009009009 1.939940
## 9053 0.052052052 0.009009009 1.938939
## 9054 0.053053053 0.009009009 1.937938
## 9055 0.054054054 0.009009009 1.936937
## 9056 0.055055055 0.009009009 1.935936
## 9057 0.056056056 0.009009009 1.934935
## 9058 0.057057057 0.009009009 1.933934
## 9059 0.058058058 0.009009009 1.932933
## 9060 0.059059059 0.009009009 1.931932
## 9061 0.060060060 0.009009009 1.930931
## 9062 0.061061061 0.009009009 1.929930
## 9063 0.062062062 0.009009009 1.928929
## 9064 0.063063063 0.009009009 1.927928
## 9065 0.064064064 0.009009009 1.926927
## 9066 0.065065065 0.009009009 1.925926
## 9067 0.066066066 0.009009009 1.924925
## 9068 0.067067067 0.009009009 1.923924
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR309

```
## 9069  0.068068068 0.009009009 1.922923
## 9070  0.069069069 0.009009009 1.921922
## 9071  0.070070070 0.009009009 1.920921
## 9072  0.071071071 0.009009009 1.919920
## 9073  0.072072072 0.009009009 1.918919
## 9074  0.073073073 0.009009009 1.917918
## 9075  0.074074074 0.009009009 1.916917
## 9076  0.075075075 0.009009009 1.915916
## 9077  0.076076076 0.009009009 1.914915
## 9078  0.077077077 0.009009009 1.913914
## 9079  0.078078078 0.009009009 1.912913
## 9080  0.079079079 0.009009009 1.911912
## 9081  0.080080080 0.009009009 1.910911
## 9082  0.081081081 0.009009009 1.909910
## 9083  0.082082082 0.009009009 1.908909
## 9084  0.083083083 0.009009009 1.907908
## 9085  0.084084084 0.009009009 1.906907
## 9086  0.085085085 0.009009009 1.905906
## 9087  0.086086086 0.009009009 1.904905
## 9088  0.087087087 0.009009009 1.903904
## 9089  0.088088088 0.009009009 1.902903
## 9090  0.089089089 0.009009009 1.901902
## 9091  0.090090090 0.009009009 1.900901
## 9092  0.091091091 0.009009009 1.899900
## 9093  0.092092092 0.009009009 1.898899
## 9094  0.093093093 0.009009009 1.897898
## 9095  0.094094094 0.009009009 1.896897
## 9096  0.095095095 0.009009009 1.895896
## 9097  0.096096096 0.009009009 1.894895
## 9098  0.097097097 0.009009009 1.893894
## 9099  0.098098098 0.009009009 1.892893
## 9100  0.099099099 0.009009009 1.891892
## 9101  0.100100100 0.009009009 1.890891
## 9102  0.101101101 0.009009009 1.889890
## 9103  0.102102102 0.009009009 1.888889
## 9104  0.103103103 0.009009009 1.887888
## 9105  0.104104104 0.009009009 1.886887
## 9106  0.105105105 0.009009009 1.885886
## 9107  0.106106106 0.009009009 1.884885
## 9108  0.107107107 0.009009009 1.883884
## 9109  0.108108108 0.009009009 1.882883
## 9110  0.109109109 0.009009009 1.881882
## 9111  0.110110110 0.009009009 1.880881
## 9112  0.111111111 0.009009009 1.879880
## 9113  0.112112112 0.009009009 1.878879
## 9114  0.113113113 0.009009009 1.877878
```

```
## 9115 0.114114114 0.009009009 1.876877
## 9116 0.115115115 0.009009009 1.875876
## 9117 0.116116116 0.009009009 1.874875
## 9118 0.117117117 0.009009009 1.873874
## 9119 0.118118118 0.009009009 1.872873
## 9120 0.119119119 0.009009009 1.871872
## 9121 0.120120120 0.009009009 1.870871
## 9122 0.121121121 0.009009009 1.869870
## 9123 0.122122122 0.009009009 1.868869
## 9124 0.123123123 0.009009009 1.867868
## 9125 0.124124124 0.009009009 1.866867
## 9126 0.125125125 0.009009009 1.865866
## 9127 0.126126126 0.009009009 1.864865
## 9128 0.127127127 0.009009009 1.863864
## 9129 0.128128128 0.009009009 1.862863
## 9130 0.129129129 0.009009009 1.861862
## 9131 0.130130130 0.009009009 1.860861
## 9132 0.131131131 0.009009009 1.859860
## 9133 0.132132132 0.009009009 1.858859
## 9134 0.133133133 0.009009009 1.857858
## 9135 0.134134134 0.009009009 1.856857
## 9136 0.135135135 0.009009009 1.855856
## 9137 0.136136136 0.009009009 1.854855
## 9138 0.137137137 0.009009009 1.853854
## 9139 0.138138138 0.009009009 1.852853
## 9140 0.139139139 0.009009009 1.851852
## 9141 0.140140140 0.009009009 1.850851
## 9142 0.141141141 0.009009009 1.849850
## 9143 0.142142142 0.009009009 1.848849
## 9144 0.143143143 0.009009009 1.847848
## 9145 0.144144144 0.009009009 1.846847
## 9146 0.145145145 0.009009009 1.845846
## 9147 0.146146146 0.009009009 1.844845
## 9148 0.147147147 0.009009009 1.843844
## 9149 0.148148148 0.009009009 1.842843
## 9150 0.149149149 0.009009009 1.841842
## 9151 0.150150150 0.009009009 1.840841
## 9152 0.151151151 0.009009009 1.839840
## 9153 0.152152152 0.009009009 1.838839
## 9154 0.153153153 0.009009009 1.837838
## 9155 0.154154154 0.009009009 1.836837
## 9156 0.155155155 0.009009009 1.835836
## 9157 0.156156156 0.009009009 1.834835
## 9158 0.157157157 0.009009009 1.833834
## 9159 0.158158158 0.009009009 1.832833
## 9160 0.159159159 0.009009009 1.831832
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR311

```

## 9161 0.160160160 0.009009009 1.830831
## 9162 0.161161161 0.009009009 1.829830
## 9163 0.162162162 0.009009009 1.828829
## 9164 0.163163163 0.009009009 1.827828
## 9165 0.164164164 0.009009009 1.826827
## 9166 0.165165165 0.009009009 1.825826
## 9167 0.166166166 0.009009009 1.824825
## 9168 0.167167167 0.009009009 1.823824
## 9169 0.168168168 0.009009009 1.822823
## 9170 0.169169169 0.009009009 1.821822
## 9171 0.170170170 0.009009009 1.820821
## 9172 0.171171171 0.009009009 1.819820
## 9173 0.172172172 0.009009009 1.818819
## 9174 0.173173173 0.009009009 1.817818
## 9175 0.174174174 0.009009009 1.816817
## 9176 0.175175175 0.009009009 1.815816
## 9177 0.176176176 0.009009009 1.814815
## 9178 0.177177177 0.009009009 1.813814
## 9179 0.178178178 0.009009009 1.812813
## 9180 0.179179179 0.009009009 1.811812
## 9181 0.180180180 0.009009009 1.810811
## 9182 0.181181181 0.009009009 1.809810
## 9183 0.182182182 0.009009009 1.808809
## 9184 0.183183183 0.009009009 1.807808
## 9185 0.184184184 0.009009009 1.806807
## 9186 0.185185185 0.009009009 1.805806
## 9187 0.186186186 0.009009009 1.804805
## 9188 0.187187187 0.009009009 1.803804
## 9189 0.188188188 0.009009009 1.802803
## 9190 0.189189189 0.009009009 1.801802
## 9191 0.190190190 0.009009009 1.800801
## 9192 0.191191191 0.009009009 1.799800
## 9193 0.192192192 0.009009009 1.798799
## 9194 0.193193193 0.009009009 1.797798
## 9195 0.194194194 0.009009009 1.796797
## 9196 0.195195195 0.009009009 1.795796
## 9197 0.196196196 0.009009009 1.794795
## 9198 0.197197197 0.009009009 1.793794
## 9199 0.198198198 0.009009009 1.792793
## 9200 0.199199199 0.009009009 1.791792
## 9201 0.200200200 0.009009009 1.790791
## 9202 0.201201201 0.009009009 1.789790
## 9203 0.202202202 0.009009009 1.788789
## 9204 0.203203203 0.009009009 1.787788
## 9205 0.204204204 0.009009009 1.786787
## 9206 0.205205205 0.009009009 1.785786

```

```
## 9207 0.206206206 0.009009009 1.784785
## 9208 0.207207207 0.009009009 1.783784
## 9209 0.208208208 0.009009009 1.782783
## 9210 0.209209209 0.009009009 1.781782
## 9211 0.210210210 0.009009009 1.780781
## 9212 0.211211211 0.009009009 1.779780
## 9213 0.212212212 0.009009009 1.778779
## 9214 0.213213213 0.009009009 1.777778
## 9215 0.214214214 0.009009009 1.776777
## 9216 0.215215215 0.009009009 1.775776
## 9217 0.216216216 0.009009009 1.774775
## 9218 0.217217217 0.009009009 1.773774
## 9219 0.218218218 0.009009009 1.772773
## 9220 0.219219219 0.009009009 1.771772
## 9221 0.220220220 0.009009009 1.770771
## 9222 0.221221221 0.009009009 1.769770
## 9223 0.222222222 0.009009009 1.768769
## 9224 0.223223223 0.009009009 1.767768
## 9225 0.224224224 0.009009009 1.766767
## 9226 0.225225225 0.009009009 1.765766
## 9227 0.226226226 0.009009009 1.764765
## 9228 0.227227227 0.009009009 1.763764
## 9229 0.228228228 0.009009009 1.762763
## 9230 0.229229229 0.009009009 1.761762
## 9231 0.230230230 0.009009009 1.760761
## 9232 0.231231231 0.009009009 1.759760
## 9233 0.232232232 0.009009009 1.758759
## 9234 0.233233233 0.009009009 1.757758
## 9235 0.234234234 0.009009009 1.756757
## 9236 0.235235235 0.009009009 1.755756
## 9237 0.236236236 0.009009009 1.754755
## 9238 0.237237237 0.009009009 1.753754
## 9239 0.238238238 0.009009009 1.752753
## 9240 0.239239239 0.009009009 1.751752
## 9241 0.240240240 0.009009009 1.750751
## 9242 0.241241241 0.009009009 1.749750
## 9243 0.242242242 0.009009009 1.748749
## 9244 0.243243243 0.009009009 1.747748
## 9245 0.244244244 0.009009009 1.746747
## 9246 0.245245245 0.009009009 1.745746
## 9247 0.246246246 0.009009009 1.744745
## 9248 0.247247247 0.009009009 1.743744
## 9249 0.248248248 0.009009009 1.742743
## 9250 0.249249249 0.009009009 1.741742
## 9251 0.250250250 0.009009009 1.740741
## 9252 0.251251251 0.009009009 1.739740
```

```

## 9253 0.252252252 0.009009009 1.738739
## 9254 0.253253253 0.009009009 1.737738
## 9255 0.254254254 0.009009009 1.736737
## 9256 0.255255255 0.009009009 1.735736
## 9257 0.256256256 0.009009009 1.734735
## 9258 0.257257257 0.009009009 1.733734
## 9259 0.258258258 0.009009009 1.732733
## 9260 0.259259259 0.009009009 1.731732
## 9261 0.260260260 0.009009009 1.730731
## 9262 0.261261261 0.009009009 1.729730
## 9263 0.262262262 0.009009009 1.728729
## 9264 0.263263263 0.009009009 1.727728
## 9265 0.264264264 0.009009009 1.726727
## 9266 0.265265265 0.009009009 1.725726
## 9267 0.266266266 0.009009009 1.724725
## 9268 0.267267267 0.009009009 1.723724
## 9269 0.268268268 0.009009009 1.722723
## 9270 0.269269269 0.009009009 1.721722
## 9271 0.270270270 0.009009009 1.720721
## 9272 0.271271271 0.009009009 1.719720
## 9273 0.272272272 0.009009009 1.718719
## 9274 0.273273273 0.009009009 1.717718
## 9275 0.274274274 0.009009009 1.716717
## 9276 0.275275275 0.009009009 1.715716
## 9277 0.276276276 0.009009009 1.714715
## 9278 0.277277277 0.009009009 1.713714
## 9279 0.278278278 0.009009009 1.712713
## 9280 0.279279279 0.009009009 1.711712
## 9281 0.280280280 0.009009009 1.710711
## 9282 0.281281281 0.009009009 1.709710
## 9283 0.282282282 0.009009009 1.708709
## 9284 0.283283283 0.009009009 1.707708
## 9285 0.284284284 0.009009009 1.706707
## 9286 0.285285285 0.009009009 1.705706
## 9287 0.286286286 0.009009009 1.704705
## 9288 0.287287287 0.009009009 1.703704
## 9289 0.288288288 0.009009009 1.702703
## 9290 0.289289289 0.009009009 1.701702
## 9291 0.290290290 0.009009009 1.700701
## 9292 0.291291291 0.009009009 1.699700
## 9293 0.292292292 0.009009009 1.698699
## 9294 0.293293293 0.009009009 1.697698
## 9295 0.294294294 0.009009009 1.696697
## 9296 0.295295295 0.009009009 1.695696
## 9297 0.296296296 0.009009009 1.694695
## 9298 0.297297297 0.009009009 1.693694

```

```
## 9299 0.298298298 0.009009009 1.692693
## 9300 0.299299299 0.009009009 1.691692
## 9301 0.300300300 0.009009009 1.690691
## 9302 0.301301301 0.009009009 1.689690
## 9303 0.302302302 0.009009009 1.688689
## 9304 0.303303303 0.009009009 1.687688
## 9305 0.304304304 0.009009009 1.686687
## 9306 0.305305305 0.009009009 1.685686
## 9307 0.306306306 0.009009009 1.684685
## 9308 0.307307307 0.009009009 1.683684
## 9309 0.308308308 0.009009009 1.682683
## 9310 0.309309309 0.009009009 1.681682
## 9311 0.310310310 0.009009009 1.680681
## 9312 0.311311311 0.009009009 1.679680
## 9313 0.312312312 0.009009009 1.678679
## 9314 0.313313313 0.009009009 1.677678
## 9315 0.314314314 0.009009009 1.676677
## 9316 0.315315315 0.009009009 1.675676
## 9317 0.316316316 0.009009009 1.674675
## 9318 0.317317317 0.009009009 1.673674
## 9319 0.318318318 0.009009009 1.672673
## 9320 0.319319319 0.009009009 1.671672
## 9321 0.320320320 0.009009009 1.670671
## 9322 0.321321321 0.009009009 1.669670
## 9323 0.322322322 0.009009009 1.668669
## 9324 0.323323323 0.009009009 1.667668
## 9325 0.324324324 0.009009009 1.666667
## 9326 0.325325325 0.009009009 1.665666
## 9327 0.326326326 0.009009009 1.664665
## 9328 0.327327327 0.009009009 1.663664
## 9329 0.328328328 0.009009009 1.662663
## 9330 0.329329329 0.009009009 1.661662
## 9331 0.330330330 0.009009009 1.660661
## 9332 0.331331331 0.009009009 1.659660
## 9333 0.332332332 0.009009009 1.658659
## 9334 0.333333333 0.009009009 1.657658
## 9335 0.334334334 0.009009009 1.656657
## 9336 0.335335335 0.009009009 1.655656
## 9337 0.336336336 0.009009009 1.654655
## 9338 0.337337337 0.009009009 1.653654
## 9339 0.338338338 0.009009009 1.652653
## 9340 0.339339339 0.009009009 1.651652
## 9341 0.340340340 0.009009009 1.650651
## 9342 0.341341341 0.009009009 1.649650
## 9343 0.342342342 0.009009009 1.648649
## 9344 0.343343343 0.009009009 1.647648
```

```

## 9345 0.344344344 0.009009009 1.646647
## 9346 0.345345345 0.009009009 1.645646
## 9347 0.346346346 0.009009009 1.644645
## 9348 0.347347347 0.009009009 1.643644
## 9349 0.348348348 0.009009009 1.642643
## 9350 0.349349349 0.009009009 1.641642
## 9351 0.350350350 0.009009009 1.640641
## 9352 0.351351351 0.009009009 1.639640
## 9353 0.352352352 0.009009009 1.638639
## 9354 0.353353353 0.009009009 1.637638
## 9355 0.354354354 0.009009009 1.636637
## 9356 0.355355355 0.009009009 1.635636
## 9357 0.356356356 0.009009009 1.634635
## 9358 0.357357357 0.009009009 1.633634
## 9359 0.358358358 0.009009009 1.632633
## 9360 0.359359359 0.009009009 1.631632
## 9361 0.360360360 0.009009009 1.630631
## 9362 0.361361361 0.009009009 1.629630
## 9363 0.362362362 0.009009009 1.628629
## 9364 0.363363363 0.009009009 1.627628
## 9365 0.364364364 0.009009009 1.626627
## 9366 0.365365365 0.009009009 1.625626
## 9367 0.366366366 0.009009009 1.624625
## 9368 0.367367367 0.009009009 1.623624
## 9369 0.368368368 0.009009009 1.622623
## 9370 0.369369369 0.009009009 1.621622
## 9371 0.370370370 0.009009009 1.620621
## 9372 0.371371371 0.009009009 1.619620
## 9373 0.372372372 0.009009009 1.618619
## 9374 0.373373373 0.009009009 1.617618
## 9375 0.374374374 0.009009009 1.616617
## 9376 0.375375375 0.009009009 1.615616
## 9377 0.376376376 0.009009009 1.614615
## 9378 0.377377377 0.009009009 1.613614
## 9379 0.378378378 0.009009009 1.612613
## 9380 0.379379379 0.009009009 1.611612
## 9381 0.380380380 0.009009009 1.610611
## 9382 0.381381381 0.009009009 1.609610
## 9383 0.382382382 0.009009009 1.608609
## 9384 0.383383383 0.009009009 1.607608
## 9385 0.384384384 0.009009009 1.606607
## 9386 0.385385385 0.009009009 1.605606
## 9387 0.386386386 0.009009009 1.604605
## 9388 0.387387387 0.009009009 1.603604
## 9389 0.388388388 0.009009009 1.602603
## 9390 0.389389389 0.009009009 1.601602

```

```
## 9391 0.390390390 0.009009009 1.600601
## 9392 0.391391391 0.009009009 1.599600
## 9393 0.392392392 0.009009009 1.598599
## 9394 0.393393393 0.009009009 1.597598
## 9395 0.394394394 0.009009009 1.596597
## 9396 0.395395395 0.009009009 1.595596
## 9397 0.396396396 0.009009009 1.594595
## 9398 0.397397397 0.009009009 1.593594
## 9399 0.398398398 0.009009009 1.592593
## 9400 0.399399399 0.009009009 1.591592
## 9401 0.400400400 0.009009009 1.590591
## 9402 0.401401401 0.009009009 1.589590
## 9403 0.402402402 0.009009009 1.588589
## 9404 0.403403403 0.009009009 1.587588
## 9405 0.404404404 0.009009009 1.586587
## 9406 0.405405405 0.009009009 1.585586
## 9407 0.406406406 0.009009009 1.584585
## 9408 0.407407407 0.009009009 1.583584
## 9409 0.408408408 0.009009009 1.582583
## 9410 0.409409409 0.009009009 1.581582
## 9411 0.410410410 0.009009009 1.580581
## 9412 0.411411411 0.009009009 1.579580
## 9413 0.412412412 0.009009009 1.578579
## 9414 0.413413413 0.009009009 1.577578
## 9415 0.414414414 0.009009009 1.576577
## 9416 0.415415415 0.009009009 1.575576
## 9417 0.416416416 0.009009009 1.574575
## 9418 0.417417417 0.009009009 1.573574
## 9419 0.418418418 0.009009009 1.572573
## 9420 0.419419419 0.009009009 1.571572
## 9421 0.420420420 0.009009009 1.570571
## 9422 0.421421421 0.009009009 1.569570
## 9423 0.422422422 0.009009009 1.568569
## 9424 0.423423423 0.009009009 1.567568
## 9425 0.424424424 0.009009009 1.566567
## 9426 0.425425425 0.009009009 1.565566
## 9427 0.426426426 0.009009009 1.564565
## 9428 0.427427427 0.009009009 1.563564
## 9429 0.428428428 0.009009009 1.562563
## 9430 0.429429429 0.009009009 1.561562
## 9431 0.430430430 0.009009009 1.560561
## 9432 0.431431431 0.009009009 1.559560
## 9433 0.432432432 0.009009009 1.558559
## 9434 0.433433433 0.009009009 1.557558
## 9435 0.434434434 0.009009009 1.556557
## 9436 0.435435435 0.009009009 1.555556
```

```

## 9437 0.436436436 0.009009009 1.554555
## 9438 0.437437437 0.009009009 1.553554
## 9439 0.438438438 0.009009009 1.552553
## 9440 0.439439439 0.009009009 1.551552
## 9441 0.440440440 0.009009009 1.550551
## 9442 0.441441441 0.009009009 1.549550
## 9443 0.442442442 0.009009009 1.548549
## 9444 0.443443443 0.009009009 1.547548
## 9445 0.444444444 0.009009009 1.546547
## 9446 0.445445445 0.009009009 1.545546
## 9447 0.446446446 0.009009009 1.544545
## 9448 0.447447447 0.009009009 1.543544
## 9449 0.448448448 0.009009009 1.542543
## 9450 0.449449449 0.009009009 1.541542
## 9451 0.450450450 0.009009009 1.540541
## 9452 0.451451451 0.009009009 1.539540
## 9453 0.452452452 0.009009009 1.538539
## 9454 0.453453453 0.009009009 1.537538
## 9455 0.454454454 0.009009009 1.536537
## 9456 0.455455455 0.009009009 1.535536
## 9457 0.456456456 0.009009009 1.534535
## 9458 0.457457457 0.009009009 1.533534
## 9459 0.458458458 0.009009009 1.532533
## 9460 0.459459459 0.009009009 1.531532
## 9461 0.460460460 0.009009009 1.530531
## 9462 0.461461461 0.009009009 1.529530
## 9463 0.462462462 0.009009009 1.528529
## 9464 0.463463463 0.009009009 1.527528
## 9465 0.464464464 0.009009009 1.526527
## 9466 0.465465465 0.009009009 1.525526
## 9467 0.466466466 0.009009009 1.524525
## 9468 0.467467467 0.009009009 1.523524
## 9469 0.468468468 0.009009009 1.522523
## 9470 0.469469469 0.009009009 1.521522
## 9471 0.470470470 0.009009009 1.520521
## 9472 0.471471471 0.009009009 1.519520
## 9473 0.472472472 0.009009009 1.518519
## 9474 0.473473473 0.009009009 1.517518
## 9475 0.474474474 0.009009009 1.516517
## 9476 0.475475475 0.009009009 1.515516
## 9477 0.476476476 0.009009009 1.514515
## 9478 0.477477477 0.009009009 1.513514
## 9479 0.478478478 0.009009009 1.512513
## 9480 0.479479479 0.009009009 1.511512
## 9481 0.480480480 0.009009009 1.510511
## 9482 0.481481481 0.009009009 1.509510

```

```
## 9483 0.482482482 0.009009009 1.508509
## 9484 0.483483483 0.009009009 1.507508
## 9485 0.484484484 0.009009009 1.506507
## 9486 0.485485485 0.009009009 1.505506
## 9487 0.486486486 0.009009009 1.504505
## 9488 0.487487487 0.009009009 1.503504
## 9489 0.488488488 0.009009009 1.502503
## 9490 0.489489489 0.009009009 1.501502
## 9491 0.490490490 0.009009009 1.500501
## 9492 0.491491491 0.009009009 1.499499
## 9493 0.492492492 0.009009009 1.498498
## 9494 0.493493493 0.009009009 1.497497
## 9495 0.494494494 0.009009009 1.496496
## 9496 0.495495495 0.009009009 1.495495
## 9497 0.496496496 0.009009009 1.494494
## 9498 0.497497497 0.009009009 1.493493
## 9499 0.498498498 0.009009009 1.492492
## 9500 0.499499499 0.009009009 1.491491
## 9501 0.500500501 0.009009009 1.490490
## 9502 0.501501502 0.009009009 1.489489
## 9503 0.502502503 0.009009009 1.488488
## 9504 0.503503504 0.009009009 1.487487
## 9505 0.504504505 0.009009009 1.486486
## 9506 0.505505506 0.009009009 1.485485
## 9507 0.506506507 0.009009009 1.484484
## 9508 0.507507508 0.009009009 1.483483
## 9509 0.508508509 0.009009009 1.482482
## 9510 0.509509510 0.009009009 1.481481
## 9511 0.510510511 0.009009009 1.480480
## 9512 0.511511512 0.009009009 1.479479
## 9513 0.512512513 0.009009009 1.478478
## 9514 0.513513514 0.009009009 1.477477
## 9515 0.514514515 0.009009009 1.476476
## 9516 0.515515516 0.009009009 1.475475
## 9517 0.516516517 0.009009009 1.474474
## 9518 0.517517518 0.009009009 1.473473
## 9519 0.518518519 0.009009009 1.472472
## 9520 0.519519520 0.009009009 1.471471
## 9521 0.520520521 0.009009009 1.470470
## 9522 0.521521522 0.009009009 1.469469
## 9523 0.522522523 0.009009009 1.468468
## 9524 0.523523524 0.009009009 1.467467
## 9525 0.524524525 0.009009009 1.466466
## 9526 0.525525526 0.009009009 1.465465
## 9527 0.526526527 0.009009009 1.464464
## 9528 0.527527528 0.009009009 1.463463
```

```

## 9529  0.528528529 0.009009009 1.462462
## 9530  0.529529530 0.009009009 1.461461
## 9531  0.530530531 0.009009009 1.460460
## 9532  0.531531532 0.009009009 1.459459
## 9533  0.532532533 0.009009009 1.458458
## 9534  0.533533534 0.009009009 1.457457
## 9535  0.534534535 0.009009009 1.456456
## 9536  0.535535536 0.009009009 1.455455
## 9537  0.536536537 0.009009009 1.454454
## 9538  0.537537538 0.009009009 1.453453
## 9539  0.538538539 0.009009009 1.452452
## 9540  0.539539540 0.009009009 1.451451
## 9541  0.540540541 0.009009009 1.450450
## 9542  0.541541542 0.009009009 1.449449
## 9543  0.542542543 0.009009009 1.448448
## 9544  0.543543544 0.009009009 1.447447
## 9545  0.544544545 0.009009009 1.446446
## 9546  0.545545546 0.009009009 1.445445
## 9547  0.546546547 0.009009009 1.444444
## 9548  0.547547548 0.009009009 1.443443
## 9549  0.548548549 0.009009009 1.442442
## 9550  0.549549550 0.009009009 1.441441
## 9551  0.550550551 0.009009009 1.440440
## 9552  0.551551552 0.009009009 1.439439
## 9553  0.552552553 0.009009009 1.438438
## 9554  0.553553554 0.009009009 1.437437
## 9555  0.554554555 0.009009009 1.436436
## 9556  0.555555556 0.009009009 1.435435
## 9557  0.556556557 0.009009009 1.434434
## 9558  0.557557558 0.009009009 1.433433
## 9559  0.558558559 0.009009009 1.432432
## 9560  0.559559560 0.009009009 1.431431
## 9561  0.560560561 0.009009009 1.430430
## 9562  0.561561562 0.009009009 1.429429
## 9563  0.562562563 0.009009009 1.428428
## 9564  0.563563564 0.009009009 1.427427
## 9565  0.564564565 0.009009009 1.426426
## 9566  0.565565566 0.009009009 1.425425
## 9567  0.566566567 0.009009009 1.424424
## 9568  0.567567568 0.009009009 1.423423
## 9569  0.568568569 0.009009009 1.422422
## 9570  0.569569570 0.009009009 1.421421
## 9571  0.570570571 0.009009009 1.420420
## 9572  0.571571572 0.009009009 1.419419
## 9573  0.572572573 0.009009009 1.418418
## 9574  0.573573574 0.009009009 1.417417

```

```
## 9575 0.574574575 0.009009009 1.416416
## 9576 0.575575576 0.009009009 1.415415
## 9577 0.576576577 0.009009009 1.414414
## 9578 0.577577578 0.009009009 1.413413
## 9579 0.578578579 0.009009009 1.412412
## 9580 0.579579580 0.009009009 1.411411
## 9581 0.580580581 0.009009009 1.410410
## 9582 0.581581582 0.009009009 1.409409
## 9583 0.582582583 0.009009009 1.408408
## 9584 0.583583584 0.009009009 1.407407
## 9585 0.584584585 0.009009009 1.406406
## 9586 0.585585586 0.009009009 1.405405
## 9587 0.586586587 0.009009009 1.404404
## 9588 0.587587588 0.009009009 1.403403
## 9589 0.588588589 0.009009009 1.402402
## 9590 0.589589590 0.009009009 1.401401
## 9591 0.590590591 0.009009009 1.400400
## 9592 0.591591592 0.009009009 1.399399
## 9593 0.592592593 0.009009009 1.398398
## 9594 0.593593594 0.009009009 1.397397
## 9595 0.594594595 0.009009009 1.396396
## 9596 0.595595596 0.009009009 1.395395
## 9597 0.596596597 0.009009009 1.394394
## 9598 0.597597598 0.009009009 1.393393
## 9599 0.598598599 0.009009009 1.392392
## 9600 0.599599600 0.009009009 1.391391
## 9601 0.600600601 0.009009009 1.390390
## 9602 0.601601602 0.009009009 1.389389
## 9603 0.602602603 0.009009009 1.388388
## 9604 0.603603604 0.009009009 1.387387
## 9605 0.604604605 0.009009009 1.386386
## 9606 0.605605606 0.009009009 1.385385
## 9607 0.606606607 0.009009009 1.384384
## 9608 0.607607608 0.009009009 1.383383
## 9609 0.608608609 0.009009009 1.382382
## 9610 0.609609610 0.009009009 1.381381
## 9611 0.610610611 0.009009009 1.380380
## 9612 0.611611612 0.009009009 1.379379
## 9613 0.612612613 0.009009009 1.378378
## 9614 0.613613614 0.009009009 1.377377
## 9615 0.614614615 0.009009009 1.376376
## 9616 0.615615616 0.009009009 1.375375
## 9617 0.616616617 0.009009009 1.374374
## 9618 0.617617618 0.009009009 1.373373
## 9619 0.618618619 0.009009009 1.372372
## 9620 0.619619620 0.009009009 1.371371
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR321

```
## 9621 0.620620621 0.009009009 1.370370
## 9622 0.621621622 0.009009009 1.369369
## 9623 0.622622623 0.009009009 1.368368
## 9624 0.623623624 0.009009009 1.367367
## 9625 0.624624625 0.009009009 1.366366
## 9626 0.625625626 0.009009009 1.365365
## 9627 0.626626627 0.009009009 1.364364
## 9628 0.627627628 0.009009009 1.363363
## 9629 0.628628629 0.009009009 1.362362
## 9630 0.629629630 0.009009009 1.361361
## 9631 0.630630631 0.009009009 1.360360
## 9632 0.631631632 0.009009009 1.359359
## 9633 0.632632633 0.009009009 1.358358
## 9634 0.633633634 0.009009009 1.357357
## 9635 0.634634635 0.009009009 1.356356
## 9636 0.635635636 0.009009009 1.355355
## 9637 0.636636637 0.009009009 1.354354
## 9638 0.637637638 0.009009009 1.353353
## 9639 0.638638639 0.009009009 1.352352
## 9640 0.639639640 0.009009009 1.351351
## 9641 0.640640641 0.009009009 1.350350
## 9642 0.641641642 0.009009009 1.349349
## 9643 0.642642643 0.009009009 1.348348
## 9644 0.643643644 0.009009009 1.347347
## 9645 0.644644645 0.009009009 1.346346
## 9646 0.645645646 0.009009009 1.345345
## 9647 0.646646647 0.009009009 1.344344
## 9648 0.647647648 0.009009009 1.343343
## 9649 0.648648649 0.009009009 1.342342
## 9650 0.649649650 0.009009009 1.341341
## 9651 0.650650651 0.009009009 1.340340
## 9652 0.651651652 0.009009009 1.339339
## 9653 0.652652653 0.009009009 1.338338
## 9654 0.653653654 0.009009009 1.337337
## 9655 0.654654655 0.009009009 1.336336
## 9656 0.655655656 0.009009009 1.335335
## 9657 0.656656657 0.009009009 1.334334
## 9658 0.657657658 0.009009009 1.333333
## 9659 0.658658659 0.009009009 1.332332
## 9660 0.659659660 0.009009009 1.331331
## 9661 0.660660661 0.009009009 1.330330
## 9662 0.661661662 0.009009009 1.329329
## 9663 0.662662663 0.009009009 1.328328
## 9664 0.663663664 0.009009009 1.327327
## 9665 0.664664665 0.009009009 1.326326
## 9666 0.665665666 0.009009009 1.325325
```

```
## 9667  0.6666666667 0.009009009 1.324324
## 9668  0.6676676668 0.009009009 1.323323
## 9669  0.6686668669 0.009009009 1.322322
## 9670  0.6696669670 0.009009009 1.321321
## 9671  0.670670671 0.009009009 1.320320
## 9672  0.671671672 0.009009009 1.319319
## 9673  0.672672673 0.009009009 1.318318
## 9674  0.673673674 0.009009009 1.317317
## 9675  0.674674675 0.009009009 1.316316
## 9676  0.675675676 0.009009009 1.315315
## 9677  0.676676677 0.009009009 1.314314
## 9678  0.677677678 0.009009009 1.313313
## 9679  0.678678679 0.009009009 1.312312
## 9680  0.679679680 0.009009009 1.311311
## 9681  0.680680681 0.009009009 1.310310
## 9682  0.681681682 0.009009009 1.309309
## 9683  0.682682683 0.009009009 1.308308
## 9684  0.683683684 0.009009009 1.307307
## 9685  0.684684685 0.009009009 1.306306
## 9686  0.685685686 0.009009009 1.305305
## 9687  0.686686687 0.009009009 1.304304
## 9688  0.687687688 0.009009009 1.303303
## 9689  0.688688689 0.009009009 1.302302
## 9690  0.689689690 0.009009009 1.301301
## 9691  0.690690691 0.009009009 1.300300
## 9692  0.691691692 0.009009009 1.299299
## 9693  0.692692693 0.009009009 1.298298
## 9694  0.693693694 0.009009009 1.297297
## 9695  0.694694695 0.009009009 1.296296
## 9696  0.695695696 0.009009009 1.295295
## 9697  0.696696697 0.009009009 1.294294
## 9698  0.697697698 0.009009009 1.293293
## 9699  0.698698699 0.009009009 1.292292
## 9700  0.699699700 0.009009009 1.291291
## 9701  0.700700701 0.009009009 1.290290
## 9702  0.701701702 0.009009009 1.289289
## 9703  0.702702703 0.009009009 1.288288
## 9704  0.703703704 0.009009009 1.287287
## 9705  0.704704705 0.009009009 1.286286
## 9706  0.705705706 0.009009009 1.285285
## 9707  0.706706707 0.009009009 1.284284
## 9708  0.707707708 0.009009009 1.283283
## 9709  0.708708709 0.009009009 1.282282
## 9710  0.709709710 0.009009009 1.281281
## 9711  0.710710711 0.009009009 1.280280
## 9712  0.711711712 0.009009009 1.279279
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR323

```

## 9713 0.712712713 0.009009009 1.278278
## 9714 0.713713714 0.009009009 1.277277
## 9715 0.714714715 0.009009009 1.276276
## 9716 0.715715716 0.009009009 1.275275
## 9717 0.716716717 0.009009009 1.274274
## 9718 0.717717718 0.009009009 1.273273
## 9719 0.718718719 0.009009009 1.272272
## 9720 0.719719720 0.009009009 1.271271
## 9721 0.720720721 0.009009009 1.270270
## 9722 0.721721722 0.009009009 1.269269
## 9723 0.722722723 0.009009009 1.268268
## 9724 0.723723724 0.009009009 1.267267
## 9725 0.724724725 0.009009009 1.266266
## 9726 0.725725726 0.009009009 1.265265
## 9727 0.726726727 0.009009009 1.264264
## 9728 0.727727728 0.009009009 1.263263
## 9729 0.728728729 0.009009009 1.262262
## 9730 0.729729730 0.009009009 1.261261
## 9731 0.730730731 0.009009009 1.260260
## 9732 0.731731732 0.009009009 1.259259
## 9733 0.732732733 0.009009009 1.258258
## 9734 0.733733734 0.009009009 1.257257
## 9735 0.734734735 0.009009009 1.256256
## 9736 0.735735736 0.009009009 1.255255
## 9737 0.736736737 0.009009009 1.254254
## 9738 0.737737738 0.009009009 1.253253
## 9739 0.738738739 0.009009009 1.252252
## 9740 0.739739740 0.009009009 1.251251
## 9741 0.740740741 0.009009009 1.250250
## 9742 0.741741742 0.009009009 1.249249
## 9743 0.742742743 0.009009009 1.248248
## 9744 0.743743744 0.009009009 1.247247
## 9745 0.744744745 0.009009009 1.246246
## 9746 0.745745746 0.009009009 1.245245
## 9747 0.746746747 0.009009009 1.244244
## 9748 0.747747748 0.009009009 1.243243
## 9749 0.748748749 0.009009009 1.242242
## 9750 0.749749750 0.009009009 1.241241
## 9751 0.750750751 0.009009009 1.240240
## 9752 0.751751752 0.009009009 1.239239
## 9753 0.752752753 0.009009009 1.238238
## 9754 0.753753754 0.009009009 1.237237
## 9755 0.754754755 0.009009009 1.236236
## 9756 0.755755756 0.009009009 1.235235
## 9757 0.756756757 0.009009009 1.234234
## 9758 0.757757758 0.009009009 1.233233

```

```
## 9759  0.758758759 0.009009009 1.232232
## 9760  0.759759760 0.009009009 1.231231
## 9761  0.760760761 0.009009009 1.230230
## 9762  0.761761762 0.009009009 1.229229
## 9763  0.762762763 0.009009009 1.228228
## 9764  0.763763764 0.009009009 1.227227
## 9765  0.764764765 0.009009009 1.226226
## 9766  0.765765766 0.009009009 1.225225
## 9767  0.766766767 0.009009009 1.224224
## 9768  0.767767768 0.009009009 1.223223
## 9769  0.768768769 0.009009009 1.222222
## 9770  0.769769770 0.009009009 1.221221
## 9771  0.770770771 0.009009009 1.220220
## 9772  0.771771772 0.009009009 1.219219
## 9773  0.772772773 0.009009009 1.218218
## 9774  0.773773774 0.009009009 1.217217
## 9775  0.774774775 0.009009009 1.216216
## 9776  0.775775776 0.009009009 1.215215
## 9777  0.776776777 0.009009009 1.214214
## 9778  0.777777778 0.009009009 1.213213
## 9779  0.778778779 0.009009009 1.212212
## 9780  0.779779780 0.009009009 1.211211
## 9781  0.780780781 0.009009009 1.210210
## 9782  0.781781782 0.009009009 1.209209
## 9783  0.782782783 0.009009009 1.208208
## 9784  0.783783784 0.009009009 1.207207
## 9785  0.784784785 0.009009009 1.206206
## 9786  0.785785786 0.009009009 1.205205
## 9787  0.786786787 0.009009009 1.204204
## 9788  0.787787788 0.009009009 1.203203
## 9789  0.788788789 0.009009009 1.202202
## 9790  0.789789790 0.009009009 1.201201
## 9791  0.790790791 0.009009009 1.200200
## 9792  0.791791792 0.009009009 1.199199
## 9793  0.792792793 0.009009009 1.198198
## 9794  0.793793794 0.009009009 1.197197
## 9795  0.794794795 0.009009009 1.196196
## 9796  0.795795796 0.009009009 1.195195
## 9797  0.796796797 0.009009009 1.194194
## 9798  0.797797798 0.009009009 1.193193
## 9799  0.798798799 0.009009009 1.192192
## 9800  0.799799800 0.009009009 1.191191
## 9801  0.800800801 0.009009009 1.190190
## 9802  0.801801802 0.009009009 1.189189
## 9803  0.802802803 0.009009009 1.188188
## 9804  0.803803804 0.009009009 1.187187
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR325

```

## 9805  0.804804805 0.009009009 1.186186
## 9806  0.805805806 0.009009009 1.185185
## 9807  0.806806807 0.009009009 1.184184
## 9808  0.807807808 0.009009009 1.183183
## 9809  0.808808809 0.009009009 1.182182
## 9810  0.809809810 0.009009009 1.181181
## 9811  0.810810811 0.009009009 1.180180
## 9812  0.811811812 0.009009009 1.179179
## 9813  0.812812813 0.009009009 1.178178
## 9814  0.813813814 0.009009009 1.177177
## 9815  0.814814815 0.009009009 1.176176
## 9816  0.815815816 0.009009009 1.175175
## 9817  0.816816817 0.009009009 1.174174
## 9818  0.817817818 0.009009009 1.173173
## 9819  0.818818819 0.009009009 1.172172
## 9820  0.819819820 0.009009009 1.171171
## 9821  0.820820821 0.009009009 1.170170
## 9822  0.821821822 0.009009009 1.169169
## 9823  0.822822823 0.009009009 1.168168
## 9824  0.823823824 0.009009009 1.167167
## 9825  0.824824825 0.009009009 1.166166
## 9826  0.825825826 0.009009009 1.165165
## 9827  0.826826827 0.009009009 1.164164
## 9828  0.827827828 0.009009009 1.163163
## 9829  0.828828829 0.009009009 1.162162
## 9830  0.829829830 0.009009009 1.161161
## 9831  0.830830831 0.009009009 1.160160
## 9832  0.831831832 0.009009009 1.159159
## 9833  0.832832833 0.009009009 1.158158
## 9834  0.833833834 0.009009009 1.157157
## 9835  0.834834835 0.009009009 1.156156
## 9836  0.835835836 0.009009009 1.155155
## 9837  0.836836837 0.009009009 1.154154
## 9838  0.837837838 0.009009009 1.153153
## 9839  0.838838839 0.009009009 1.152152
## 9840  0.839839840 0.009009009 1.151151
## 9841  0.840840841 0.009009009 1.150150
## 9842  0.841841842 0.009009009 1.149149
## 9843  0.842842843 0.009009009 1.148148
## 9844  0.843843844 0.009009009 1.147147
## 9845  0.844844845 0.009009009 1.146146
## 9846  0.845845846 0.009009009 1.145145
## 9847  0.846846847 0.009009009 1.144144
## 9848  0.847847848 0.009009009 1.143143
## 9849  0.848848849 0.009009009 1.142142
## 9850  0.849849850 0.009009009 1.141141

```

```
## 9851  0.850850851 0.009009009 1.140140
## 9852  0.851851852 0.009009009 1.139139
## 9853  0.852852853 0.009009009 1.138138
## 9854  0.853853854 0.009009009 1.137137
## 9855  0.854854855 0.009009009 1.136136
## 9856  0.855855856 0.009009009 1.135135
## 9857  0.856856857 0.009009009 1.134134
## 9858  0.857857858 0.009009009 1.133133
## 9859  0.858858859 0.009009009 1.132132
## 9860  0.859859860 0.009009009 1.131131
## 9861  0.860860861 0.009009009 1.130130
## 9862  0.861861862 0.009009009 1.129129
## 9863  0.862862863 0.009009009 1.128128
## 9864  0.863863864 0.009009009 1.127127
## 9865  0.864864865 0.009009009 1.126126
## 9866  0.865865866 0.009009009 1.125125
## 9867  0.866866867 0.009009009 1.124124
## 9868  0.867867868 0.009009009 1.123123
## 9869  0.868868869 0.009009009 1.122122
## 9870  0.869869870 0.009009009 1.121121
## 9871  0.870870871 0.009009009 1.120120
## 9872  0.871871872 0.009009009 1.119119
## 9873  0.872872873 0.009009009 1.118118
## 9874  0.873873874 0.009009009 1.117117
## 9875  0.874874875 0.009009009 1.116116
## 9876  0.875875876 0.009009009 1.115115
## 9877  0.876876877 0.009009009 1.114114
## 9878  0.877877878 0.009009009 1.113113
## 9879  0.878878879 0.009009009 1.112112
## 9880  0.879879880 0.009009009 1.111111
## 9881  0.880880881 0.009009009 1.110110
## 9882  0.881881882 0.009009009 1.109109
## 9883  0.882882883 0.009009009 1.108108
## 9884  0.883883884 0.009009009 1.107107
## 9885  0.884884885 0.009009009 1.106106
## 9886  0.885885886 0.009009009 1.105105
## 9887  0.886886887 0.009009009 1.104104
## 9888  0.887887888 0.009009009 1.103103
## 9889  0.888888889 0.009009009 1.102102
## 9890  0.889889890 0.009009009 1.101101
## 9891  0.890890891 0.009009009 1.100100
## 9892  0.891891892 0.009009009 1.099099
## 9893  0.892892893 0.009009009 1.098098
## 9894  0.893893894 0.009009009 1.097097
## 9895  0.894894895 0.009009009 1.096096
## 9896  0.895895896 0.009009009 1.095095
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR327

```

## 9897  0.896896897 0.009009009 1.094094
## 9898  0.897897898 0.009009009 1.093093
## 9899  0.898898899 0.009009009 1.092092
## 9900  0.899899900 0.009009009 1.091091
## 9901  0.900900901 0.009009009 1.090090
## 9902  0.901901902 0.009009009 1.089089
## 9903  0.902902903 0.009009009 1.088088
## 9904  0.903903904 0.009009009 1.087087
## 9905  0.904904905 0.009009009 1.086086
## 9906  0.905905906 0.009009009 1.085085
## 9907  0.906906907 0.009009009 1.084084
## 9908  0.907907908 0.009009009 1.083083
## 9909  0.908908909 0.009009009 1.082082
## 9910  0.909909910 0.009009009 1.081081
## 9911  0.910910911 0.009009009 1.080080
## 9912  0.911911912 0.009009009 1.079079
## 9913  0.912912913 0.009009009 1.078078
## 9914  0.913913914 0.009009009 1.077077
## 9915  0.914914915 0.009009009 1.076076
## 9916  0.915915916 0.009009009 1.075075
## 9917  0.916916917 0.009009009 1.074074
## 9918  0.917917918 0.009009009 1.073073
## 9919  0.918918919 0.009009009 1.072072
## 9920  0.919919920 0.009009009 1.071071
## 9921  0.920920921 0.009009009 1.070070
## 9922  0.921921922 0.009009009 1.069069
## 9923  0.922922923 0.009009009 1.068068
## 9924  0.923923924 0.009009009 1.067067
## 9925  0.924924925 0.009009009 1.066066
## 9926  0.925925926 0.009009009 1.065065
## 9927  0.926926927 0.009009009 1.064064
## 9928  0.927927928 0.009009009 1.063063
## 9929  0.928928929 0.009009009 1.062062
## 9930  0.929929930 0.009009009 1.061061
## 9931  0.930930931 0.009009009 1.060060
## 9932  0.931931932 0.009009009 1.059059
## 9933  0.932932933 0.009009009 1.058058
## 9934  0.933933934 0.009009009 1.057057
## 9935  0.934934935 0.009009009 1.056056
## 9936  0.935935936 0.009009009 1.055055
## 9937  0.936936937 0.009009009 1.054054
## 9938  0.937937938 0.009009009 1.053053
## 9939  0.938938939 0.009009009 1.052052
## 9940  0.939939940 0.009009009 1.051051
## 9941  0.940940941 0.009009009 1.050050
## 9942  0.941941942 0.009009009 1.049049

```

```
## 9943 0.942942943 0.009009009 1.048048
## 9944 0.943943944 0.009009009 1.047047
## 9945 0.944944945 0.009009009 1.046046
## 9946 0.945945946 0.009009009 1.045045
## 9947 0.946946947 0.009009009 1.044044
## 9948 0.947947948 0.009009009 1.043043
## 9949 0.948948949 0.009009009 1.042042
## 9950 0.949949950 0.009009009 1.041041
## 9951 0.950950951 0.009009009 1.040040
## 9952 0.951951952 0.009009009 1.039039
## 9953 0.952952953 0.009009009 1.038038
## 9954 0.953953954 0.009009009 1.037037
## 9955 0.954954955 0.009009009 1.036036
## 9956 0.955955956 0.009009009 1.035035
## 9957 0.956956957 0.009009009 1.034034
## 9958 0.957957958 0.009009009 1.033033
## 9959 0.958958959 0.009009009 1.032032
## 9960 0.959959960 0.009009009 1.031031
## 9961 0.960960961 0.009009009 1.030030
## 9962 0.961961962 0.009009009 1.029029
## 9963 0.962962963 0.009009009 1.028028
## 9964 0.963963964 0.009009009 1.027027
## 9965 0.964964965 0.009009009 1.026026
## 9966 0.965965966 0.009009009 1.025025
## 9967 0.966966967 0.009009009 1.024024
## 9968 0.967967968 0.009009009 1.023023
## 9969 0.968968969 0.009009009 1.022022
## 9970 0.969969970 0.009009009 1.021021
## 9971 0.970970971 0.009009009 1.020020
## 9972 0.971971972 0.009009009 1.019019
## 9973 0.972972973 0.009009009 1.018018
## 9974 0.973973974 0.009009009 1.017017
## 9975 0.974974975 0.009009009 1.016016
## 9976 0.975975976 0.009009009 1.015015
## 9977 0.976976977 0.009009009 1.014014
## 9978 0.977977978 0.009009009 1.013013
## 9979 0.978978979 0.009009009 1.012012
## 9980 0.979979980 0.009009009 1.011011
## 9981 0.980980981 0.009009009 1.010010
## 9982 0.981981982 0.009009009 1.009009
## 9983 0.982982983 0.009009009 1.008008
## 9984 0.983983984 0.009009009 1.007007
## 9985 0.984984985 0.009009009 1.006006
## 9986 0.985985986 0.009009009 1.005005
## 9987 0.986986987 0.009009009 1.004004
## 9988 0.987987988 0.009009009 1.003003
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR329

```

## 9989  0.988988989  0.009009009  1.002002
## 9990  0.989989990  0.009009009  1.001001
## 9991  0.990990991  0.009009009  1.000000
## 9992  0.991991992  0.009009009  0.998999
## 9993  0.992992993  0.009009009  0.997998
## 9994  0.993993994  0.009009009  0.996997
## 9995  0.994994995  0.009009009  0.995996
## 9996  0.995995996  0.009009009  0.994995
## 9997  0.996996997  0.009009009  0.993994
## 9998  0.997997998  0.009009009  0.992993
## 9999  0.998998999  0.009009009  0.991992
## 10000 1.000000000  0.009009009  0.990991
## 10001 0.000000000  0.010010010  1.989990
## 10002 0.001001001  0.010010010  1.988989
## 10003 0.002002002  0.010010010  1.987988
## 10004 0.003003003  0.010010010  1.986987
## 10005 0.004004004  0.010010010  1.985986
## 10006 0.005005005  0.010010010  1.984985
## 10007 0.006006006  0.010010010  1.983984
## 10008 0.007007007  0.010010010  1.982983
## 10009 0.008008008  0.010010010  1.981982
## 10010 0.009009009  0.010010010  1.980981
## 10011 0.010010010  0.010010010  1.979980
## 10012 0.011011011  0.010010010  1.978979
## 10013 0.012012012  0.010010010  1.977978
## 10014 0.013013013  0.010010010  1.976977
## 10015 0.014014014  0.010010010  1.975976
## 10016 0.015015015  0.010010010  1.974975
## 10017 0.016016016  0.010010010  1.973974
## 10018 0.017017017  0.010010010  1.972973
## 10019 0.018018018  0.010010010  1.971972
## 10020 0.019019019  0.010010010  1.970971
## 10021 0.020020020  0.010010010  1.969970
## 10022 0.021021021  0.010010010  1.968969
## 10023 0.022022022  0.010010010  1.967968
## 10024 0.023023023  0.010010010  1.966967
## 10025 0.024024024  0.010010010  1.965966
## 10026 0.025025025  0.010010010  1.964965
## 10027 0.026026026  0.010010010  1.963964
## 10028 0.027027027  0.010010010  1.962963
## 10029 0.028028028  0.010010010  1.961962
## 10030 0.029029029  0.010010010  1.960961
## 10031 0.030030030  0.010010010  1.959960
## 10032 0.031031031  0.010010010  1.958959
## 10033 0.032032032  0.010010010  1.957958
## 10034 0.033033033  0.010010010  1.956957

```

```
## 10035 0.034034034 0.010010010 1.955956
## 10036 0.035035035 0.010010010 1.954955
## 10037 0.036036036 0.010010010 1.953954
## 10038 0.037037037 0.010010010 1.952953
## 10039 0.038038038 0.010010010 1.951952
## 10040 0.039039039 0.010010010 1.950951
## 10041 0.040040040 0.010010010 1.949950
## 10042 0.041041041 0.010010010 1.948949
## 10043 0.042042042 0.010010010 1.947948
## 10044 0.043043043 0.010010010 1.946947
## 10045 0.044044044 0.010010010 1.945946
## 10046 0.045045045 0.010010010 1.944945
## 10047 0.046046046 0.010010010 1.943944
## 10048 0.047047047 0.010010010 1.942943
## 10049 0.048048048 0.010010010 1.941942
## 10050 0.049049049 0.010010010 1.940941
## 10051 0.050050050 0.010010010 1.939940
## 10052 0.051051051 0.010010010 1.938939
## 10053 0.052052052 0.010010010 1.937938
## 10054 0.053053053 0.010010010 1.936937
## 10055 0.054054054 0.010010010 1.935936
## 10056 0.055055055 0.010010010 1.934935
## 10057 0.056056056 0.010010010 1.933934
## 10058 0.057057057 0.010010010 1.932933
## 10059 0.058058058 0.010010010 1.931932
## 10060 0.059059059 0.010010010 1.930931
## 10061 0.060060060 0.010010010 1.929930
## 10062 0.061061061 0.010010010 1.928929
## 10063 0.062062062 0.010010010 1.927928
## 10064 0.063063063 0.010010010 1.926927
## 10065 0.064064064 0.010010010 1.925926
## 10066 0.065065065 0.010010010 1.924925
## 10067 0.066066066 0.010010010 1.923924
## 10068 0.067067067 0.010010010 1.922923
## 10069 0.068068068 0.010010010 1.921922
## 10070 0.069069069 0.010010010 1.920921
## 10071 0.070070070 0.010010010 1.919920
## 10072 0.071071071 0.010010010 1.918919
## 10073 0.072072072 0.010010010 1.917918
## 10074 0.073073073 0.010010010 1.916917
## 10075 0.074074074 0.010010010 1.915916
## 10076 0.075075075 0.010010010 1.914915
## 10077 0.076076076 0.010010010 1.913914
## 10078 0.077077077 0.010010010 1.912913
## 10079 0.078078078 0.010010010 1.911912
## 10080 0.079079079 0.010010010 1.910911
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR331

```

## 10081 0.080080080 0.010010010 1.909910
## 10082 0.081081081 0.010010010 1.908909
## 10083 0.082082082 0.010010010 1.907908
## 10084 0.083083083 0.010010010 1.906907
## 10085 0.084084084 0.010010010 1.905906
## 10086 0.085085085 0.010010010 1.904905
## 10087 0.086086086 0.010010010 1.903904
## 10088 0.087087087 0.010010010 1.902903
## 10089 0.088088088 0.010010010 1.901902
## 10090 0.089089089 0.010010010 1.900901
## 10091 0.090090090 0.010010010 1.899900
## 10092 0.091091091 0.010010010 1.898899
## 10093 0.092092092 0.010010010 1.897898
## 10094 0.093093093 0.010010010 1.896897
## 10095 0.094094094 0.010010010 1.895896
## 10096 0.095095095 0.010010010 1.894895
## 10097 0.096096096 0.010010010 1.893894
## 10098 0.097097097 0.010010010 1.892893
## 10099 0.098098098 0.010010010 1.891892
## 10100 0.099099099 0.010010010 1.890891
## 10101 0.100100100 0.010010010 1.889890
## 10102 0.101101101 0.010010010 1.888889
## 10103 0.102102102 0.010010010 1.887888
## 10104 0.103103103 0.010010010 1.886887
## 10105 0.104104104 0.010010010 1.885886
## 10106 0.105105105 0.010010010 1.884885
## 10107 0.106106106 0.010010010 1.883884
## 10108 0.107107107 0.010010010 1.882883
## 10109 0.108108108 0.010010010 1.881882
## 10110 0.109109109 0.010010010 1.880881
## 10111 0.110110110 0.010010010 1.879880
## 10112 0.111111111 0.010010010 1.878879
## 10113 0.112112112 0.010010010 1.877878
## 10114 0.113113113 0.010010010 1.876877
## 10115 0.114114114 0.010010010 1.875876
## 10116 0.115115115 0.010010010 1.874875
## 10117 0.116116116 0.010010010 1.873874
## 10118 0.117117117 0.010010010 1.872873
## 10119 0.118118118 0.010010010 1.871872
## 10120 0.119119119 0.010010010 1.870871
## 10121 0.120120120 0.010010010 1.869870
## 10122 0.121121121 0.010010010 1.868869
## 10123 0.122122122 0.010010010 1.867868
## 10124 0.123123123 0.010010010 1.866867
## 10125 0.124124124 0.010010010 1.865866
## 10126 0.125125125 0.010010010 1.864865

```

```
## 10127 0.126126126 0.010010010 1.863864
## 10128 0.127127127 0.010010010 1.862863
## 10129 0.128128128 0.010010010 1.861862
## 10130 0.129129129 0.010010010 1.860861
## 10131 0.130130130 0.010010010 1.859860
## 10132 0.131131131 0.010010010 1.858859
## 10133 0.132132132 0.010010010 1.857858
## 10134 0.133133133 0.010010010 1.856857
## 10135 0.134134134 0.010010010 1.855856
## 10136 0.135135135 0.010010010 1.854855
## 10137 0.136136136 0.010010010 1.853854
## 10138 0.137137137 0.010010010 1.852853
## 10139 0.138138138 0.010010010 1.851852
## 10140 0.139139139 0.010010010 1.850851
## 10141 0.140140140 0.010010010 1.849850
## 10142 0.141141141 0.010010010 1.848849
## 10143 0.142142142 0.010010010 1.847848
## 10144 0.143143143 0.010010010 1.846847
## 10145 0.144144144 0.010010010 1.845846
## 10146 0.145145145 0.010010010 1.844845
## 10147 0.146146146 0.010010010 1.843844
## 10148 0.147147147 0.010010010 1.842843
## 10149 0.148148148 0.010010010 1.841842
## 10150 0.149149149 0.010010010 1.840841
## 10151 0.150150150 0.010010010 1.839840
## 10152 0.151151151 0.010010010 1.838839
## 10153 0.152152152 0.010010010 1.837838
## 10154 0.153153153 0.010010010 1.836837
## 10155 0.154154154 0.010010010 1.835836
## 10156 0.155155155 0.010010010 1.834835
## 10157 0.156156156 0.010010010 1.833834
## 10158 0.157157157 0.010010010 1.832833
## 10159 0.158158158 0.010010010 1.831832
## 10160 0.159159159 0.010010010 1.830831
## 10161 0.160160160 0.010010010 1.829830
## 10162 0.161161161 0.010010010 1.828829
## 10163 0.162162162 0.010010010 1.827828
## 10164 0.163163163 0.010010010 1.826827
## 10165 0.164164164 0.010010010 1.825826
## 10166 0.165165165 0.010010010 1.824825
## 10167 0.166166166 0.010010010 1.823824
## 10168 0.167167167 0.010010010 1.822823
## 10169 0.168168168 0.010010010 1.821822
## 10170 0.169169169 0.010010010 1.820821
## 10171 0.170170170 0.010010010 1.819820
## 10172 0.171171171 0.010010010 1.818819
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR333

```

## 10173 0.172172172 0.010010010 1.817818
## 10174 0.173173173 0.010010010 1.816817
## 10175 0.174174174 0.010010010 1.815816
## 10176 0.175175175 0.010010010 1.814815
## 10177 0.176176176 0.010010010 1.813814
## 10178 0.177177177 0.010010010 1.812813
## 10179 0.178178178 0.010010010 1.811812
## 10180 0.179179179 0.010010010 1.810811
## 10181 0.180180180 0.010010010 1.809810
## 10182 0.181181181 0.010010010 1.808809
## 10183 0.182182182 0.010010010 1.807808
## 10184 0.183183183 0.010010010 1.806807
## 10185 0.184184184 0.010010010 1.805806
## 10186 0.185185185 0.010010010 1.804805
## 10187 0.186186186 0.010010010 1.803804
## 10188 0.187187187 0.010010010 1.802803
## 10189 0.188188188 0.010010010 1.801802
## 10190 0.189189189 0.010010010 1.800801
## 10191 0.190190190 0.010010010 1.799800
## 10192 0.191191191 0.010010010 1.798799
## 10193 0.192192192 0.010010010 1.797798
## 10194 0.193193193 0.010010010 1.796797
## 10195 0.194194194 0.010010010 1.795796
## 10196 0.195195195 0.010010010 1.794795
## 10197 0.196196196 0.010010010 1.793794
## 10198 0.197197197 0.010010010 1.792793
## 10199 0.198198198 0.010010010 1.791792
## 10200 0.199199199 0.010010010 1.790791
## 10201 0.200200200 0.010010010 1.789790
## 10202 0.201201201 0.010010010 1.788789
## 10203 0.202202202 0.010010010 1.787788
## 10204 0.203203203 0.010010010 1.786787
## 10205 0.204204204 0.010010010 1.785786
## 10206 0.205205205 0.010010010 1.784785
## 10207 0.206206206 0.010010010 1.783784
## 10208 0.207207207 0.010010010 1.782783
## 10209 0.208208208 0.010010010 1.781782
## 10210 0.209209209 0.010010010 1.780781
## 10211 0.210210210 0.010010010 1.779780
## 10212 0.211211211 0.010010010 1.778779
## 10213 0.212212212 0.010010010 1.777778
## 10214 0.213213213 0.010010010 1.776777
## 10215 0.214214214 0.010010010 1.775776
## 10216 0.215215215 0.010010010 1.774775
## 10217 0.216216216 0.010010010 1.773774
## 10218 0.217217217 0.010010010 1.772773

```

```
## 10219 0.218218218 0.010010010 1.771772
## 10220 0.219219219 0.010010010 1.770771
## 10221 0.220220220 0.010010010 1.769770
## 10222 0.221221221 0.010010010 1.768769
## 10223 0.222222222 0.010010010 1.767768
## 10224 0.223223223 0.010010010 1.766767
## 10225 0.224224224 0.010010010 1.765766
## 10226 0.225225225 0.010010010 1.764765
## 10227 0.226226226 0.010010010 1.763764
## 10228 0.227227227 0.010010010 1.762763
## 10229 0.228228228 0.010010010 1.761762
## 10230 0.229229229 0.010010010 1.760761
## 10231 0.230230230 0.010010010 1.759760
## 10232 0.231231231 0.010010010 1.758759
## 10233 0.232232232 0.010010010 1.757758
## 10234 0.233233233 0.010010010 1.756757
## 10235 0.234234234 0.010010010 1.755756
## 10236 0.235235235 0.010010010 1.754755
## 10237 0.236236236 0.010010010 1.753754
## 10238 0.237237237 0.010010010 1.752753
## 10239 0.238238238 0.010010010 1.751752
## 10240 0.239239239 0.010010010 1.750751
## 10241 0.240240240 0.010010010 1.749750
## 10242 0.241241241 0.010010010 1.748749
## 10243 0.242242242 0.010010010 1.747748
## 10244 0.243243243 0.010010010 1.746747
## 10245 0.244244244 0.010010010 1.745746
## 10246 0.245245245 0.010010010 1.744745
## 10247 0.246246246 0.010010010 1.743744
## 10248 0.247247247 0.010010010 1.742743
## 10249 0.248248248 0.010010010 1.741742
## 10250 0.249249249 0.010010010 1.740741
## 10251 0.250250250 0.010010010 1.739740
## 10252 0.251251251 0.010010010 1.738739
## 10253 0.252252252 0.010010010 1.737738
## 10254 0.253253253 0.010010010 1.736737
## 10255 0.254254254 0.010010010 1.735736
## 10256 0.255255255 0.010010010 1.734735
## 10257 0.256256256 0.010010010 1.733734
## 10258 0.257257257 0.010010010 1.732733
## 10259 0.258258258 0.010010010 1.731732
## 10260 0.259259259 0.010010010 1.730731
## 10261 0.260260260 0.010010010 1.729730
## 10262 0.261261261 0.010010010 1.728729
## 10263 0.262262262 0.010010010 1.727728
## 10264 0.263263263 0.010010010 1.726727
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 335

```

## 10265 0.264264264 0.010010010 1.725726
## 10266 0.265265265 0.010010010 1.724725
## 10267 0.266266266 0.010010010 1.723724
## 10268 0.267267267 0.010010010 1.722723
## 10269 0.268268268 0.010010010 1.721722
## 10270 0.269269269 0.010010010 1.720721
## 10271 0.270270270 0.010010010 1.719720
## 10272 0.271271271 0.010010010 1.718719
## 10273 0.272272272 0.010010010 1.717718
## 10274 0.273273273 0.010010010 1.716717
## 10275 0.274274274 0.010010010 1.715716
## 10276 0.275275275 0.010010010 1.714715
## 10277 0.276276276 0.010010010 1.713714
## 10278 0.277277277 0.010010010 1.712713
## 10279 0.278278278 0.010010010 1.711712
## 10280 0.279279279 0.010010010 1.710711
## 10281 0.280280280 0.010010010 1.709710
## 10282 0.281281281 0.010010010 1.708709
## 10283 0.282282282 0.010010010 1.707708
## 10284 0.283283283 0.010010010 1.706707
## 10285 0.284284284 0.010010010 1.705706
## 10286 0.285285285 0.010010010 1.704705
## 10287 0.286286286 0.010010010 1.703704
## 10288 0.287287287 0.010010010 1.702703
## 10289 0.288288288 0.010010010 1.701702
## 10290 0.289289289 0.010010010 1.700701
## 10291 0.290290290 0.010010010 1.699700
## 10292 0.291291291 0.010010010 1.698699
## 10293 0.292292292 0.010010010 1.697698
## 10294 0.293293293 0.010010010 1.696697
## 10295 0.294294294 0.010010010 1.695696
## 10296 0.295295295 0.010010010 1.694695
## 10297 0.296296296 0.010010010 1.693694
## 10298 0.297297297 0.010010010 1.692693
## 10299 0.298298298 0.010010010 1.691692
## 10300 0.299299299 0.010010010 1.690691
## 10301 0.300300300 0.010010010 1.689690
## 10302 0.301301301 0.010010010 1.688689
## 10303 0.302302302 0.010010010 1.687688
## 10304 0.303303303 0.010010010 1.686687
## 10305 0.304304304 0.010010010 1.685686
## 10306 0.305305305 0.010010010 1.684685
## 10307 0.306306306 0.010010010 1.683684
## 10308 0.307307307 0.010010010 1.682683
## 10309 0.308308308 0.010010010 1.681682
## 10310 0.309309309 0.010010010 1.680681

```

```
## 10311 0.310310310 0.010010010 1.679680
## 10312 0.311311311 0.010010010 1.678679
## 10313 0.312312312 0.010010010 1.677678
## 10314 0.313313313 0.010010010 1.676677
## 10315 0.314314314 0.010010010 1.675676
## 10316 0.315315315 0.010010010 1.674675
## 10317 0.316316316 0.010010010 1.673674
## 10318 0.317317317 0.010010010 1.672673
## 10319 0.318318318 0.010010010 1.671672
## 10320 0.319319319 0.010010010 1.670671
## 10321 0.320320320 0.010010010 1.669670
## 10322 0.321321321 0.010010010 1.668669
## 10323 0.322322322 0.010010010 1.667668
## 10324 0.323323323 0.010010010 1.666667
## 10325 0.324324324 0.010010010 1.665666
## 10326 0.325325325 0.010010010 1.664665
## 10327 0.326326326 0.010010010 1.663664
## 10328 0.327327327 0.010010010 1.662663
## 10329 0.328328328 0.010010010 1.661662
## 10330 0.329329329 0.010010010 1.660661
## 10331 0.330330330 0.010010010 1.659660
## 10332 0.331331331 0.010010010 1.658659
## 10333 0.332332332 0.010010010 1.657658
## 10334 0.333333333 0.010010010 1.656657
## 10335 0.334334334 0.010010010 1.655656
## 10336 0.335335335 0.010010010 1.654655
## 10337 0.336336336 0.010010010 1.653654
## 10338 0.337337337 0.010010010 1.652653
## 10339 0.338338338 0.010010010 1.651652
## 10340 0.339339339 0.010010010 1.650651
## 10341 0.340340340 0.010010010 1.649650
## 10342 0.341341341 0.010010010 1.648649
## 10343 0.342342342 0.010010010 1.647648
## 10344 0.343343343 0.010010010 1.646647
## 10345 0.344344344 0.010010010 1.645646
## 10346 0.345345345 0.010010010 1.644645
## 10347 0.346346346 0.010010010 1.643644
## 10348 0.347347347 0.010010010 1.642643
## 10349 0.348348348 0.010010010 1.641642
## 10350 0.349349349 0.010010010 1.640641
## 10351 0.350350350 0.010010010 1.639640
## 10352 0.351351351 0.010010010 1.638639
## 10353 0.352352352 0.010010010 1.637638
## 10354 0.353353353 0.010010010 1.636637
## 10355 0.354354354 0.010010010 1.635636
## 10356 0.355355355 0.010010010 1.634635
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR337

```

## 10357 0.356356356 0.010010010 1.633634
## 10358 0.357357357 0.010010010 1.632633
## 10359 0.358358358 0.010010010 1.631632
## 10360 0.359359359 0.010010010 1.630631
## 10361 0.360360360 0.010010010 1.629630
## 10362 0.361361361 0.010010010 1.628629
## 10363 0.362362362 0.010010010 1.627628
## 10364 0.363363363 0.010010010 1.626627
## 10365 0.364364364 0.010010010 1.625626
## 10366 0.365365365 0.010010010 1.624625
## 10367 0.366366366 0.010010010 1.623624
## 10368 0.367367367 0.010010010 1.622623
## 10369 0.368368368 0.010010010 1.621622
## 10370 0.369369369 0.010010010 1.620621
## 10371 0.370370370 0.010010010 1.619620
## 10372 0.371371371 0.010010010 1.618619
## 10373 0.372372372 0.010010010 1.617618
## 10374 0.373373373 0.010010010 1.616617
## 10375 0.374374374 0.010010010 1.615616
## 10376 0.375375375 0.010010010 1.614615
## 10377 0.376376376 0.010010010 1.613614
## 10378 0.377377377 0.010010010 1.612613
## 10379 0.378378378 0.010010010 1.611612
## 10380 0.379379379 0.010010010 1.610611
## 10381 0.380380380 0.010010010 1.609610
## 10382 0.381381381 0.010010010 1.608609
## 10383 0.382382382 0.010010010 1.607608
## 10384 0.383383383 0.010010010 1.606607
## 10385 0.384384384 0.010010010 1.605606
## 10386 0.385385385 0.010010010 1.604605
## 10387 0.386386386 0.010010010 1.603604
## 10388 0.387387387 0.010010010 1.602603
## 10389 0.388388388 0.010010010 1.601602
## 10390 0.389389389 0.010010010 1.600601
## 10391 0.390390390 0.010010010 1.599600
## 10392 0.391391391 0.010010010 1.598599
## 10393 0.392392392 0.010010010 1.597598
## 10394 0.393393393 0.010010010 1.596597
## 10395 0.394394394 0.010010010 1.595596
## 10396 0.395395395 0.010010010 1.594595
## 10397 0.396396396 0.010010010 1.593594
## 10398 0.397397397 0.010010010 1.592593
## 10399 0.398398398 0.010010010 1.591592
## 10400 0.399399399 0.010010010 1.590591
## 10401 0.400400400 0.010010010 1.589590
## 10402 0.401401401 0.010010010 1.588589

```

```
## 10403 0.402402402 0.010010010 1.587588
## 10404 0.403403403 0.010010010 1.586587
## 10405 0.404404404 0.010010010 1.585586
## 10406 0.405405405 0.010010010 1.584585
## 10407 0.406406406 0.010010010 1.583584
## 10408 0.407407407 0.010010010 1.582583
## 10409 0.408408408 0.010010010 1.581582
## 10410 0.409409409 0.010010010 1.580581
## 10411 0.410410410 0.010010010 1.579580
## 10412 0.411411411 0.010010010 1.578579
## 10413 0.412412412 0.010010010 1.577578
## 10414 0.413413413 0.010010010 1.576577
## 10415 0.414414414 0.010010010 1.575576
## 10416 0.415415415 0.010010010 1.574575
## 10417 0.416416416 0.010010010 1.573574
## 10418 0.417417417 0.010010010 1.572573
## 10419 0.418418418 0.010010010 1.571572
## 10420 0.419419419 0.010010010 1.570571
## 10421 0.420420420 0.010010010 1.569570
## 10422 0.421421421 0.010010010 1.568569
## 10423 0.422422422 0.010010010 1.567568
## 10424 0.423423423 0.010010010 1.566567
## 10425 0.424424424 0.010010010 1.565566
## 10426 0.425425425 0.010010010 1.564565
## 10427 0.426426426 0.010010010 1.563564
## 10428 0.427427427 0.010010010 1.562563
## 10429 0.428428428 0.010010010 1.561562
## 10430 0.429429429 0.010010010 1.560561
## 10431 0.430430430 0.010010010 1.559560
## 10432 0.431431431 0.010010010 1.558559
## 10433 0.432432432 0.010010010 1.557558
## 10434 0.433433433 0.010010010 1.556557
## 10435 0.434434434 0.010010010 1.555556
## 10436 0.435435435 0.010010010 1.554555
## 10437 0.436436436 0.010010010 1.553554
## 10438 0.437437437 0.010010010 1.552553
## 10439 0.438438438 0.010010010 1.551552
## 10440 0.439439439 0.010010010 1.550551
## 10441 0.440440440 0.010010010 1.549550
## 10442 0.441441441 0.010010010 1.548549
## 10443 0.442442442 0.010010010 1.547548
## 10444 0.443443443 0.010010010 1.546547
## 10445 0.444444444 0.010010010 1.545546
## 10446 0.445445445 0.010010010 1.544545
## 10447 0.446446446 0.010010010 1.543544
## 10448 0.447447447 0.010010010 1.542543
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 339

```

## 10449 0.448448448 0.010010010 1.541542
## 10450 0.449449449 0.010010010 1.540541
## 10451 0.450450450 0.010010010 1.539540
## 10452 0.451451451 0.010010010 1.538539
## 10453 0.452452452 0.010010010 1.537538
## 10454 0.453453453 0.010010010 1.536537
## 10455 0.454454454 0.010010010 1.535536
## 10456 0.455455455 0.010010010 1.534535
## 10457 0.456456456 0.010010010 1.533534
## 10458 0.457457457 0.010010010 1.532533
## 10459 0.458458458 0.010010010 1.531532
## 10460 0.459459459 0.010010010 1.530531
## 10461 0.460460460 0.010010010 1.529530
## 10462 0.461461461 0.010010010 1.528529
## 10463 0.462462462 0.010010010 1.527528
## 10464 0.463463463 0.010010010 1.526527
## 10465 0.464464464 0.010010010 1.525526
## 10466 0.465465465 0.010010010 1.524525
## 10467 0.466466466 0.010010010 1.523524
## 10468 0.467467467 0.010010010 1.522523
## 10469 0.468468468 0.010010010 1.521522
## 10470 0.469469469 0.010010010 1.520521
## 10471 0.470470470 0.010010010 1.519520
## 10472 0.471471471 0.010010010 1.518519
## 10473 0.472472472 0.010010010 1.517518
## 10474 0.473473473 0.010010010 1.516517
## 10475 0.474474474 0.010010010 1.515516
## 10476 0.475475475 0.010010010 1.514515
## 10477 0.476476476 0.010010010 1.513514
## 10478 0.477477477 0.010010010 1.512513
## 10479 0.478478478 0.010010010 1.511512
## 10480 0.479479479 0.010010010 1.510511
## 10481 0.480480480 0.010010010 1.509510
## 10482 0.481481481 0.010010010 1.508509
## 10483 0.482482482 0.010010010 1.507508
## 10484 0.483483483 0.010010010 1.506507
## 10485 0.484484484 0.010010010 1.505506
## 10486 0.485485485 0.010010010 1.504505
## 10487 0.486486486 0.010010010 1.503504
## 10488 0.487487487 0.010010010 1.502503
## 10489 0.488488488 0.010010010 1.501502
## 10490 0.489489489 0.010010010 1.500501
## 10491 0.490490490 0.010010010 1.499499
## 10492 0.491491491 0.010010010 1.498498
## 10493 0.492492492 0.010010010 1.497497
## 10494 0.493493493 0.010010010 1.496496

```

```
## 10495 0.494494494 0.010010010 1.495495
## 10496 0.495495495 0.010010010 1.494494
## 10497 0.496496496 0.010010010 1.493493
## 10498 0.497497497 0.010010010 1.492492
## 10499 0.498498498 0.010010010 1.491491
## 10500 0.499499499 0.010010010 1.490490
## 10501 0.500500501 0.010010010 1.489489
## 10502 0.501501502 0.010010010 1.488488
## 10503 0.502502503 0.010010010 1.487487
## 10504 0.503503504 0.010010010 1.486486
## 10505 0.504504505 0.010010010 1.485485
## 10506 0.505505506 0.010010010 1.484484
## 10507 0.506506507 0.010010010 1.483483
## 10508 0.507507508 0.010010010 1.482482
## 10509 0.508508509 0.010010010 1.481481
## 10510 0.509509510 0.010010010 1.480480
## 10511 0.510510511 0.010010010 1.479479
## 10512 0.511511512 0.010010010 1.478478
## 10513 0.512512513 0.010010010 1.477477
## 10514 0.513513514 0.010010010 1.476476
## 10515 0.514514515 0.010010010 1.475475
## 10516 0.515515516 0.010010010 1.474474
## 10517 0.516516517 0.010010010 1.473473
## 10518 0.517517518 0.010010010 1.472472
## 10519 0.518518519 0.010010010 1.471471
## 10520 0.519519520 0.010010010 1.470470
## 10521 0.520520521 0.010010010 1.469469
## 10522 0.521521522 0.010010010 1.468468
## 10523 0.522522523 0.010010010 1.467467
## 10524 0.523523524 0.010010010 1.466466
## 10525 0.524524525 0.010010010 1.465465
## 10526 0.525525526 0.010010010 1.464464
## 10527 0.526526527 0.010010010 1.463463
## 10528 0.527527528 0.010010010 1.462462
## 10529 0.528528529 0.010010010 1.461461
## 10530 0.529529530 0.010010010 1.460460
## 10531 0.530530531 0.010010010 1.459459
## 10532 0.531531532 0.010010010 1.458458
## 10533 0.532532533 0.010010010 1.457457
## 10534 0.533533534 0.010010010 1.456456
## 10535 0.534534535 0.010010010 1.455455
## 10536 0.535535536 0.010010010 1.454454
## 10537 0.536536537 0.010010010 1.453453
## 10538 0.537537538 0.010010010 1.452452
## 10539 0.538538539 0.010010010 1.451451
## 10540 0.539539540 0.010010010 1.450450
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 341

```

## 10541 0.540540541 0.010010010 1.449449
## 10542 0.541541542 0.010010010 1.448448
## 10543 0.542542543 0.010010010 1.447447
## 10544 0.543543544 0.010010010 1.446446
## 10545 0.544544545 0.010010010 1.445445
## 10546 0.545545546 0.010010010 1.444444
## 10547 0.546546547 0.010010010 1.443443
## 10548 0.547547548 0.010010010 1.442442
## 10549 0.548548549 0.010010010 1.441441
## 10550 0.549549550 0.010010010 1.440440
## 10551 0.550550551 0.010010010 1.439439
## 10552 0.551551552 0.010010010 1.438438
## 10553 0.552552553 0.010010010 1.437437
## 10554 0.553553554 0.010010010 1.436436
## 10555 0.554554555 0.010010010 1.435435
## 10556 0.555555556 0.010010010 1.434434
## 10557 0.556556557 0.010010010 1.433433
## 10558 0.557557558 0.010010010 1.432432
## 10559 0.558558559 0.010010010 1.431431
## 10560 0.559559560 0.010010010 1.430430
## 10561 0.560560561 0.010010010 1.429429
## 10562 0.561561562 0.010010010 1.428428
## 10563 0.562562563 0.010010010 1.427427
## 10564 0.563563564 0.010010010 1.426426
## 10565 0.564564565 0.010010010 1.425425
## 10566 0.565565566 0.010010010 1.424424
## 10567 0.566566567 0.010010010 1.423423
## 10568 0.567567568 0.010010010 1.422422
## 10569 0.568568569 0.010010010 1.421421
## 10570 0.569569570 0.010010010 1.420420
## 10571 0.570570571 0.010010010 1.419419
## 10572 0.571571572 0.010010010 1.418418
## 10573 0.572572573 0.010010010 1.417417
## 10574 0.573573574 0.010010010 1.416416
## 10575 0.574574575 0.010010010 1.415415
## 10576 0.575575576 0.010010010 1.414414
## 10577 0.576576577 0.010010010 1.413413
## 10578 0.577577578 0.010010010 1.412412
## 10579 0.578578579 0.010010010 1.411411
## 10580 0.579579580 0.010010010 1.410410
## 10581 0.580580581 0.010010010 1.409409
## 10582 0.581581582 0.010010010 1.408408
## 10583 0.582582583 0.010010010 1.407407
## 10584 0.583583584 0.010010010 1.406406
## 10585 0.584584585 0.010010010 1.405405
## 10586 0.585585586 0.010010010 1.404404

```

```
## 10587 0.586586587 0.010010010 1.403403
## 10588 0.587587588 0.010010010 1.402402
## 10589 0.588588589 0.010010010 1.401401
## 10590 0.589589590 0.010010010 1.400400
## 10591 0.590590591 0.010010010 1.399399
## 10592 0.591591592 0.010010010 1.398398
## 10593 0.592592593 0.010010010 1.397397
## 10594 0.593593594 0.010010010 1.396396
## 10595 0.594594595 0.010010010 1.395395
## 10596 0.595595596 0.010010010 1.394394
## 10597 0.596596597 0.010010010 1.393393
## 10598 0.597597598 0.010010010 1.392392
## 10599 0.598598599 0.010010010 1.391391
## 10600 0.599599600 0.010010010 1.390390
## 10601 0.600600601 0.010010010 1.389389
## 10602 0.601601602 0.010010010 1.388388
## 10603 0.602602603 0.010010010 1.387387
## 10604 0.603603604 0.010010010 1.386386
## 10605 0.604604605 0.010010010 1.385385
## 10606 0.605605606 0.010010010 1.384384
## 10607 0.606606607 0.010010010 1.383383
## 10608 0.607607608 0.010010010 1.382382
## 10609 0.608608609 0.010010010 1.381381
## 10610 0.609609610 0.010010010 1.380380
## 10611 0.610610611 0.010010010 1.379379
## 10612 0.611611612 0.010010010 1.378378
## 10613 0.612612613 0.010010010 1.377377
## 10614 0.613613614 0.010010010 1.376376
## 10615 0.614614615 0.010010010 1.375375
## 10616 0.615615616 0.010010010 1.374374
## 10617 0.616616617 0.010010010 1.373373
## 10618 0.617617618 0.010010010 1.372372
## 10619 0.618618619 0.010010010 1.371371
## 10620 0.619619620 0.010010010 1.370370
## 10621 0.620620621 0.010010010 1.369369
## 10622 0.621621622 0.010010010 1.368368
## 10623 0.622622623 0.010010010 1.367367
## 10624 0.623623624 0.010010010 1.366366
## 10625 0.624624625 0.010010010 1.365365
## 10626 0.625625626 0.010010010 1.364364
## 10627 0.626626627 0.010010010 1.363363
## 10628 0.627627628 0.010010010 1.362362
## 10629 0.628628629 0.010010010 1.361361
## 10630 0.629629630 0.010010010 1.360360
## 10631 0.630630631 0.010010010 1.359359
## 10632 0.631631632 0.010010010 1.358358
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR343

```

## 10633 0.632632633 0.010010010 1.357357
## 10634 0.633633634 0.010010010 1.356356
## 10635 0.634634635 0.010010010 1.355355
## 10636 0.635635636 0.010010010 1.354354
## 10637 0.636636637 0.010010010 1.353353
## 10638 0.637637638 0.010010010 1.352352
## 10639 0.638638639 0.010010010 1.351351
## 10640 0.639639640 0.010010010 1.350350
## 10641 0.640640641 0.010010010 1.349349
## 10642 0.641641642 0.010010010 1.348348
## 10643 0.642642643 0.010010010 1.347347
## 10644 0.643643644 0.010010010 1.346346
## 10645 0.644644645 0.010010010 1.345345
## 10646 0.645645646 0.010010010 1.344344
## 10647 0.646646647 0.010010010 1.343343
## 10648 0.647647648 0.010010010 1.342342
## 10649 0.648648649 0.010010010 1.341341
## 10650 0.649649650 0.010010010 1.340340
## 10651 0.650650651 0.010010010 1.339339
## 10652 0.651651652 0.010010010 1.338338
## 10653 0.652652653 0.010010010 1.337337
## 10654 0.653653654 0.010010010 1.336336
## 10655 0.654654655 0.010010010 1.335335
## 10656 0.6556555656 0.010010010 1.334334
## 10657 0.656656657 0.010010010 1.333333
## 10658 0.657657658 0.010010010 1.332332
## 10659 0.658658659 0.010010010 1.331331
## 10660 0.659659660 0.010010010 1.330330
## 10661 0.660660661 0.010010010 1.329329
## 10662 0.661661662 0.010010010 1.328328
## 10663 0.662662663 0.010010010 1.327327
## 10664 0.663663664 0.010010010 1.326326
## 10665 0.664664665 0.010010010 1.325325
## 10666 0.665665666 0.010010010 1.324324
## 10667 0.666666667 0.010010010 1.323323
## 10668 0.667667668 0.010010010 1.322322
## 10669 0.668668669 0.010010010 1.321321
## 10670 0.669669670 0.010010010 1.320320
## 10671 0.670670671 0.010010010 1.319319
## 10672 0.671671672 0.010010010 1.318318
## 10673 0.672672673 0.010010010 1.317317
## 10674 0.673673674 0.010010010 1.316316
## 10675 0.674674675 0.010010010 1.315315
## 10676 0.675675676 0.010010010 1.314314
## 10677 0.676676677 0.010010010 1.313313
## 10678 0.677677678 0.010010010 1.312312

```

```
## 10679 0.678678679 0.010010010 1.311311
## 10680 0.679679680 0.010010010 1.310310
## 10681 0.680680681 0.010010010 1.309309
## 10682 0.681681682 0.010010010 1.308308
## 10683 0.682682683 0.010010010 1.307307
## 10684 0.683683684 0.010010010 1.306306
## 10685 0.684684685 0.010010010 1.305305
## 10686 0.685685686 0.010010010 1.304304
## 10687 0.686686687 0.010010010 1.303303
## 10688 0.687687688 0.010010010 1.302302
## 10689 0.688688689 0.010010010 1.301301
## 10690 0.689689690 0.010010010 1.300300
## 10691 0.690690691 0.010010010 1.299299
## 10692 0.691691692 0.010010010 1.298298
## 10693 0.692692693 0.010010010 1.297297
## 10694 0.693693694 0.010010010 1.296296
## 10695 0.694694695 0.010010010 1.295295
## 10696 0.695695696 0.010010010 1.294294
## 10697 0.696696697 0.010010010 1.293293
## 10698 0.697697698 0.010010010 1.292292
## 10699 0.698698699 0.010010010 1.291291
## 10700 0.699699700 0.010010010 1.290290
## 10701 0.700700701 0.010010010 1.289289
## 10702 0.701701702 0.010010010 1.288288
## 10703 0.702702703 0.010010010 1.287287
## 10704 0.703703704 0.010010010 1.286286
## 10705 0.704704705 0.010010010 1.285285
## 10706 0.705705706 0.010010010 1.284284
## 10707 0.706706707 0.010010010 1.283283
## 10708 0.707707708 0.010010010 1.282282
## 10709 0.708708709 0.010010010 1.281281
## 10710 0.709709710 0.010010010 1.280280
## 10711 0.710710711 0.010010010 1.279279
## 10712 0.711711712 0.010010010 1.278278
## 10713 0.712712713 0.010010010 1.277277
## 10714 0.713713714 0.010010010 1.276276
## 10715 0.714714715 0.010010010 1.275275
## 10716 0.715715716 0.010010010 1.274274
## 10717 0.716716717 0.010010010 1.273273
## 10718 0.717717718 0.010010010 1.272272
## 10719 0.718718719 0.010010010 1.271271
## 10720 0.719719720 0.010010010 1.270270
## 10721 0.720720721 0.010010010 1.269269
## 10722 0.721721722 0.010010010 1.268268
## 10723 0.722722723 0.010010010 1.267267
## 10724 0.723723724 0.010010010 1.266266
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR345

```

## 10725 0.724724725 0.010010010 1.265265
## 10726 0.725725726 0.010010010 1.264264
## 10727 0.726726727 0.010010010 1.263263
## 10728 0.727727728 0.010010010 1.262262
## 10729 0.728728729 0.010010010 1.261261
## 10730 0.729729730 0.010010010 1.260260
## 10731 0.730730731 0.010010010 1.259259
## 10732 0.731731732 0.010010010 1.258258
## 10733 0.732732733 0.010010010 1.257257
## 10734 0.733733734 0.010010010 1.256256
## 10735 0.734734735 0.010010010 1.255255
## 10736 0.735735736 0.010010010 1.254254
## 10737 0.736736737 0.010010010 1.253253
## 10738 0.737737738 0.010010010 1.252252
## 10739 0.738738739 0.010010010 1.251251
## 10740 0.739739740 0.010010010 1.250250
## 10741 0.740740741 0.010010010 1.249249
## 10742 0.741741742 0.010010010 1.248248
## 10743 0.742742743 0.010010010 1.247247
## 10744 0.743743744 0.010010010 1.246246
## 10745 0.744744745 0.010010010 1.245245
## 10746 0.745745746 0.010010010 1.244244
## 10747 0.746746747 0.010010010 1.243243
## 10748 0.747747748 0.010010010 1.242242
## 10749 0.748748749 0.010010010 1.241241
## 10750 0.749749750 0.010010010 1.240240
## 10751 0.750750751 0.010010010 1.239239
## 10752 0.751751752 0.010010010 1.238238
## 10753 0.752752753 0.010010010 1.237237
## 10754 0.753753754 0.010010010 1.236236
## 10755 0.754754755 0.010010010 1.235235
## 10756 0.755755756 0.010010010 1.234234
## 10757 0.756756757 0.010010010 1.233233
## 10758 0.757757758 0.010010010 1.232232
## 10759 0.758758759 0.010010010 1.231231
## 10760 0.759759760 0.010010010 1.230230
## 10761 0.760760761 0.010010010 1.229229
## 10762 0.761761762 0.010010010 1.228228
## 10763 0.762762763 0.010010010 1.227227
## 10764 0.763763764 0.010010010 1.226226
## 10765 0.764764765 0.010010010 1.225225
## 10766 0.765765766 0.010010010 1.224224
## 10767 0.766766767 0.010010010 1.223223
## 10768 0.767767768 0.010010010 1.222222
## 10769 0.768768769 0.010010010 1.221221
## 10770 0.769769770 0.010010010 1.220220

```

```
## 10771 0.770770771 0.010010010 1.219219
## 10772 0.771771772 0.010010010 1.218218
## 10773 0.772772773 0.010010010 1.217217
## 10774 0.773773774 0.010010010 1.216216
## 10775 0.774774775 0.010010010 1.215215
## 10776 0.775775776 0.010010010 1.214214
## 10777 0.776776777 0.010010010 1.213213
## 10778 0.777777778 0.010010010 1.212212
## 10779 0.778778779 0.010010010 1.211211
## 10780 0.779779780 0.010010010 1.210210
## 10781 0.780780781 0.010010010 1.209209
## 10782 0.781781782 0.010010010 1.208208
## 10783 0.782782783 0.010010010 1.207207
## 10784 0.783783784 0.010010010 1.206206
## 10785 0.784784785 0.010010010 1.205205
## 10786 0.785785786 0.010010010 1.204204
## 10787 0.786786787 0.010010010 1.203203
## 10788 0.787787788 0.010010010 1.202202
## 10789 0.788788789 0.010010010 1.201201
## 10790 0.789789790 0.010010010 1.200200
## 10791 0.790790791 0.010010010 1.199199
## 10792 0.791791792 0.010010010 1.198198
## 10793 0.792792793 0.010010010 1.197197
## 10794 0.793793794 0.010010010 1.196196
## 10795 0.794794795 0.010010010 1.195195
## 10796 0.795795796 0.010010010 1.194194
## 10797 0.796796797 0.010010010 1.193193
## 10798 0.797797798 0.010010010 1.192192
## 10799 0.798798799 0.010010010 1.191191
## 10800 0.799799800 0.010010010 1.190190
## 10801 0.800800801 0.010010010 1.189189
## 10802 0.801801802 0.010010010 1.188188
## 10803 0.802802803 0.010010010 1.187187
## 10804 0.803803804 0.010010010 1.186186
## 10805 0.804804805 0.010010010 1.185185
## 10806 0.805805806 0.010010010 1.184184
## 10807 0.806806807 0.010010010 1.183183
## 10808 0.807807808 0.010010010 1.182182
## 10809 0.808808809 0.010010010 1.181181
## 10810 0.809809810 0.010010010 1.180180
## 10811 0.810810811 0.010010010 1.179179
## 10812 0.811811812 0.010010010 1.178178
## 10813 0.812812813 0.010010010 1.177177
## 10814 0.813813814 0.010010010 1.176176
## 10815 0.814814815 0.010010010 1.175175
## 10816 0.815815816 0.010010010 1.174174
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 347

```

## 10817 0.816816817 0.010010010 1.173173
## 10818 0.817817818 0.010010010 1.172172
## 10819 0.818818819 0.010010010 1.171171
## 10820 0.819819820 0.010010010 1.170170
## 10821 0.820820821 0.010010010 1.169169
## 10822 0.821821822 0.010010010 1.168168
## 10823 0.822822823 0.010010010 1.167167
## 10824 0.823823824 0.010010010 1.166166
## 10825 0.824824825 0.010010010 1.165165
## 10826 0.825825826 0.010010010 1.164164
## 10827 0.826826827 0.010010010 1.163163
## 10828 0.827827828 0.010010010 1.162162
## 10829 0.828828829 0.010010010 1.161161
## 10830 0.829829830 0.010010010 1.160160
## 10831 0.830830831 0.010010010 1.159159
## 10832 0.831831832 0.010010010 1.158158
## 10833 0.832832833 0.010010010 1.157157
## 10834 0.833833834 0.010010010 1.156156
## 10835 0.834834835 0.010010010 1.155155
## 10836 0.835835836 0.010010010 1.154154
## 10837 0.836836837 0.010010010 1.153153
## 10838 0.837837838 0.010010010 1.152152
## 10839 0.838838839 0.010010010 1.151151
## 10840 0.839839840 0.010010010 1.150150
## 10841 0.840840841 0.010010010 1.149149
## 10842 0.841841842 0.010010010 1.148148
## 10843 0.842842843 0.010010010 1.147147
## 10844 0.843843844 0.010010010 1.146146
## 10845 0.844844845 0.010010010 1.145145
## 10846 0.845845846 0.010010010 1.144144
## 10847 0.846846847 0.010010010 1.143143
## 10848 0.847847848 0.010010010 1.142142
## 10849 0.848848849 0.010010010 1.141141
## 10850 0.849849850 0.010010010 1.140140
## 10851 0.850850851 0.010010010 1.139139
## 10852 0.851851852 0.010010010 1.138138
## 10853 0.852852853 0.010010010 1.137137
## 10854 0.853853854 0.010010010 1.136136
## 10855 0.854854855 0.010010010 1.135135
## 10856 0.855855856 0.010010010 1.134134
## 10857 0.856856857 0.010010010 1.133133
## 10858 0.857857858 0.010010010 1.132132
## 10859 0.858858859 0.010010010 1.131131
## 10860 0.859859860 0.010010010 1.130130
## 10861 0.860860861 0.010010010 1.129129
## 10862 0.861861862 0.010010010 1.128128

```

```
## 10863 0.862862863 0.010010010 1.127127
## 10864 0.863863864 0.010010010 1.126126
## 10865 0.864864865 0.010010010 1.125125
## 10866 0.865865866 0.010010010 1.124124
## 10867 0.866866867 0.010010010 1.123123
## 10868 0.867867868 0.010010010 1.122122
## 10869 0.868868869 0.010010010 1.121121
## 10870 0.869869870 0.010010010 1.120120
## 10871 0.870870871 0.010010010 1.119119
## 10872 0.871871872 0.010010010 1.118118
## 10873 0.872872873 0.010010010 1.117117
## 10874 0.873873874 0.010010010 1.116116
## 10875 0.874874875 0.010010010 1.115115
## 10876 0.875875876 0.010010010 1.114114
## 10877 0.876876877 0.010010010 1.113113
## 10878 0.877877878 0.010010010 1.112112
## 10879 0.878878879 0.010010010 1.111111
## 10880 0.879879880 0.010010010 1.110110
## 10881 0.880880881 0.010010010 1.109109
## 10882 0.881881882 0.010010010 1.108108
## 10883 0.882882883 0.010010010 1.107107
## 10884 0.883883884 0.010010010 1.106106
## 10885 0.884884885 0.010010010 1.105105
## 10886 0.885885886 0.010010010 1.104104
## 10887 0.886886887 0.010010010 1.103103
## 10888 0.887887888 0.010010010 1.102102
## 10889 0.888888889 0.010010010 1.101101
## 10890 0.889889890 0.010010010 1.100100
## 10891 0.890890891 0.010010010 1.099099
## 10892 0.891891892 0.010010010 1.098098
## 10893 0.892892893 0.010010010 1.097097
## 10894 0.893893894 0.010010010 1.096096
## 10895 0.894894895 0.010010010 1.095095
## 10896 0.895895896 0.010010010 1.094094
## 10897 0.896896897 0.010010010 1.093093
## 10898 0.897897898 0.010010010 1.092092
## 10899 0.898898899 0.010010010 1.091091
## 10900 0.899899900 0.010010010 1.090090
## 10901 0.900900901 0.010010010 1.089089
## 10902 0.901901902 0.010010010 1.088088
## 10903 0.902902903 0.010010010 1.087087
## 10904 0.903903904 0.010010010 1.086086
## 10905 0.904904905 0.010010010 1.085085
## 10906 0.905905906 0.010010010 1.084084
## 10907 0.906906907 0.010010010 1.083083
## 10908 0.907907908 0.010010010 1.082082
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 349

```

## 10909 0.908908909 0.010010010 1.081081
## 10910 0.909909910 0.010010010 1.080080
## 10911 0.910910911 0.010010010 1.079079
## 10912 0.911911912 0.010010010 1.078078
## 10913 0.912912913 0.010010010 1.077077
## 10914 0.913913914 0.010010010 1.076076
## 10915 0.914914915 0.010010010 1.075075
## 10916 0.915915916 0.010010010 1.074074
## 10917 0.916916917 0.010010010 1.073073
## 10918 0.917917918 0.010010010 1.072072
## 10919 0.918918919 0.010010010 1.071071
## 10920 0.919919920 0.010010010 1.070070
## 10921 0.920920921 0.010010010 1.069069
## 10922 0.921921922 0.010010010 1.068068
## 10923 0.922922923 0.010010010 1.067067
## 10924 0.923923924 0.010010010 1.066066
## 10925 0.924924925 0.010010010 1.065065
## 10926 0.925925926 0.010010010 1.064064
## 10927 0.926926927 0.010010010 1.063063
## 10928 0.927927928 0.010010010 1.062062
## 10929 0.928928929 0.010010010 1.061061
## 10930 0.929929930 0.010010010 1.060060
## 10931 0.930930931 0.010010010 1.059059
## 10932 0.931931932 0.010010010 1.058058
## 10933 0.932932933 0.010010010 1.057057
## 10934 0.933933934 0.010010010 1.056056
## 10935 0.934934935 0.010010010 1.055055
## 10936 0.935935936 0.010010010 1.054054
## 10937 0.936936937 0.010010010 1.053053
## 10938 0.937937938 0.010010010 1.052052
## 10939 0.938938939 0.010010010 1.051051
## 10940 0.939939940 0.010010010 1.050050
## 10941 0.940940941 0.010010010 1.049049
## 10942 0.941941942 0.010010010 1.048048
## 10943 0.942942943 0.010010010 1.047047
## 10944 0.943943944 0.010010010 1.046046
## 10945 0.944944945 0.010010010 1.045045
## 10946 0.945945946 0.010010010 1.044044
## 10947 0.946946947 0.010010010 1.043043
## 10948 0.947947948 0.010010010 1.042042
## 10949 0.948948949 0.010010010 1.041041
## 10950 0.949949950 0.010010010 1.040040
## 10951 0.950950951 0.010010010 1.039039
## 10952 0.951951952 0.010010010 1.038038
## 10953 0.952952953 0.010010010 1.037037
## 10954 0.953953954 0.010010010 1.036036

```

```
## 10955 0.954954955 0.010010010 1.035035
## 10956 0.955955956 0.010010010 1.034034
## 10957 0.956956957 0.010010010 1.033033
## 10958 0.957957958 0.010010010 1.032032
## 10959 0.958958959 0.010010010 1.031031
## 10960 0.959959960 0.010010010 1.030030
## 10961 0.960960961 0.010010010 1.029029
## 10962 0.961961962 0.010010010 1.028028
## 10963 0.962962963 0.010010010 1.027027
## 10964 0.963963964 0.010010010 1.026026
## 10965 0.964964965 0.010010010 1.025025
## 10966 0.965965966 0.010010010 1.024024
## 10967 0.966966967 0.010010010 1.023023
## 10968 0.967967968 0.010010010 1.022022
## 10969 0.968968969 0.010010010 1.021021
## 10970 0.969969970 0.010010010 1.020020
## 10971 0.970970971 0.010010010 1.019019
## 10972 0.971971972 0.010010010 1.018018
## 10973 0.972972973 0.010010010 1.017017
## 10974 0.973973974 0.010010010 1.016016
## 10975 0.974974975 0.010010010 1.015015
## 10976 0.975975976 0.010010010 1.014014
## 10977 0.976976977 0.010010010 1.013013
## 10978 0.977977978 0.010010010 1.012012
## 10979 0.978978979 0.010010010 1.011011
## 10980 0.979979980 0.010010010 1.010010
## 10981 0.980980981 0.010010010 1.009009
## 10982 0.981981982 0.010010010 1.008008
## 10983 0.982982983 0.010010010 1.007007
## 10984 0.983983984 0.010010010 1.006006
## 10985 0.984984985 0.010010010 1.005005
## 10986 0.985985986 0.010010010 1.004004
## 10987 0.986986987 0.010010010 1.003003
## 10988 0.987987988 0.010010010 1.002002
## 10989 0.988988989 0.010010010 1.001001
## 10990 0.989989990 0.010010010 1.000000
## 10991 0.990990991 0.010010010 0.998999
## 10992 0.991991992 0.010010010 0.997998
## 10993 0.992992993 0.010010010 0.996997
## 10994 0.993993994 0.010010010 0.995996
## 10995 0.994994995 0.010010010 0.994995
## 10996 0.995995996 0.010010010 0.993994
## 10997 0.996996997 0.010010010 0.992993
## 10998 0.997997998 0.010010010 0.991992
## 10999 0.998998999 0.010010010 0.990991
## 11000 1.000000000 0.010010010 0.989990
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 351

```
## 11001 0.000000000 0.011011011 1.988989
## 11002 0.001001001 0.011011011 1.987988
## 11003 0.002002002 0.011011011 1.986987
## 11004 0.003003003 0.011011011 1.985986
## 11005 0.004004004 0.011011011 1.984985
## 11006 0.005005005 0.011011011 1.983984
## 11007 0.006006006 0.011011011 1.982983
## 11008 0.007007007 0.011011011 1.981982
## 11009 0.008008008 0.011011011 1.980981
## 11010 0.009009009 0.011011011 1.979980
## 11011 0.010010010 0.011011011 1.978979
## 11012 0.011011011 0.011011011 1.977978
## 11013 0.012012012 0.011011011 1.976977
## 11014 0.013013013 0.011011011 1.975976
## 11015 0.014014014 0.011011011 1.974975
## 11016 0.015015015 0.011011011 1.973974
## 11017 0.016016016 0.011011011 1.972973
## 11018 0.017017017 0.011011011 1.971972
## 11019 0.018018018 0.011011011 1.970971
## 11020 0.019019019 0.011011011 1.969970
## 11021 0.020020020 0.011011011 1.968969
## 11022 0.021021021 0.011011011 1.967968
## 11023 0.022022022 0.011011011 1.966967
## 11024 0.023023023 0.011011011 1.965966
## 11025 0.024024024 0.011011011 1.964965
## 11026 0.025025025 0.011011011 1.963964
## 11027 0.026026026 0.011011011 1.962963
## 11028 0.027027027 0.011011011 1.961962
## 11029 0.028028028 0.011011011 1.960961
## 11030 0.029029029 0.011011011 1.959960
## 11031 0.030030030 0.011011011 1.958959
## 11032 0.031031031 0.011011011 1.957958
## 11033 0.032032032 0.011011011 1.956957
## 11034 0.033033033 0.011011011 1.955956
## 11035 0.034034034 0.011011011 1.954955
## 11036 0.035035035 0.011011011 1.953954
## 11037 0.036036036 0.011011011 1.952953
## 11038 0.037037037 0.011011011 1.951952
## 11039 0.038038038 0.011011011 1.950951
## 11040 0.039039039 0.011011011 1.949950
## 11041 0.040040040 0.011011011 1.948949
## 11042 0.041041041 0.011011011 1.947948
## 11043 0.042042042 0.011011011 1.946947
## 11044 0.043043043 0.011011011 1.945946
## 11045 0.044044044 0.011011011 1.944945
## 11046 0.045045045 0.011011011 1.943944
```

```
## 11047 0.046046046 0.011011011 1.942943
## 11048 0.047047047 0.011011011 1.941942
## 11049 0.048048048 0.011011011 1.940941
## 11050 0.049049049 0.011011011 1.939940
## 11051 0.050050050 0.011011011 1.938939
## 11052 0.051051051 0.011011011 1.937938
## 11053 0.052052052 0.011011011 1.936937
## 11054 0.053053053 0.011011011 1.935936
## 11055 0.054054054 0.011011011 1.934935
## 11056 0.055055055 0.011011011 1.933934
## 11057 0.056056056 0.011011011 1.932933
## 11058 0.057057057 0.011011011 1.931932
## 11059 0.058058058 0.011011011 1.930931
## 11060 0.059059059 0.011011011 1.929930
## 11061 0.060060060 0.011011011 1.928929
## 11062 0.061061061 0.011011011 1.927928
## 11063 0.062062062 0.011011011 1.926927
## 11064 0.063063063 0.011011011 1.925926
## 11065 0.064064064 0.011011011 1.924925
## 11066 0.065065065 0.011011011 1.923924
## 11067 0.066066066 0.011011011 1.922923
## 11068 0.067067067 0.011011011 1.921922
## 11069 0.068068068 0.011011011 1.920921
## 11070 0.069069069 0.011011011 1.919920
## 11071 0.070070070 0.011011011 1.918919
## 11072 0.071071071 0.011011011 1.917918
## 11073 0.072072072 0.011011011 1.916917
## 11074 0.073073073 0.011011011 1.915916
## 11075 0.074074074 0.011011011 1.914915
## 11076 0.075075075 0.011011011 1.913914
## 11077 0.076076076 0.011011011 1.912913
## 11078 0.077077077 0.011011011 1.911912
## 11079 0.078078078 0.011011011 1.910911
## 11080 0.079079079 0.011011011 1.909910
## 11081 0.080080080 0.011011011 1.908909
## 11082 0.081081081 0.011011011 1.907908
## 11083 0.082082082 0.011011011 1.906907
## 11084 0.083083083 0.011011011 1.905906
## 11085 0.084084084 0.011011011 1.904905
## 11086 0.085085085 0.011011011 1.903904
## 11087 0.086086086 0.011011011 1.902903
## 11088 0.087087087 0.011011011 1.901902
## 11089 0.088088088 0.011011011 1.900901
## 11090 0.089089089 0.011011011 1.899900
## 11091 0.090090090 0.011011011 1.898899
## 11092 0.091091091 0.011011011 1.897898
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 353

```
## 11093 0.092092092 0.011011011 1.896897
## 11094 0.093093093 0.011011011 1.895896
## 11095 0.094094094 0.011011011 1.894895
## 11096 0.095095095 0.011011011 1.893894
## 11097 0.096096096 0.011011011 1.892893
## 11098 0.097097097 0.011011011 1.891892
## 11099 0.098098098 0.011011011 1.890891
## 11100 0.099099099 0.011011011 1.889890
## 11101 0.100100100 0.011011011 1.888889
## 11102 0.101101101 0.011011011 1.887888
## 11103 0.102102102 0.011011011 1.886887
## 11104 0.103103103 0.011011011 1.885886
## 11105 0.104104104 0.011011011 1.884885
## 11106 0.105105105 0.011011011 1.883884
## 11107 0.106106106 0.011011011 1.882883
## 11108 0.107107107 0.011011011 1.881882
## 11109 0.108108108 0.011011011 1.880881
## 11110 0.109109109 0.011011011 1.879880
## 11111 0.110110110 0.011011011 1.878879
## 11112 0.111111111 0.011011011 1.877878
## 11113 0.112112112 0.011011011 1.876877
## 11114 0.113113113 0.011011011 1.875876
## 11115 0.114114114 0.011011011 1.874875
## 11116 0.115115115 0.011011011 1.873874
## 11117 0.116116116 0.011011011 1.872873
## 11118 0.117117117 0.011011011 1.871872
## 11119 0.118118118 0.011011011 1.870871
## 11120 0.119119119 0.011011011 1.869870
## 11121 0.120120120 0.011011011 1.868869
## 11122 0.121121121 0.011011011 1.867868
## 11123 0.122122122 0.011011011 1.866867
## 11124 0.123123123 0.011011011 1.865866
## 11125 0.124124124 0.011011011 1.864865
## 11126 0.125125125 0.011011011 1.863864
## 11127 0.126126126 0.011011011 1.862863
## 11128 0.127127127 0.011011011 1.861862
## 11129 0.128128128 0.011011011 1.860861
## 11130 0.129129129 0.011011011 1.859860
## 11131 0.130130130 0.011011011 1.858859
## 11132 0.131131131 0.011011011 1.857858
## 11133 0.132132132 0.011011011 1.856857
## 11134 0.133133133 0.011011011 1.855856
## 11135 0.134134134 0.011011011 1.854855
## 11136 0.135135135 0.011011011 1.853854
## 11137 0.136136136 0.011011011 1.852853
## 11138 0.137137137 0.011011011 1.851852
```

```
## 11139 0.138138138 0.011011011 1.850851
## 11140 0.139139139 0.011011011 1.849850
## 11141 0.140140140 0.011011011 1.848849
## 11142 0.141141141 0.011011011 1.847848
## 11143 0.142142142 0.011011011 1.846847
## 11144 0.143143143 0.011011011 1.845846
## 11145 0.144144144 0.011011011 1.844845
## 11146 0.145145145 0.011011011 1.843844
## 11147 0.146146146 0.011011011 1.842843
## 11148 0.147147147 0.011011011 1.841842
## 11149 0.148148148 0.011011011 1.840841
## 11150 0.149149149 0.011011011 1.839840
## 11151 0.150150150 0.011011011 1.838839
## 11152 0.151151151 0.011011011 1.837838
## 11153 0.152152152 0.011011011 1.836837
## 11154 0.153153153 0.011011011 1.835836
## 11155 0.154154154 0.011011011 1.834835
## 11156 0.155155155 0.011011011 1.833834
## 11157 0.156156156 0.011011011 1.832833
## 11158 0.157157157 0.011011011 1.831832
## 11159 0.158158158 0.011011011 1.830831
## 11160 0.159159159 0.011011011 1.829830
## 11161 0.160160160 0.011011011 1.828829
## 11162 0.161161161 0.011011011 1.827828
## 11163 0.162162162 0.011011011 1.826827
## 11164 0.163163163 0.011011011 1.825826
## 11165 0.164164164 0.011011011 1.824825
## 11166 0.165165165 0.011011011 1.823824
## 11167 0.166166166 0.011011011 1.822823
## 11168 0.167167167 0.011011011 1.821822
## 11169 0.168168168 0.011011011 1.820821
## 11170 0.169169169 0.011011011 1.819820
## 11171 0.170170170 0.011011011 1.818819
## 11172 0.171171171 0.011011011 1.817818
## 11173 0.172172172 0.011011011 1.816817
## 11174 0.173173173 0.011011011 1.815816
## 11175 0.174174174 0.011011011 1.814815
## 11176 0.175175175 0.011011011 1.813814
## 11177 0.176176176 0.011011011 1.812813
## 11178 0.177177177 0.011011011 1.811812
## 11179 0.178178178 0.011011011 1.810811
## 11180 0.179179179 0.011011011 1.809810
## 11181 0.180180180 0.011011011 1.808809
## 11182 0.181181181 0.011011011 1.807808
## 11183 0.182182182 0.011011011 1.806807
## 11184 0.183183183 0.011011011 1.805806
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 355

```
## 11185 0.184184184 0.011011011 1.804805
## 11186 0.185185185 0.011011011 1.803804
## 11187 0.186186186 0.011011011 1.802803
## 11188 0.187187187 0.011011011 1.801802
## 11189 0.188188188 0.011011011 1.800801
## 11190 0.189189189 0.011011011 1.799800
## 11191 0.190190190 0.011011011 1.798799
## 11192 0.191191191 0.011011011 1.797798
## 11193 0.192192192 0.011011011 1.796797
## 11194 0.193193193 0.011011011 1.795796
## 11195 0.194194194 0.011011011 1.794795
## 11196 0.195195195 0.011011011 1.793794
## 11197 0.196196196 0.011011011 1.792793
## 11198 0.197197197 0.011011011 1.791792
## 11199 0.198198198 0.011011011 1.790791
## 11200 0.199199199 0.011011011 1.789790
## 11201 0.200200200 0.011011011 1.788789
## 11202 0.201201201 0.011011011 1.787788
## 11203 0.202202202 0.011011011 1.786787
## 11204 0.203203203 0.011011011 1.785786
## 11205 0.204204204 0.011011011 1.784785
## 11206 0.205205205 0.011011011 1.783784
## 11207 0.206206206 0.011011011 1.782783
## 11208 0.207207207 0.011011011 1.781782
## 11209 0.208208208 0.011011011 1.780781
## 11210 0.209209209 0.011011011 1.779780
## 11211 0.210210210 0.011011011 1.778779
## 11212 0.211211211 0.011011011 1.777778
## 11213 0.212212212 0.011011011 1.776777
## 11214 0.213213213 0.011011011 1.775776
## 11215 0.214214214 0.011011011 1.774775
## 11216 0.215215215 0.011011011 1.773774
## 11217 0.216216216 0.011011011 1.772773
## 11218 0.217217217 0.011011011 1.771772
## 11219 0.218218218 0.011011011 1.770771
## 11220 0.219219219 0.011011011 1.769770
## 11221 0.220220220 0.011011011 1.768769
## 11222 0.221221221 0.011011011 1.767768
## 11223 0.222222222 0.011011011 1.766767
## 11224 0.223223223 0.011011011 1.765766
## 11225 0.224224224 0.011011011 1.764765
## 11226 0.225225225 0.011011011 1.763764
## 11227 0.226226226 0.011011011 1.762763
## 11228 0.227227227 0.011011011 1.761762
## 11229 0.228228228 0.011011011 1.760761
## 11230 0.229229229 0.011011011 1.759760
```

```
## 11231 0.230230230 0.011011011 1.758759
## 11232 0.231231231 0.011011011 1.757758
## 11233 0.232232232 0.011011011 1.756757
## 11234 0.233233233 0.011011011 1.755756
## 11235 0.234234234 0.011011011 1.754755
## 11236 0.235235235 0.011011011 1.753754
## 11237 0.236236236 0.011011011 1.752753
## 11238 0.237237237 0.011011011 1.751752
## 11239 0.238238238 0.011011011 1.750751
## 11240 0.239239239 0.011011011 1.749750
## 11241 0.240240240 0.011011011 1.748749
## 11242 0.241241241 0.011011011 1.747748
## 11243 0.242242242 0.011011011 1.746747
## 11244 0.243243243 0.011011011 1.745746
## 11245 0.244244244 0.011011011 1.744745
## 11246 0.245245245 0.011011011 1.743744
## 11247 0.246246246 0.011011011 1.742743
## 11248 0.247247247 0.011011011 1.741742
## 11249 0.248248248 0.011011011 1.740741
## 11250 0.249249249 0.011011011 1.739740
## 11251 0.250250250 0.011011011 1.738739
## 11252 0.251251251 0.011011011 1.737738
## 11253 0.252252252 0.011011011 1.736737
## 11254 0.253253253 0.011011011 1.735736
## 11255 0.254254254 0.011011011 1.734735
## 11256 0.255255255 0.011011011 1.733734
## 11257 0.256256256 0.011011011 1.732733
## 11258 0.257257257 0.011011011 1.731732
## 11259 0.258258258 0.011011011 1.730731
## 11260 0.259259259 0.011011011 1.729730
## 11261 0.260260260 0.011011011 1.728729
## 11262 0.261261261 0.011011011 1.727728
## 11263 0.262262262 0.011011011 1.726727
## 11264 0.263263263 0.011011011 1.725726
## 11265 0.264264264 0.011011011 1.724725
## 11266 0.265265265 0.011011011 1.723724
## 11267 0.266266266 0.011011011 1.722723
## 11268 0.267267267 0.011011011 1.721722
## 11269 0.268268268 0.011011011 1.720721
## 11270 0.269269269 0.011011011 1.719720
## 11271 0.270270270 0.011011011 1.718719
## 11272 0.271271271 0.011011011 1.717718
## 11273 0.272272272 0.011011011 1.716717
## 11274 0.273273273 0.011011011 1.715716
## 11275 0.274274274 0.011011011 1.714715
## 11276 0.275275275 0.011011011 1.713714
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 357

```
## 11277 0.276276276 0.011011011 1.712713
## 11278 0.277277277 0.011011011 1.711712
## 11279 0.278278278 0.011011011 1.710711
## 11280 0.279279279 0.011011011 1.709710
## 11281 0.280280280 0.011011011 1.708709
## 11282 0.281281281 0.011011011 1.707708
## 11283 0.282282282 0.011011011 1.706707
## 11284 0.283283283 0.011011011 1.705706
## 11285 0.284284284 0.011011011 1.704705
## 11286 0.285285285 0.011011011 1.703704
## 11287 0.286286286 0.011011011 1.702703
## 11288 0.287287287 0.011011011 1.701702
## 11289 0.288288288 0.011011011 1.700701
## 11290 0.289289289 0.011011011 1.699700
## 11291 0.290290290 0.011011011 1.698699
## 11292 0.291291291 0.011011011 1.697698
## 11293 0.292292292 0.011011011 1.696697
## 11294 0.293293293 0.011011011 1.695696
## 11295 0.294294294 0.011011011 1.694695
## 11296 0.295295295 0.011011011 1.693694
## 11297 0.296296296 0.011011011 1.692693
## 11298 0.297297297 0.011011011 1.691692
## 11299 0.298298298 0.011011011 1.690691
## 11300 0.299299299 0.011011011 1.689690
## 11301 0.300300300 0.011011011 1.688689
## 11302 0.301301301 0.011011011 1.687688
## 11303 0.302302302 0.011011011 1.686687
## 11304 0.303303303 0.011011011 1.685686
## 11305 0.304304304 0.011011011 1.684685
## 11306 0.305305305 0.011011011 1.683684
## 11307 0.306306306 0.011011011 1.682683
## 11308 0.307307307 0.011011011 1.681682
## 11309 0.308308308 0.011011011 1.680681
## 11310 0.309309309 0.011011011 1.679680
## 11311 0.310310310 0.011011011 1.678679
## 11312 0.311311311 0.011011011 1.677678
## 11313 0.312312312 0.011011011 1.676677
## 11314 0.313313313 0.011011011 1.675676
## 11315 0.314314314 0.011011011 1.674675
## 11316 0.315315315 0.011011011 1.673674
## 11317 0.316316316 0.011011011 1.672673
## 11318 0.317317317 0.011011011 1.671672
## 11319 0.318318318 0.011011011 1.670671
## 11320 0.319319319 0.011011011 1.669670
## 11321 0.320320320 0.011011011 1.668669
## 11322 0.321321321 0.011011011 1.667668
```

```
## 11323 0.322322322 0.011011011 1.666667
## 11324 0.323323323 0.011011011 1.665666
## 11325 0.324324324 0.011011011 1.664665
## 11326 0.325325325 0.011011011 1.663664
## 11327 0.326326326 0.011011011 1.662663
## 11328 0.327327327 0.011011011 1.661662
## 11329 0.328328328 0.011011011 1.660661
## 11330 0.329329329 0.011011011 1.659660
## 11331 0.330330330 0.011011011 1.658659
## 11332 0.331331331 0.011011011 1.657658
## 11333 0.332332332 0.011011011 1.656657
## 11334 0.333333333 0.011011011 1.655656
## 11335 0.334334334 0.011011011 1.654655
## 11336 0.335335335 0.011011011 1.653654
## 11337 0.336336336 0.011011011 1.652653
## 11338 0.337337337 0.011011011 1.651652
## 11339 0.338338338 0.011011011 1.650651
## 11340 0.339339339 0.011011011 1.649650
## 11341 0.340340340 0.011011011 1.648649
## 11342 0.341341341 0.011011011 1.647648
## 11343 0.342342342 0.011011011 1.646647
## 11344 0.343343343 0.011011011 1.645646
## 11345 0.344344344 0.011011011 1.644645
## 11346 0.345345345 0.011011011 1.643644
## 11347 0.346346346 0.011011011 1.642643
## 11348 0.347347347 0.011011011 1.641642
## 11349 0.348348348 0.011011011 1.640641
## 11350 0.349349349 0.011011011 1.639640
## 11351 0.350350350 0.011011011 1.638639
## 11352 0.351351351 0.011011011 1.637638
## 11353 0.352352352 0.011011011 1.636637
## 11354 0.353353353 0.011011011 1.635636
## 11355 0.354354354 0.011011011 1.634635
## 11356 0.355355355 0.011011011 1.633634
## 11357 0.356356356 0.011011011 1.632633
## 11358 0.357357357 0.011011011 1.631632
## 11359 0.358358358 0.011011011 1.630631
## 11360 0.359359359 0.011011011 1.629630
## 11361 0.360360360 0.011011011 1.628629
## 11362 0.361361361 0.011011011 1.627628
## 11363 0.362362362 0.011011011 1.626627
## 11364 0.363363363 0.011011011 1.625626
## 11365 0.364364364 0.011011011 1.624625
## 11366 0.365365365 0.011011011 1.623624
## 11367 0.366366366 0.011011011 1.622623
## 11368 0.367367367 0.011011011 1.621622
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 359

```
## 11369 0.368368368 0.011011011 1.620621
## 11370 0.369369369 0.011011011 1.619620
## 11371 0.370370370 0.011011011 1.618619
## 11372 0.371371371 0.011011011 1.617618
## 11373 0.372372372 0.011011011 1.616617
## 11374 0.373373373 0.011011011 1.615616
## 11375 0.374374374 0.011011011 1.614615
## 11376 0.375375375 0.011011011 1.613614
## 11377 0.376376376 0.011011011 1.612613
## 11378 0.377377377 0.011011011 1.611612
## 11379 0.378378378 0.011011011 1.610611
## 11380 0.379379379 0.011011011 1.609610
## 11381 0.380380380 0.011011011 1.608609
## 11382 0.381381381 0.011011011 1.607608
## 11383 0.382382382 0.011011011 1.606607
## 11384 0.383383383 0.011011011 1.605606
## 11385 0.384384384 0.011011011 1.604605
## 11386 0.385385385 0.011011011 1.603604
## 11387 0.386386386 0.011011011 1.602603
## 11388 0.387387387 0.011011011 1.601602
## 11389 0.388388388 0.011011011 1.600601
## 11390 0.389389389 0.011011011 1.599600
## 11391 0.390390390 0.011011011 1.598599
## 11392 0.391391391 0.011011011 1.597598
## 11393 0.392392392 0.011011011 1.596597
## 11394 0.393393393 0.011011011 1.595596
## 11395 0.394394394 0.011011011 1.594595
## 11396 0.395395395 0.011011011 1.593594
## 11397 0.396396396 0.011011011 1.592593
## 11398 0.397397397 0.011011011 1.591592
## 11399 0.398398398 0.011011011 1.590591
## 11400 0.399399399 0.011011011 1.589590
## 11401 0.400400400 0.011011011 1.588589
## 11402 0.401401401 0.011011011 1.587588
## 11403 0.402402402 0.011011011 1.586587
## 11404 0.403403403 0.011011011 1.585586
## 11405 0.404404404 0.011011011 1.584585
## 11406 0.405405405 0.011011011 1.583584
## 11407 0.406406406 0.011011011 1.582583
## 11408 0.407407407 0.011011011 1.581582
## 11409 0.408408408 0.011011011 1.580581
## 11410 0.409409409 0.011011011 1.579580
## 11411 0.410410410 0.011011011 1.578579
## 11412 0.411411411 0.011011011 1.577578
## 11413 0.412412412 0.011011011 1.576577
## 11414 0.413413413 0.011011011 1.575576
```

```
## 11415 0.414414414 0.011011011 1.574575
## 11416 0.415415415 0.011011011 1.573574
## 11417 0.416416416 0.011011011 1.572573
## 11418 0.417417417 0.011011011 1.571572
## 11419 0.418418418 0.011011011 1.570571
## 11420 0.419419419 0.011011011 1.569570
## 11421 0.420420420 0.011011011 1.568569
## 11422 0.421421421 0.011011011 1.567568
## 11423 0.422422422 0.011011011 1.566567
## 11424 0.423423423 0.011011011 1.565566
## 11425 0.424424424 0.011011011 1.564565
## 11426 0.425425425 0.011011011 1.563564
## 11427 0.426426426 0.011011011 1.562563
## 11428 0.427427427 0.011011011 1.561562
## 11429 0.428428428 0.011011011 1.560561
## 11430 0.429429429 0.011011011 1.559560
## 11431 0.430430430 0.011011011 1.558559
## 11432 0.431431431 0.011011011 1.557558
## 11433 0.432432432 0.011011011 1.556557
## 11434 0.433433433 0.011011011 1.555556
## 11435 0.434434434 0.011011011 1.554555
## 11436 0.435435435 0.011011011 1.553554
## 11437 0.436436436 0.011011011 1.552553
## 11438 0.437437437 0.011011011 1.551552
## 11439 0.438438438 0.011011011 1.550551
## 11440 0.439439439 0.011011011 1.549550
## 11441 0.440440440 0.011011011 1.548549
## 11442 0.441441441 0.011011011 1.547548
## 11443 0.442442442 0.011011011 1.546547
## 11444 0.443443443 0.011011011 1.545546
## 11445 0.444444444 0.011011011 1.544545
## 11446 0.445445445 0.011011011 1.543544
## 11447 0.446446446 0.011011011 1.542543
## 11448 0.447447447 0.011011011 1.541542
## 11449 0.448448448 0.011011011 1.540541
## 11450 0.449449449 0.011011011 1.539540
## 11451 0.450450450 0.011011011 1.538539
## 11452 0.451451451 0.011011011 1.537538
## 11453 0.452452452 0.011011011 1.536537
## 11454 0.453453453 0.011011011 1.535536
## 11455 0.454454454 0.011011011 1.534535
## 11456 0.455455455 0.011011011 1.533534
## 11457 0.456456456 0.011011011 1.532533
## 11458 0.457457457 0.011011011 1.531532
## 11459 0.458458458 0.011011011 1.530531
## 11460 0.459459459 0.011011011 1.529530
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 361

```

## 11461 0.460460460 0.011011011 1.528529
## 11462 0.461461461 0.011011011 1.527528
## 11463 0.462462462 0.011011011 1.526527
## 11464 0.463463463 0.011011011 1.525526
## 11465 0.464464464 0.011011011 1.524525
## 11466 0.465465465 0.011011011 1.523524
## 11467 0.466466466 0.011011011 1.522523
## 11468 0.467467467 0.011011011 1.521522
## 11469 0.468468468 0.011011011 1.520521
## 11470 0.469469469 0.011011011 1.519520
## 11471 0.470470470 0.011011011 1.518519
## 11472 0.471471471 0.011011011 1.517518
## 11473 0.472472472 0.011011011 1.516517
## 11474 0.473473473 0.011011011 1.515516
## 11475 0.474474474 0.011011011 1.514515
## 11476 0.475475475 0.011011011 1.513514
## 11477 0.476476476 0.011011011 1.512513
## 11478 0.477477477 0.011011011 1.511512
## 11479 0.478478478 0.011011011 1.510511
## 11480 0.479479479 0.011011011 1.509510
## 11481 0.480480480 0.011011011 1.508509
## 11482 0.481481481 0.011011011 1.507508
## 11483 0.482482482 0.011011011 1.506507
## 11484 0.483483483 0.011011011 1.505506
## 11485 0.484484484 0.011011011 1.504505
## 11486 0.485485485 0.011011011 1.503504
## 11487 0.486486486 0.011011011 1.502503
## 11488 0.487487487 0.011011011 1.501502
## 11489 0.488488488 0.011011011 1.500501
## 11490 0.489489489 0.011011011 1.499499
## 11491 0.490490490 0.011011011 1.498498
## 11492 0.491491491 0.011011011 1.497497
## 11493 0.492492492 0.011011011 1.496496
## 11494 0.493493493 0.011011011 1.495495
## 11495 0.494494494 0.011011011 1.494494
## 11496 0.495495495 0.011011011 1.493493
## 11497 0.496496496 0.011011011 1.492492
## 11498 0.497497497 0.011011011 1.491491
## 11499 0.498498498 0.011011011 1.490490
## 11500 0.499499499 0.011011011 1.489489
## 11501 0.500500501 0.011011011 1.488488
## 11502 0.501501502 0.011011011 1.487487
## 11503 0.502502503 0.011011011 1.486486
## 11504 0.503503504 0.011011011 1.485485
## 11505 0.504504505 0.011011011 1.484484
## 11506 0.505505506 0.011011011 1.483483

```

```
## 11507 0.506506507 0.011011011 1.482482
## 11508 0.507507508 0.011011011 1.481481
## 11509 0.508508509 0.011011011 1.480480
## 11510 0.509509510 0.011011011 1.479479
## 11511 0.510510511 0.011011011 1.478478
## 11512 0.511511512 0.011011011 1.477477
## 11513 0.512512513 0.011011011 1.476476
## 11514 0.513513514 0.011011011 1.475475
## 11515 0.514514515 0.011011011 1.474474
## 11516 0.515515516 0.011011011 1.473473
## 11517 0.516516517 0.011011011 1.472472
## 11518 0.517517518 0.011011011 1.471471
## 11519 0.518518519 0.011011011 1.470470
## 11520 0.519519520 0.011011011 1.469469
## 11521 0.520520521 0.011011011 1.468468
## 11522 0.521521522 0.011011011 1.467467
## 11523 0.522522523 0.011011011 1.466466
## 11524 0.523523524 0.011011011 1.465465
## 11525 0.524524525 0.011011011 1.464464
## 11526 0.525525526 0.011011011 1.463463
## 11527 0.526526527 0.011011011 1.462462
## 11528 0.527527528 0.011011011 1.461461
## 11529 0.528528529 0.011011011 1.460460
## 11530 0.529529530 0.011011011 1.459459
## 11531 0.530530531 0.011011011 1.458458
## 11532 0.531531532 0.011011011 1.457457
## 11533 0.532532533 0.011011011 1.456456
## 11534 0.533533534 0.011011011 1.455455
## 11535 0.534534535 0.011011011 1.454454
## 11536 0.535535536 0.011011011 1.453453
## 11537 0.536536537 0.011011011 1.452452
## 11538 0.537537538 0.011011011 1.451451
## 11539 0.538538539 0.011011011 1.450450
## 11540 0.539539540 0.011011011 1.449449
## 11541 0.540540541 0.011011011 1.448448
## 11542 0.541541542 0.011011011 1.447447
## 11543 0.542542543 0.011011011 1.446446
## 11544 0.543543544 0.011011011 1.445445
## 11545 0.5445444545 0.011011011 1.444444
## 11546 0.545545546 0.011011011 1.443443
## 11547 0.546546547 0.011011011 1.442442
## 11548 0.547547548 0.011011011 1.441441
## 11549 0.548548549 0.011011011 1.440440
## 11550 0.549549550 0.011011011 1.439439
## 11551 0.550550551 0.011011011 1.438438
## 11552 0.551551552 0.011011011 1.437437
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 363

```
## 11553 0.552552553 0.011011011 1.436436
## 11554 0.553553554 0.011011011 1.435435
## 11555 0.554554555 0.011011011 1.434434
## 11556 0.555555556 0.011011011 1.433433
## 11557 0.556556557 0.011011011 1.432432
## 11558 0.557557558 0.011011011 1.431431
## 11559 0.558558559 0.011011011 1.430430
## 11560 0.559559560 0.011011011 1.429429
## 11561 0.560560561 0.011011011 1.428428
## 11562 0.561561562 0.011011011 1.427427
## 11563 0.562562563 0.011011011 1.426426
## 11564 0.563563564 0.011011011 1.425425
## 11565 0.564564565 0.011011011 1.424424
## 11566 0.565565566 0.011011011 1.423423
## 11567 0.566566567 0.011011011 1.422422
## 11568 0.567567568 0.011011011 1.421421
## 11569 0.568568569 0.011011011 1.420420
## 11570 0.569569570 0.011011011 1.419419
## 11571 0.570570571 0.011011011 1.418418
## 11572 0.571571572 0.011011011 1.417417
## 11573 0.572572573 0.011011011 1.416416
## 11574 0.573573574 0.011011011 1.415415
## 11575 0.574574575 0.011011011 1.414414
## 11576 0.575575576 0.011011011 1.413413
## 11577 0.576576577 0.011011011 1.412412
## 11578 0.577577578 0.011011011 1.411411
## 11579 0.578578579 0.011011011 1.410410
## 11580 0.579579580 0.011011011 1.409409
## 11581 0.580580581 0.011011011 1.408408
## 11582 0.581581582 0.011011011 1.407407
## 11583 0.582582583 0.011011011 1.406406
## 11584 0.583583584 0.011011011 1.405405
## 11585 0.584584585 0.011011011 1.404404
## 11586 0.585585586 0.011011011 1.403403
## 11587 0.586586587 0.011011011 1.402402
## 11588 0.587587588 0.011011011 1.401401
## 11589 0.588588589 0.011011011 1.400400
## 11590 0.589589590 0.011011011 1.399399
## 11591 0.590590591 0.011011011 1.398398
## 11592 0.591591592 0.011011011 1.397397
## 11593 0.592592593 0.011011011 1.396396
## 11594 0.593593594 0.011011011 1.395395
## 11595 0.594594595 0.011011011 1.394394
## 11596 0.595595596 0.011011011 1.393393
## 11597 0.596596597 0.011011011 1.392392
## 11598 0.597597598 0.011011011 1.391391
```

```
## 11599 0.598598599 0.011011011 1.390390
## 11600 0.599599600 0.011011011 1.389389
## 11601 0.600600601 0.011011011 1.388388
## 11602 0.601601602 0.011011011 1.387387
## 11603 0.602602603 0.011011011 1.386386
## 11604 0.603603604 0.011011011 1.385385
## 11605 0.604604605 0.011011011 1.384384
## 11606 0.605605606 0.011011011 1.383383
## 11607 0.606606607 0.011011011 1.382382
## 11608 0.607607608 0.011011011 1.381381
## 11609 0.608608609 0.011011011 1.380380
## 11610 0.609609610 0.011011011 1.379379
## 11611 0.610610611 0.011011011 1.378378
## 11612 0.611611612 0.011011011 1.377377
## 11613 0.612612613 0.011011011 1.376376
## 11614 0.613613614 0.011011011 1.375375
## 11615 0.614614615 0.011011011 1.374374
## 11616 0.615615616 0.011011011 1.373373
## 11617 0.616616617 0.011011011 1.372372
## 11618 0.617617618 0.011011011 1.371371
## 11619 0.618618619 0.011011011 1.370370
## 11620 0.619619620 0.011011011 1.369369
## 11621 0.620620621 0.011011011 1.368368
## 11622 0.621621622 0.011011011 1.367367
## 11623 0.622622623 0.011011011 1.366366
## 11624 0.623623624 0.011011011 1.365365
## 11625 0.624624625 0.011011011 1.364364
## 11626 0.625625626 0.011011011 1.363363
## 11627 0.626626627 0.011011011 1.362362
## 11628 0.627627628 0.011011011 1.361361
## 11629 0.628628629 0.011011011 1.360360
## 11630 0.629629630 0.011011011 1.359359
## 11631 0.630630631 0.011011011 1.358358
## 11632 0.631631632 0.011011011 1.357357
## 11633 0.632632633 0.011011011 1.356356
## 11634 0.633633634 0.011011011 1.355355
## 11635 0.634634635 0.011011011 1.354354
## 11636 0.635635636 0.011011011 1.353353
## 11637 0.636636637 0.011011011 1.352352
## 11638 0.637637638 0.011011011 1.351351
## 11639 0.638638639 0.011011011 1.350350
## 11640 0.639639640 0.011011011 1.349349
## 11641 0.640640641 0.011011011 1.348348
## 11642 0.641641642 0.011011011 1.347347
## 11643 0.642642643 0.011011011 1.346346
## 11644 0.643643644 0.011011011 1.345345
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR365

```
## 11645 0.644644645 0.011011011 1.344344
## 11646 0.645645646 0.011011011 1.343343
## 11647 0.646646647 0.011011011 1.342342
## 11648 0.647647648 0.011011011 1.341341
## 11649 0.648648649 0.011011011 1.340340
## 11650 0.649649650 0.011011011 1.339339
## 11651 0.650650651 0.011011011 1.338338
## 11652 0.651651652 0.011011011 1.337337
## 11653 0.652652653 0.011011011 1.336336
## 11654 0.653653654 0.011011011 1.335335
## 11655 0.654654655 0.011011011 1.334334
## 11656 0.655655656 0.011011011 1.333333
## 11657 0.656656657 0.011011011 1.332332
## 11658 0.657657658 0.011011011 1.331331
## 11659 0.658658659 0.011011011 1.330330
## 11660 0.659659660 0.011011011 1.329329
## 11661 0.660660661 0.011011011 1.328328
## 11662 0.661661662 0.011011011 1.327327
## 11663 0.662662663 0.011011011 1.326326
## 11664 0.663663664 0.011011011 1.325325
## 11665 0.664664665 0.011011011 1.324324
## 11666 0.665665666 0.011011011 1.323323
## 11667 0.666666667 0.011011011 1.322322
## 11668 0.667667668 0.011011011 1.321321
## 11669 0.668668669 0.011011011 1.320320
## 11670 0.669669670 0.011011011 1.319319
## 11671 0.670670671 0.011011011 1.318318
## 11672 0.671671672 0.011011011 1.317317
## 11673 0.672672673 0.011011011 1.316316
## 11674 0.673673674 0.011011011 1.315315
## 11675 0.674674675 0.011011011 1.314314
## 11676 0.675675676 0.011011011 1.313313
## 11677 0.676676677 0.011011011 1.312312
## 11678 0.677677678 0.011011011 1.311311
## 11679 0.678678679 0.011011011 1.310310
## 11680 0.679679680 0.011011011 1.309309
## 11681 0.680680681 0.011011011 1.308308
## 11682 0.681681682 0.011011011 1.307307
## 11683 0.682682683 0.011011011 1.306306
## 11684 0.683683684 0.011011011 1.305305
## 11685 0.684684685 0.011011011 1.304304
## 11686 0.685685686 0.011011011 1.303303
## 11687 0.686686687 0.011011011 1.302302
## 11688 0.687687688 0.011011011 1.301301
## 11689 0.688688689 0.011011011 1.300300
## 11690 0.689689690 0.011011011 1.299299
```

```
## 11691 0.690690691 0.011011011 1.298298
## 11692 0.691691692 0.011011011 1.297297
## 11693 0.692692693 0.011011011 1.296296
## 11694 0.693693694 0.011011011 1.295295
## 11695 0.694694695 0.011011011 1.294294
## 11696 0.695695696 0.011011011 1.293293
## 11697 0.696696697 0.011011011 1.292292
## 11698 0.697697698 0.011011011 1.291291
## 11699 0.698698699 0.011011011 1.290290
## 11700 0.699699700 0.011011011 1.289289
## 11701 0.700700701 0.011011011 1.288288
## 11702 0.701701702 0.011011011 1.287287
## 11703 0.702702703 0.011011011 1.286286
## 11704 0.703703704 0.011011011 1.285285
## 11705 0.704704705 0.011011011 1.284284
## 11706 0.705705706 0.011011011 1.283283
## 11707 0.706706707 0.011011011 1.282282
## 11708 0.707707708 0.011011011 1.281281
## 11709 0.708708709 0.011011011 1.280280
## 11710 0.709709710 0.011011011 1.279279
## 11711 0.710710711 0.011011011 1.278278
## 11712 0.711711712 0.011011011 1.277277
## 11713 0.712712713 0.011011011 1.276276
## 11714 0.713713714 0.011011011 1.275275
## 11715 0.714714715 0.011011011 1.274274
## 11716 0.715715716 0.011011011 1.273273
## 11717 0.716716717 0.011011011 1.272272
## 11718 0.717717718 0.011011011 1.271271
## 11719 0.718718719 0.011011011 1.270270
## 11720 0.719719720 0.011011011 1.269269
## 11721 0.720720721 0.011011011 1.268268
## 11722 0.721721722 0.011011011 1.267267
## 11723 0.722722723 0.011011011 1.266266
## 11724 0.723723724 0.011011011 1.265265
## 11725 0.724724725 0.011011011 1.264264
## 11726 0.725725726 0.011011011 1.263263
## 11727 0.726726727 0.011011011 1.262262
## 11728 0.727727728 0.011011011 1.261261
## 11729 0.728728729 0.011011011 1.260260
## 11730 0.729729730 0.011011011 1.259259
## 11731 0.730730731 0.011011011 1.258258
## 11732 0.731731732 0.011011011 1.257257
## 11733 0.732732733 0.011011011 1.256256
## 11734 0.733733734 0.011011011 1.255255
## 11735 0.734734735 0.011011011 1.254254
## 11736 0.735735736 0.011011011 1.253253
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 367

```

## 11737 0.736736737 0.011011011 1.252252
## 11738 0.737737738 0.011011011 1.251251
## 11739 0.738738739 0.011011011 1.250250
## 11740 0.739739740 0.011011011 1.249249
## 11741 0.740740741 0.011011011 1.248248
## 11742 0.741741742 0.011011011 1.247247
## 11743 0.742742743 0.011011011 1.246246
## 11744 0.743743744 0.011011011 1.245245
## 11745 0.744744745 0.011011011 1.244244
## 11746 0.745745746 0.011011011 1.243243
## 11747 0.746746747 0.011011011 1.242242
## 11748 0.747747748 0.011011011 1.241241
## 11749 0.748748749 0.011011011 1.240240
## 11750 0.749749750 0.011011011 1.239239
## 11751 0.750750751 0.011011011 1.238238
## 11752 0.751751752 0.011011011 1.237237
## 11753 0.752752753 0.011011011 1.236236
## 11754 0.753753754 0.011011011 1.235235
## 11755 0.754754755 0.011011011 1.234234
## 11756 0.755755756 0.011011011 1.233233
## 11757 0.756756757 0.011011011 1.232232
## 11758 0.757757758 0.011011011 1.231231
## 11759 0.758758759 0.011011011 1.230230
## 11760 0.759759760 0.011011011 1.229229
## 11761 0.760760761 0.011011011 1.228228
## 11762 0.761761762 0.011011011 1.227227
## 11763 0.762762763 0.011011011 1.226226
## 11764 0.763763764 0.011011011 1.225225
## 11765 0.764764765 0.011011011 1.224224
## 11766 0.765765766 0.011011011 1.223223
## 11767 0.766766767 0.011011011 1.222222
## 11768 0.767767768 0.011011011 1.221221
## 11769 0.768768769 0.011011011 1.220220
## 11770 0.769769770 0.011011011 1.219219
## 11771 0.770770771 0.011011011 1.218218
## 11772 0.771771772 0.011011011 1.217217
## 11773 0.772772773 0.011011011 1.216216
## 11774 0.773773774 0.011011011 1.215215
## 11775 0.774774775 0.011011011 1.214214
## 11776 0.775775776 0.011011011 1.213213
## 11777 0.776776777 0.011011011 1.212212
## 11778 0.777777778 0.011011011 1.211211
## 11779 0.778778779 0.011011011 1.210210
## 11780 0.779779780 0.011011011 1.209209
## 11781 0.780780781 0.011011011 1.208208
## 11782 0.781781782 0.011011011 1.207207

```

```
## 11783 0.782782783 0.011011011 1.206206
## 11784 0.783783784 0.011011011 1.205205
## 11785 0.784784785 0.011011011 1.204204
## 11786 0.785785786 0.011011011 1.203203
## 11787 0.786786787 0.011011011 1.202202
## 11788 0.787787788 0.011011011 1.201201
## 11789 0.788788789 0.011011011 1.200200
## 11790 0.789789790 0.011011011 1.199199
## 11791 0.790790791 0.011011011 1.198198
## 11792 0.791791792 0.011011011 1.197197
## 11793 0.792792793 0.011011011 1.196196
## 11794 0.793793794 0.011011011 1.195195
## 11795 0.794794795 0.011011011 1.194194
## 11796 0.795795796 0.011011011 1.193193
## 11797 0.796796797 0.011011011 1.192192
## 11798 0.797797798 0.011011011 1.191191
## 11799 0.798798799 0.011011011 1.190190
## 11800 0.799799800 0.011011011 1.189189
## 11801 0.800800801 0.011011011 1.188188
## 11802 0.801801802 0.011011011 1.187187
## 11803 0.802802803 0.011011011 1.186186
## 11804 0.803803804 0.011011011 1.185185
## 11805 0.804804805 0.011011011 1.184184
## 11806 0.805805806 0.011011011 1.183183
## 11807 0.806806807 0.011011011 1.182182
## 11808 0.807807808 0.011011011 1.181181
## 11809 0.808808809 0.011011011 1.180180
## 11810 0.809809810 0.011011011 1.179179
## 11811 0.810810811 0.011011011 1.178178
## 11812 0.811811812 0.011011011 1.177177
## 11813 0.812812813 0.011011011 1.176176
## 11814 0.813813814 0.011011011 1.175175
## 11815 0.814814815 0.011011011 1.174174
## 11816 0.815815816 0.011011011 1.173173
## 11817 0.816816817 0.011011011 1.172172
## 11818 0.817817818 0.011011011 1.171171
## 11819 0.818818819 0.011011011 1.170170
## 11820 0.819819820 0.011011011 1.169169
## 11821 0.820820821 0.011011011 1.168168
## 11822 0.821821822 0.011011011 1.167167
## 11823 0.822822823 0.011011011 1.166166
## 11824 0.823823824 0.011011011 1.165165
## 11825 0.824824825 0.011011011 1.164164
## 11826 0.825825826 0.011011011 1.163163
## 11827 0.826826827 0.011011011 1.162162
## 11828 0.827827828 0.011011011 1.161161
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 369

```

## 11829 0.828828829 0.011011011 1.160160
## 11830 0.829829830 0.011011011 1.159159
## 11831 0.830830831 0.011011011 1.158158
## 11832 0.831831832 0.011011011 1.157157
## 11833 0.832832833 0.011011011 1.156156
## 11834 0.833833834 0.011011011 1.155155
## 11835 0.834834835 0.011011011 1.154154
## 11836 0.835835836 0.011011011 1.153153
## 11837 0.836836837 0.011011011 1.152152
## 11838 0.837837838 0.011011011 1.151151
## 11839 0.838838839 0.011011011 1.150150
## 11840 0.839839840 0.011011011 1.149149
## 11841 0.840840841 0.011011011 1.148148
## 11842 0.841841842 0.011011011 1.147147
## 11843 0.842842843 0.011011011 1.146146
## 11844 0.843843844 0.011011011 1.145145
## 11845 0.844844845 0.011011011 1.144144
## 11846 0.845845846 0.011011011 1.143143
## 11847 0.846846847 0.011011011 1.142142
## 11848 0.847847848 0.011011011 1.141141
## 11849 0.848848849 0.011011011 1.140140
## 11850 0.849849850 0.011011011 1.139139
## 11851 0.850850851 0.011011011 1.138138
## 11852 0.851851852 0.011011011 1.137137
## 11853 0.852852853 0.011011011 1.136136
## 11854 0.853853854 0.011011011 1.135135
## 11855 0.854854855 0.011011011 1.134134
## 11856 0.855855856 0.011011011 1.133133
## 11857 0.856856857 0.011011011 1.132132
## 11858 0.857857858 0.011011011 1.131131
## 11859 0.858858859 0.011011011 1.130130
## 11860 0.859859860 0.011011011 1.129129
## 11861 0.860860861 0.011011011 1.128128
## 11862 0.861861862 0.011011011 1.127127
## 11863 0.862862863 0.011011011 1.126126
## 11864 0.863863864 0.011011011 1.125125
## 11865 0.864864865 0.011011011 1.124124
## 11866 0.865865866 0.011011011 1.123123
## 11867 0.866866867 0.011011011 1.122122
## 11868 0.867867868 0.011011011 1.121121
## 11869 0.868868869 0.011011011 1.120120
## 11870 0.869869870 0.011011011 1.119119
## 11871 0.870870871 0.011011011 1.118118
## 11872 0.871871872 0.011011011 1.117117
## 11873 0.872872873 0.011011011 1.116116
## 11874 0.873873874 0.011011011 1.115115

```

```
## 11875 0.874874875 0.011011011 1.114114
## 11876 0.875875876 0.011011011 1.113113
## 11877 0.876876877 0.011011011 1.112112
## 11878 0.877877878 0.011011011 1.111111
## 11879 0.878878879 0.011011011 1.110110
## 11880 0.879879880 0.011011011 1.109109
## 11881 0.880880881 0.011011011 1.108108
## 11882 0.881881882 0.011011011 1.107107
## 11883 0.882882883 0.011011011 1.106106
## 11884 0.883883884 0.011011011 1.105105
## 11885 0.884884885 0.011011011 1.104104
## 11886 0.885885886 0.011011011 1.103103
## 11887 0.886886887 0.011011011 1.102102
## 11888 0.887887888 0.011011011 1.101101
## 11889 0.888888889 0.011011011 1.100100
## 11890 0.889889890 0.011011011 1.099099
## 11891 0.890890891 0.011011011 1.098098
## 11892 0.891891892 0.011011011 1.097097
## 11893 0.892892893 0.011011011 1.096096
## 11894 0.893893894 0.011011011 1.095095
## 11895 0.894894895 0.011011011 1.094094
## 11896 0.895895896 0.011011011 1.093093
## 11897 0.896896897 0.011011011 1.092092
## 11898 0.897897898 0.011011011 1.091091
## 11899 0.898898899 0.011011011 1.090090
## 11900 0.899899900 0.011011011 1.089089
## 11901 0.900900901 0.011011011 1.088088
## 11902 0.901901902 0.011011011 1.087087
## 11903 0.902902903 0.011011011 1.086086
## 11904 0.903903904 0.011011011 1.085085
## 11905 0.904904905 0.011011011 1.084084
## 11906 0.905905906 0.011011011 1.083083
## 11907 0.906906907 0.011011011 1.082082
## 11908 0.907907908 0.011011011 1.081081
## 11909 0.908908909 0.011011011 1.080080
## 11910 0.909909910 0.011011011 1.079079
## 11911 0.910910911 0.011011011 1.078078
## 11912 0.911911912 0.011011011 1.077077
## 11913 0.912912913 0.011011011 1.076076
## 11914 0.913913914 0.011011011 1.075075
## 11915 0.914914915 0.011011011 1.074074
## 11916 0.915915916 0.011011011 1.073073
## 11917 0.916916917 0.011011011 1.072072
## 11918 0.917917918 0.011011011 1.071071
## 11919 0.918918919 0.011011011 1.070070
## 11920 0.919919920 0.011011011 1.069069
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 371

```
## 11921 0.920920921 0.011011011 1.068068
## 11922 0.921921922 0.011011011 1.067067
## 11923 0.922922923 0.011011011 1.066066
## 11924 0.923923924 0.011011011 1.065065
## 11925 0.924924925 0.011011011 1.064064
## 11926 0.925925926 0.011011011 1.063063
## 11927 0.926926927 0.011011011 1.062062
## 11928 0.927927928 0.011011011 1.061061
## 11929 0.928928929 0.011011011 1.060060
## 11930 0.929929930 0.011011011 1.059059
## 11931 0.930930931 0.011011011 1.058058
## 11932 0.931931932 0.011011011 1.057057
## 11933 0.932932933 0.011011011 1.056056
## 11934 0.933933934 0.011011011 1.055055
## 11935 0.934934935 0.011011011 1.054054
## 11936 0.935935936 0.011011011 1.053053
## 11937 0.936936937 0.011011011 1.052052
## 11938 0.937937938 0.011011011 1.051051
## 11939 0.938938939 0.011011011 1.050050
## 11940 0.939939940 0.011011011 1.049049
## 11941 0.940940941 0.011011011 1.048048
## 11942 0.941941942 0.011011011 1.047047
## 11943 0.942942943 0.011011011 1.046046
## 11944 0.943943944 0.011011011 1.045045
## 11945 0.944944945 0.011011011 1.044044
## 11946 0.945945946 0.011011011 1.043043
## 11947 0.946946947 0.011011011 1.042042
## 11948 0.947947948 0.011011011 1.041041
## 11949 0.948948949 0.011011011 1.040040
## 11950 0.949949950 0.011011011 1.039039
## 11951 0.950950951 0.011011011 1.038038
## 11952 0.951951952 0.011011011 1.037037
## 11953 0.952952953 0.011011011 1.036036
## 11954 0.953953954 0.011011011 1.035035
## 11955 0.954954955 0.011011011 1.034034
## 11956 0.955955956 0.011011011 1.033033
## 11957 0.956956957 0.011011011 1.032032
## 11958 0.957957958 0.011011011 1.031031
## 11959 0.958958959 0.011011011 1.030030
## 11960 0.959959960 0.011011011 1.029029
## 11961 0.960960961 0.011011011 1.028028
## 11962 0.961961962 0.011011011 1.027027
## 11963 0.962962963 0.011011011 1.026026
## 11964 0.963963964 0.011011011 1.025025
## 11965 0.964964965 0.011011011 1.024024
## 11966 0.965965966 0.011011011 1.023023
```

```
## 11967 0.966966967 0.011011011 1.022022
## 11968 0.967967968 0.011011011 1.021021
## 11969 0.968968969 0.011011011 1.020020
## 11970 0.969969970 0.011011011 1.019019
## 11971 0.970970971 0.011011011 1.018018
## 11972 0.971971972 0.011011011 1.017017
## 11973 0.972972973 0.011011011 1.016016
## 11974 0.973973974 0.011011011 1.015015
## 11975 0.974974975 0.011011011 1.014014
## 11976 0.975975976 0.011011011 1.013013
## 11977 0.976976977 0.011011011 1.012012
## 11978 0.977977978 0.011011011 1.011011
## 11979 0.978978979 0.011011011 1.010010
## 11980 0.979979980 0.011011011 1.009009
## 11981 0.980980981 0.011011011 1.008008
## 11982 0.981981982 0.011011011 1.007007
## 11983 0.982982983 0.011011011 1.006006
## 11984 0.983983984 0.011011011 1.005005
## 11985 0.984984985 0.011011011 1.004004
## 11986 0.985985986 0.011011011 1.003003
## 11987 0.986986987 0.011011011 1.002002
## 11988 0.987987988 0.011011011 1.001001
## 11989 0.988988989 0.011011011 1.000000
## 11990 0.989989990 0.011011011 0.998999
## 11991 0.990990991 0.011011011 0.997998
## 11992 0.991991992 0.011011011 0.996997
## 11993 0.992992993 0.011011011 0.995996
## 11994 0.993993994 0.011011011 0.994995
## 11995 0.994994995 0.011011011 0.993994
## 11996 0.995995996 0.011011011 0.992993
## 11997 0.996996997 0.011011011 0.991992
## 11998 0.997997998 0.011011011 0.990991
## 11999 0.998998999 0.011011011 0.989990
## 12000 1.000000000 0.011011011 0.988989
## 12001 0.000000000 0.012012012 1.987988
## 12002 0.001001001 0.012012012 1.986987
## 12003 0.002002002 0.012012012 1.985986
## 12004 0.003003003 0.012012012 1.984985
## 12005 0.004004004 0.012012012 1.983984
## 12006 0.005005005 0.012012012 1.982983
## 12007 0.006006006 0.012012012 1.981982
## 12008 0.007007007 0.012012012 1.980981
## 12009 0.008008008 0.012012012 1.979980
## 12010 0.009009009 0.012012012 1.978979
## 12011 0.010010010 0.012012012 1.977978
## 12012 0.011011011 0.012012012 1.976977
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 373

```
## 12013 0.012012012 0.012012012 1.975976
## 12014 0.013013013 0.012012012 1.974975
## 12015 0.014014014 0.012012012 1.973974
## 12016 0.015015015 0.012012012 1.972973
## 12017 0.016016016 0.012012012 1.971972
## 12018 0.017017017 0.012012012 1.970971
## 12019 0.018018018 0.012012012 1.969970
## 12020 0.019019019 0.012012012 1.968969
## 12021 0.020020020 0.012012012 1.967968
## 12022 0.021021021 0.012012012 1.966967
## 12023 0.022022022 0.012012012 1.965966
## 12024 0.023023023 0.012012012 1.964965
## 12025 0.024024024 0.012012012 1.963964
## 12026 0.025025025 0.012012012 1.962963
## 12027 0.026026026 0.012012012 1.961962
## 12028 0.027027027 0.012012012 1.960961
## 12029 0.028028028 0.012012012 1.959960
## 12030 0.029029029 0.012012012 1.958959
## 12031 0.030030030 0.012012012 1.957958
## 12032 0.031031031 0.012012012 1.956957
## 12033 0.032032032 0.012012012 1.955956
## 12034 0.033033033 0.012012012 1.954955
## 12035 0.034034034 0.012012012 1.953954
## 12036 0.035035035 0.012012012 1.952953
## 12037 0.036036036 0.012012012 1.951952
## 12038 0.037037037 0.012012012 1.950951
## 12039 0.038038038 0.012012012 1.949950
## 12040 0.039039039 0.012012012 1.948949
## 12041 0.040040040 0.012012012 1.947948
## 12042 0.041041041 0.012012012 1.946947
## 12043 0.042042042 0.012012012 1.945946
## 12044 0.043043043 0.012012012 1.944945
## 12045 0.044044044 0.012012012 1.943944
## 12046 0.045045045 0.012012012 1.942943
## 12047 0.046046046 0.012012012 1.941942
## 12048 0.047047047 0.012012012 1.940941
## 12049 0.048048048 0.012012012 1.939940
## 12050 0.049049049 0.012012012 1.938939
## 12051 0.050050050 0.012012012 1.937938
## 12052 0.051051051 0.012012012 1.936937
## 12053 0.052052052 0.012012012 1.935936
## 12054 0.053053053 0.012012012 1.934935
## 12055 0.054054054 0.012012012 1.933934
## 12056 0.055055055 0.012012012 1.932933
## 12057 0.056056056 0.012012012 1.931932
## 12058 0.057057057 0.012012012 1.930931
```

```
## 12059 0.058058058 0.012012012 1.929930
## 12060 0.059059059 0.012012012 1.928929
## 12061 0.060060060 0.012012012 1.927928
## 12062 0.061061061 0.012012012 1.926927
## 12063 0.062062062 0.012012012 1.925926
## 12064 0.063063063 0.012012012 1.924925
## 12065 0.064064064 0.012012012 1.923924
## 12066 0.065065065 0.012012012 1.922923
## 12067 0.066066066 0.012012012 1.921922
## 12068 0.067067067 0.012012012 1.920921
## 12069 0.068068068 0.012012012 1.919920
## 12070 0.069069069 0.012012012 1.918919
## 12071 0.070070070 0.012012012 1.917918
## 12072 0.071071071 0.012012012 1.916917
## 12073 0.072072072 0.012012012 1.915916
## 12074 0.073073073 0.012012012 1.914915
## 12075 0.074074074 0.012012012 1.913914
## 12076 0.075075075 0.012012012 1.912913
## 12077 0.076076076 0.012012012 1.911912
## 12078 0.077077077 0.012012012 1.910911
## 12079 0.078078078 0.012012012 1.909910
## 12080 0.079079079 0.012012012 1.908909
## 12081 0.080080080 0.012012012 1.907908
## 12082 0.081081081 0.012012012 1.906907
## 12083 0.082082082 0.012012012 1.905906
## 12084 0.083083083 0.012012012 1.904905
## 12085 0.084084084 0.012012012 1.903904
## 12086 0.085085085 0.012012012 1.902903
## 12087 0.086086086 0.012012012 1.901902
## 12088 0.087087087 0.012012012 1.900901
## 12089 0.088088088 0.012012012 1.899900
## 12090 0.089089089 0.012012012 1.898899
## 12091 0.090090090 0.012012012 1.897898
## 12092 0.091091091 0.012012012 1.896897
## 12093 0.092092092 0.012012012 1.895896
## 12094 0.093093093 0.012012012 1.894895
## 12095 0.094094094 0.012012012 1.893894
## 12096 0.095095095 0.012012012 1.892893
## 12097 0.096096096 0.012012012 1.891892
## 12098 0.097097097 0.012012012 1.890891
## 12099 0.098098098 0.012012012 1.889890
## 12100 0.099099099 0.012012012 1.888889
## 12101 0.100100100 0.012012012 1.887888
## 12102 0.101101101 0.012012012 1.886887
## 12103 0.102102102 0.012012012 1.885886
## 12104 0.103103103 0.012012012 1.884885
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR375

```

## 12105 0.104104104 0.012012012 1.883884
## 12106 0.105105105 0.012012012 1.882883
## 12107 0.106106106 0.012012012 1.881882
## 12108 0.107107107 0.012012012 1.880881
## 12109 0.108108108 0.012012012 1.879880
## 12110 0.109109109 0.012012012 1.878879
## 12111 0.110110110 0.012012012 1.877878
## 12112 0.111111111 0.012012012 1.876877
## 12113 0.112112112 0.012012012 1.875876
## 12114 0.113113113 0.012012012 1.874875
## 12115 0.114114114 0.012012012 1.873874
## 12116 0.115115115 0.012012012 1.872873
## 12117 0.116116116 0.012012012 1.871872
## 12118 0.117117117 0.012012012 1.870871
## 12119 0.118118118 0.012012012 1.869870
## 12120 0.119119119 0.012012012 1.868869
## 12121 0.120120120 0.012012012 1.867868
## 12122 0.121121121 0.012012012 1.866867
## 12123 0.122122122 0.012012012 1.865866
## 12124 0.123123123 0.012012012 1.864865
## 12125 0.124124124 0.012012012 1.863864
## 12126 0.125125125 0.012012012 1.862863
## 12127 0.126126126 0.012012012 1.861862
## 12128 0.127127127 0.012012012 1.860861
## 12129 0.128128128 0.012012012 1.859860
## 12130 0.129129129 0.012012012 1.858859
## 12131 0.130130130 0.012012012 1.857858
## 12132 0.131131131 0.012012012 1.856857
## 12133 0.132132132 0.012012012 1.855856
## 12134 0.133133133 0.012012012 1.854855
## 12135 0.134134134 0.012012012 1.853854
## 12136 0.135135135 0.012012012 1.852853
## 12137 0.136136136 0.012012012 1.851852
## 12138 0.137137137 0.012012012 1.850851
## 12139 0.138138138 0.012012012 1.849850
## 12140 0.139139139 0.012012012 1.848849
## 12141 0.140140140 0.012012012 1.847848
## 12142 0.141141141 0.012012012 1.846847
## 12143 0.142142142 0.012012012 1.845846
## 12144 0.143143143 0.012012012 1.844845
## 12145 0.144144144 0.012012012 1.843844
## 12146 0.145145145 0.012012012 1.842843
## 12147 0.146146146 0.012012012 1.841842
## 12148 0.147147147 0.012012012 1.840841
## 12149 0.148148148 0.012012012 1.839840
## 12150 0.149149149 0.012012012 1.838839

```

```
## 12151 0.150150150 0.012012012 1.837838
## 12152 0.151151151 0.012012012 1.836837
## 12153 0.152152152 0.012012012 1.835836
## 12154 0.153153153 0.012012012 1.834835
## 12155 0.154154154 0.012012012 1.833834
## 12156 0.155155155 0.012012012 1.832833
## 12157 0.156156156 0.012012012 1.831832
## 12158 0.157157157 0.012012012 1.830831
## 12159 0.158158158 0.012012012 1.829830
## 12160 0.159159159 0.012012012 1.828829
## 12161 0.160160160 0.012012012 1.827828
## 12162 0.161161161 0.012012012 1.826827
## 12163 0.162162162 0.012012012 1.825826
## 12164 0.163163163 0.012012012 1.824825
## 12165 0.164164164 0.012012012 1.823824
## 12166 0.165165165 0.012012012 1.822823
## 12167 0.166166166 0.012012012 1.821822
## 12168 0.167167167 0.012012012 1.820821
## 12169 0.168168168 0.012012012 1.819820
## 12170 0.169169169 0.012012012 1.818819
## 12171 0.170170170 0.012012012 1.817818
## 12172 0.171171171 0.012012012 1.816817
## 12173 0.172172172 0.012012012 1.815816
## 12174 0.173173173 0.012012012 1.814815
## 12175 0.174174174 0.012012012 1.813814
## 12176 0.175175175 0.012012012 1.812813
## 12177 0.176176176 0.012012012 1.811812
## 12178 0.177177177 0.012012012 1.810811
## 12179 0.178178178 0.012012012 1.809810
## 12180 0.179179179 0.012012012 1.808809
## 12181 0.180180180 0.012012012 1.807808
## 12182 0.181181181 0.012012012 1.806807
## 12183 0.182182182 0.012012012 1.805806
## 12184 0.183183183 0.012012012 1.804805
## 12185 0.184184184 0.012012012 1.803804
## 12186 0.185185185 0.012012012 1.802803
## 12187 0.186186186 0.012012012 1.801802
## 12188 0.187187187 0.012012012 1.800801
## 12189 0.188188188 0.012012012 1.799800
## 12190 0.189189189 0.012012012 1.798799
## 12191 0.190190190 0.012012012 1.797798
## 12192 0.191191191 0.012012012 1.796797
## 12193 0.192192192 0.012012012 1.795796
## 12194 0.193193193 0.012012012 1.794795
## 12195 0.194194194 0.012012012 1.793794
## 12196 0.195195195 0.012012012 1.792793
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 377

```
## 12197 0.196196196 0.012012012 1.791792
## 12198 0.197197197 0.012012012 1.790791
## 12199 0.198198198 0.012012012 1.789790
## 12200 0.199199199 0.012012012 1.788789
## 12201 0.200200200 0.012012012 1.787788
## 12202 0.201201201 0.012012012 1.786787
## 12203 0.202202202 0.012012012 1.785786
## 12204 0.203203203 0.012012012 1.784785
## 12205 0.204204204 0.012012012 1.783784
## 12206 0.205205205 0.012012012 1.782783
## 12207 0.206206206 0.012012012 1.781782
## 12208 0.207207207 0.012012012 1.780781
## 12209 0.208208208 0.012012012 1.779780
## 12210 0.209209209 0.012012012 1.778779
## 12211 0.210210210 0.012012012 1.777778
## 12212 0.211211211 0.012012012 1.776777
## 12213 0.212212212 0.012012012 1.775776
## 12214 0.213213213 0.012012012 1.774775
## 12215 0.214214214 0.012012012 1.773774
## 12216 0.215215215 0.012012012 1.772773
## 12217 0.216216216 0.012012012 1.771772
## 12218 0.217217217 0.012012012 1.770771
## 12219 0.218218218 0.012012012 1.769770
## 12220 0.219219219 0.012012012 1.768769
## 12221 0.220220220 0.012012012 1.767768
## 12222 0.221221221 0.012012012 1.766767
## 12223 0.222222222 0.012012012 1.765766
## 12224 0.223223223 0.012012012 1.764765
## 12225 0.224224224 0.012012012 1.763764
## 12226 0.225225225 0.012012012 1.762763
## 12227 0.226226226 0.012012012 1.761762
## 12228 0.227227227 0.012012012 1.760761
## 12229 0.228228228 0.012012012 1.759760
## 12230 0.229229229 0.012012012 1.758759
## 12231 0.230230230 0.012012012 1.757758
## 12232 0.231231231 0.012012012 1.756757
## 12233 0.232232232 0.012012012 1.755756
## 12234 0.233233233 0.012012012 1.754755
## 12235 0.234234234 0.012012012 1.753754
## 12236 0.235235235 0.012012012 1.752753
## 12237 0.236236236 0.012012012 1.751752
## 12238 0.237237237 0.012012012 1.750751
## 12239 0.238238238 0.012012012 1.749750
## 12240 0.239239239 0.012012012 1.748749
## 12241 0.240240240 0.012012012 1.747748
## 12242 0.241241241 0.012012012 1.746747
```

```
## 12243 0.242242242 0.012012012 1.745746
## 12244 0.243243243 0.012012012 1.744745
## 12245 0.244244244 0.012012012 1.743744
## 12246 0.245245245 0.012012012 1.742743
## 12247 0.246246246 0.012012012 1.741742
## 12248 0.247247247 0.012012012 1.740741
## 12249 0.248248248 0.012012012 1.739740
## 12250 0.249249249 0.012012012 1.738739
## 12251 0.250250250 0.012012012 1.737738
## 12252 0.251251251 0.012012012 1.736737
## 12253 0.252252252 0.012012012 1.735736
## 12254 0.253253253 0.012012012 1.734735
## 12255 0.254254254 0.012012012 1.733734
## 12256 0.255255255 0.012012012 1.732733
## 12257 0.256256256 0.012012012 1.731732
## 12258 0.257257257 0.012012012 1.730731
## 12259 0.258258258 0.012012012 1.729730
## 12260 0.259259259 0.012012012 1.728729
## 12261 0.260260260 0.012012012 1.727728
## 12262 0.261261261 0.012012012 1.726727
## 12263 0.262262262 0.012012012 1.725726
## 12264 0.263263263 0.012012012 1.724725
## 12265 0.264264264 0.012012012 1.723724
## 12266 0.265265265 0.012012012 1.722723
## 12267 0.266266266 0.012012012 1.721722
## 12268 0.267267267 0.012012012 1.720721
## 12269 0.268268268 0.012012012 1.719720
## 12270 0.269269269 0.012012012 1.718719
## 12271 0.270270270 0.012012012 1.717718
## 12272 0.271271271 0.012012012 1.716717
## 12273 0.272272272 0.012012012 1.715716
## 12274 0.273273273 0.012012012 1.714715
## 12275 0.274274274 0.012012012 1.713714
## 12276 0.275275275 0.012012012 1.712713
## 12277 0.276276276 0.012012012 1.711712
## 12278 0.277277277 0.012012012 1.710711
## 12279 0.278278278 0.012012012 1.709710
## 12280 0.279279279 0.012012012 1.708709
## 12281 0.280280280 0.012012012 1.707708
## 12282 0.281281281 0.012012012 1.706707
## 12283 0.282282282 0.012012012 1.705706
## 12284 0.283283283 0.012012012 1.704705
## 12285 0.284284284 0.012012012 1.703704
## 12286 0.285285285 0.012012012 1.702703
## 12287 0.286286286 0.012012012 1.701702
## 12288 0.287287287 0.012012012 1.700701
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 379

```

## 12289 0.288288288 0.012012012 1.699700
## 12290 0.289289289 0.012012012 1.698699
## 12291 0.290290290 0.012012012 1.697698
## 12292 0.291291291 0.012012012 1.696697
## 12293 0.292292292 0.012012012 1.695696
## 12294 0.293293293 0.012012012 1.694695
## 12295 0.294294294 0.012012012 1.693694
## 12296 0.295295295 0.012012012 1.692693
## 12297 0.296296296 0.012012012 1.691692
## 12298 0.297297297 0.012012012 1.690691
## 12299 0.298298298 0.012012012 1.689690
## 12300 0.299299299 0.012012012 1.688689
## 12301 0.300300300 0.012012012 1.687688
## 12302 0.301301301 0.012012012 1.686687
## 12303 0.302302302 0.012012012 1.685686
## 12304 0.303303303 0.012012012 1.684685
## 12305 0.304304304 0.012012012 1.683684
## 12306 0.305305305 0.012012012 1.682683
## 12307 0.306306306 0.012012012 1.681682
## 12308 0.307307307 0.012012012 1.680681
## 12309 0.308308308 0.012012012 1.679680
## 12310 0.309309309 0.012012012 1.678679
## 12311 0.310310310 0.012012012 1.677678
## 12312 0.311311311 0.012012012 1.676677
## 12313 0.312312312 0.012012012 1.675676
## 12314 0.313313313 0.012012012 1.674675
## 12315 0.314314314 0.012012012 1.673674
## 12316 0.315315315 0.012012012 1.672673
## 12317 0.316316316 0.012012012 1.671672
## 12318 0.317317317 0.012012012 1.670671
## 12319 0.318318318 0.012012012 1.669670
## 12320 0.319319319 0.012012012 1.668669
## 12321 0.320320320 0.012012012 1.667668
## 12322 0.321321321 0.012012012 1.666667
## 12323 0.322322322 0.012012012 1.665666
## 12324 0.323323323 0.012012012 1.664665
## 12325 0.324324324 0.012012012 1.663664
## 12326 0.325325325 0.012012012 1.662663
## 12327 0.326326326 0.012012012 1.661662
## 12328 0.327327327 0.012012012 1.660661
## 12329 0.328328328 0.012012012 1.659660
## 12330 0.329329329 0.012012012 1.658659
## 12331 0.330330330 0.012012012 1.657658
## 12332 0.331331331 0.012012012 1.656657
## 12333 0.332332332 0.012012012 1.655656
## 12334 0.333333333 0.012012012 1.654655

```

```
## 12335 0.334334334 0.012012012 1.653654
## 12336 0.335335335 0.012012012 1.652653
## 12337 0.336336336 0.012012012 1.651652
## 12338 0.337337337 0.012012012 1.650651
## 12339 0.338338338 0.012012012 1.649650
## 12340 0.339339339 0.012012012 1.648649
## 12341 0.340340340 0.012012012 1.647648
## 12342 0.341341341 0.012012012 1.646647
## 12343 0.342342342 0.012012012 1.645646
## 12344 0.343343343 0.012012012 1.644645
## 12345 0.344344344 0.012012012 1.643644
## 12346 0.345345345 0.012012012 1.642643
## 12347 0.346346346 0.012012012 1.641642
## 12348 0.347347347 0.012012012 1.640641
## 12349 0.348348348 0.012012012 1.639640
## 12350 0.349349349 0.012012012 1.638639
## 12351 0.350350350 0.012012012 1.637638
## 12352 0.351351351 0.012012012 1.636637
## 12353 0.352352352 0.012012012 1.635636
## 12354 0.353353353 0.012012012 1.634635
## 12355 0.354354354 0.012012012 1.633634
## 12356 0.355355355 0.012012012 1.632633
## 12357 0.356356356 0.012012012 1.631632
## 12358 0.357357357 0.012012012 1.630631
## 12359 0.358358358 0.012012012 1.629630
## 12360 0.359359359 0.012012012 1.628629
## 12361 0.360360360 0.012012012 1.627628
## 12362 0.361361361 0.012012012 1.626627
## 12363 0.362362362 0.012012012 1.625626
## 12364 0.363363363 0.012012012 1.624625
## 12365 0.364364364 0.012012012 1.623624
## 12366 0.365365365 0.012012012 1.622623
## 12367 0.366366366 0.012012012 1.621622
## 12368 0.367367367 0.012012012 1.620621
## 12369 0.368368368 0.012012012 1.619620
## 12370 0.369369369 0.012012012 1.618619
## 12371 0.370370370 0.012012012 1.617618
## 12372 0.371371371 0.012012012 1.616617
## 12373 0.372372372 0.012012012 1.615616
## 12374 0.373373373 0.012012012 1.614615
## 12375 0.374374374 0.012012012 1.613614
## 12376 0.375375375 0.012012012 1.612613
## 12377 0.376376376 0.012012012 1.611612
## 12378 0.377377377 0.012012012 1.610611
## 12379 0.378378378 0.012012012 1.609610
## 12380 0.379379379 0.012012012 1.608609
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 381

```

## 12381 0.380380380 0.012012012 1.607608
## 12382 0.381381381 0.012012012 1.606607
## 12383 0.382382382 0.012012012 1.605606
## 12384 0.383383383 0.012012012 1.604605
## 12385 0.384384384 0.012012012 1.603604
## 12386 0.385385385 0.012012012 1.602603
## 12387 0.386386386 0.012012012 1.601602
## 12388 0.387387387 0.012012012 1.600601
## 12389 0.388388388 0.012012012 1.599600
## 12390 0.389389389 0.012012012 1.598599
## 12391 0.390390390 0.012012012 1.597598
## 12392 0.391391391 0.012012012 1.596597
## 12393 0.392392392 0.012012012 1.595596
## 12394 0.393393393 0.012012012 1.594595
## 12395 0.394394394 0.012012012 1.593594
## 12396 0.395395395 0.012012012 1.592593
## 12397 0.396396396 0.012012012 1.591592
## 12398 0.397397397 0.012012012 1.590591
## 12399 0.398398398 0.012012012 1.589590
## 12400 0.399399399 0.012012012 1.588589
## 12401 0.400400400 0.012012012 1.587588
## 12402 0.401401401 0.012012012 1.586587
## 12403 0.402402402 0.012012012 1.585586
## 12404 0.403403403 0.012012012 1.584585
## 12405 0.404404404 0.012012012 1.583584
## 12406 0.405405405 0.012012012 1.582583
## 12407 0.406406406 0.012012012 1.581582
## 12408 0.407407407 0.012012012 1.580581
## 12409 0.408408408 0.012012012 1.579580
## 12410 0.409409409 0.012012012 1.578579
## 12411 0.410410410 0.012012012 1.577578
## 12412 0.411411411 0.012012012 1.576577
## 12413 0.412412412 0.012012012 1.575576
## 12414 0.413413413 0.012012012 1.574575
## 12415 0.414414414 0.012012012 1.573574
## 12416 0.415415415 0.012012012 1.572573
## 12417 0.416416416 0.012012012 1.571572
## 12418 0.417417417 0.012012012 1.570571
## 12419 0.418418418 0.012012012 1.569570
## 12420 0.419419419 0.012012012 1.568569
## 12421 0.420420420 0.012012012 1.567568
## 12422 0.421421421 0.012012012 1.566567
## 12423 0.422422422 0.012012012 1.565566
## 12424 0.423423423 0.012012012 1.564565
## 12425 0.424424424 0.012012012 1.563564
## 12426 0.425425425 0.012012012 1.562563

```

```
## 12427 0.426426426 0.012012012 1.561562
## 12428 0.427427427 0.012012012 1.560561
## 12429 0.428428428 0.012012012 1.559560
## 12430 0.429429429 0.012012012 1.558559
## 12431 0.430430430 0.012012012 1.557558
## 12432 0.431431431 0.012012012 1.556557
## 12433 0.432432432 0.012012012 1.555556
## 12434 0.433433433 0.012012012 1.554555
## 12435 0.434434434 0.012012012 1.553554
## 12436 0.435435435 0.012012012 1.552553
## 12437 0.436436436 0.012012012 1.551552
## 12438 0.437437437 0.012012012 1.550551
## 12439 0.438438438 0.012012012 1.549550
## 12440 0.439439439 0.012012012 1.548549
## 12441 0.440440440 0.012012012 1.547548
## 12442 0.441441441 0.012012012 1.546547
## 12443 0.442442442 0.012012012 1.545546
## 12444 0.443443443 0.012012012 1.544545
## 12445 0.444444444 0.012012012 1.543544
## 12446 0.445445445 0.012012012 1.542543
## 12447 0.446446446 0.012012012 1.541542
## 12448 0.447447447 0.012012012 1.540541
## 12449 0.448448448 0.012012012 1.539540
## 12450 0.449449449 0.012012012 1.538539
## 12451 0.450450450 0.012012012 1.537538
## 12452 0.451451451 0.012012012 1.536537
## 12453 0.452452452 0.012012012 1.535536
## 12454 0.453453453 0.012012012 1.534535
## 12455 0.454454454 0.012012012 1.533534
## 12456 0.455455455 0.012012012 1.532533
## 12457 0.456456456 0.012012012 1.531532
## 12458 0.457457457 0.012012012 1.530531
## 12459 0.458458458 0.012012012 1.529530
## 12460 0.459459459 0.012012012 1.528529
## 12461 0.460460460 0.012012012 1.527528
## 12462 0.461461461 0.012012012 1.526527
## 12463 0.462462462 0.012012012 1.525526
## 12464 0.463463463 0.012012012 1.524525
## 12465 0.464464464 0.012012012 1.523524
## 12466 0.465465465 0.012012012 1.522523
## 12467 0.466466466 0.012012012 1.521522
## 12468 0.467467467 0.012012012 1.520521
## 12469 0.468468468 0.012012012 1.519520
## 12470 0.469469469 0.012012012 1.518519
## 12471 0.470470470 0.012012012 1.517518
## 12472 0.471471471 0.012012012 1.516517
```

```

## 12473 0.472472472 0.012012012 1.515516
## 12474 0.473473473 0.012012012 1.514515
## 12475 0.474474474 0.012012012 1.513514
## 12476 0.475475475 0.012012012 1.512513
## 12477 0.476476476 0.012012012 1.511512
## 12478 0.477477477 0.012012012 1.510511
## 12479 0.478478478 0.012012012 1.509510
## 12480 0.479479479 0.012012012 1.508509
## 12481 0.480480480 0.012012012 1.507508
## 12482 0.481481481 0.012012012 1.506507
## 12483 0.482482482 0.012012012 1.505506
## 12484 0.483483483 0.012012012 1.504505
## 12485 0.484484484 0.012012012 1.503504
## 12486 0.485485485 0.012012012 1.502503
## 12487 0.486486486 0.012012012 1.501502
## 12488 0.487487487 0.012012012 1.500501
## 12489 0.488488488 0.012012012 1.499499
## 12490 0.489489489 0.012012012 1.498498
## 12491 0.490490490 0.012012012 1.497497
## 12492 0.491491491 0.012012012 1.496496
## 12493 0.492492492 0.012012012 1.495495
## 12494 0.493493493 0.012012012 1.494494
## 12495 0.494494494 0.012012012 1.493493
## 12496 0.495495495 0.012012012 1.492492
## 12497 0.496496496 0.012012012 1.491491
## 12498 0.497497497 0.012012012 1.490490
## 12499 0.498498498 0.012012012 1.489489
## 12500 0.499499499 0.012012012 1.488488
## 12501 0.500500501 0.012012012 1.487487
## 12502 0.501501502 0.012012012 1.486486
## 12503 0.502502503 0.012012012 1.485485
## 12504 0.503503504 0.012012012 1.484484
## 12505 0.504504505 0.012012012 1.483483
## 12506 0.505505506 0.012012012 1.482482
## 12507 0.506506507 0.012012012 1.481481
## 12508 0.507507508 0.012012012 1.480480
## 12509 0.508508509 0.012012012 1.479479
## 12510 0.509509510 0.012012012 1.478478
## 12511 0.510510511 0.012012012 1.477477
## 12512 0.511511512 0.012012012 1.476476
## 12513 0.512512513 0.012012012 1.475475
## 12514 0.513513514 0.012012012 1.474474
## 12515 0.514514515 0.012012012 1.473473
## 12516 0.515515516 0.012012012 1.472472
## 12517 0.516516517 0.012012012 1.471471
## 12518 0.517517518 0.012012012 1.470470

```

```
## 12519 0.518518519 0.012012012 1.469469
## 12520 0.519519520 0.012012012 1.468468
## 12521 0.520520521 0.012012012 1.467467
## 12522 0.521521522 0.012012012 1.466466
## 12523 0.522522523 0.012012012 1.465465
## 12524 0.523523524 0.012012012 1.464464
## 12525 0.524524525 0.012012012 1.463463
## 12526 0.525525526 0.012012012 1.462462
## 12527 0.526526527 0.012012012 1.461461
## 12528 0.527527528 0.012012012 1.460460
## 12529 0.528528529 0.012012012 1.459459
## 12530 0.529529530 0.012012012 1.458458
## 12531 0.530530531 0.012012012 1.457457
## 12532 0.531531532 0.012012012 1.456456
## 12533 0.532532533 0.012012012 1.455455
## 12534 0.533533534 0.012012012 1.454454
## 12535 0.534534535 0.012012012 1.453453
## 12536 0.535535536 0.012012012 1.452452
## 12537 0.536536537 0.012012012 1.451451
## 12538 0.537537538 0.012012012 1.450450
## 12539 0.538538539 0.012012012 1.449449
## 12540 0.539539540 0.012012012 1.448448
## 12541 0.540540541 0.012012012 1.447447
## 12542 0.541541542 0.012012012 1.446446
## 12543 0.542542543 0.012012012 1.445445
## 12544 0.543543544 0.012012012 1.444444
## 12545 0.544544545 0.012012012 1.443443
## 12546 0.545545546 0.012012012 1.442442
## 12547 0.546546547 0.012012012 1.441441
## 12548 0.547547548 0.012012012 1.440440
## 12549 0.548548549 0.012012012 1.439439
## 12550 0.549549550 0.012012012 1.438438
## 12551 0.550550551 0.012012012 1.437437
## 12552 0.551551552 0.012012012 1.436436
## 12553 0.552552553 0.012012012 1.435435
## 12554 0.553553554 0.012012012 1.434434
## 12555 0.554554555 0.012012012 1.433433
## 12556 0.555555556 0.012012012 1.432432
## 12557 0.556556557 0.012012012 1.431431
## 12558 0.557557558 0.012012012 1.430430
## 12559 0.558558559 0.012012012 1.429429
## 12560 0.559559560 0.012012012 1.428428
## 12561 0.560560561 0.012012012 1.427427
## 12562 0.561561562 0.012012012 1.426426
## 12563 0.562562563 0.012012012 1.425425
## 12564 0.563563564 0.012012012 1.424424
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 385

```
## 12565 0.564564565 0.012012012 1.423423
## 12566 0.565565566 0.012012012 1.422422
## 12567 0.566566567 0.012012012 1.421421
## 12568 0.567567568 0.012012012 1.420420
## 12569 0.568568569 0.012012012 1.419419
## 12570 0.569569570 0.012012012 1.418418
## 12571 0.570570571 0.012012012 1.417417
## 12572 0.571571572 0.012012012 1.416416
## 12573 0.572572573 0.012012012 1.415415
## 12574 0.573573574 0.012012012 1.414414
## 12575 0.574574575 0.012012012 1.413413
## 12576 0.575575576 0.012012012 1.412412
## 12577 0.576576577 0.012012012 1.411411
## 12578 0.577577578 0.012012012 1.410410
## 12579 0.578578579 0.012012012 1.409409
## 12580 0.579579580 0.012012012 1.408408
## 12581 0.580580581 0.012012012 1.407407
## 12582 0.581581582 0.012012012 1.406406
## 12583 0.582582583 0.012012012 1.405405
## 12584 0.583583584 0.012012012 1.404404
## 12585 0.584584585 0.012012012 1.403403
## 12586 0.585585586 0.012012012 1.402402
## 12587 0.586586587 0.012012012 1.401401
## 12588 0.587587588 0.012012012 1.400400
## 12589 0.588588589 0.012012012 1.399399
## 12590 0.589589590 0.012012012 1.398398
## 12591 0.590590591 0.012012012 1.397397
## 12592 0.591591592 0.012012012 1.396396
## 12593 0.592592593 0.012012012 1.395395
## 12594 0.593593594 0.012012012 1.394394
## 12595 0.594594595 0.012012012 1.393393
## 12596 0.595595596 0.012012012 1.392392
## 12597 0.596596597 0.012012012 1.391391
## 12598 0.597597598 0.012012012 1.390390
## 12599 0.598598599 0.012012012 1.389389
## 12600 0.599599600 0.012012012 1.388388
## 12601 0.600600601 0.012012012 1.387387
## 12602 0.601601602 0.012012012 1.386386
## 12603 0.602602603 0.012012012 1.385385
## 12604 0.603603604 0.012012012 1.384384
## 12605 0.604604605 0.012012012 1.383383
## 12606 0.605605606 0.012012012 1.382382
## 12607 0.606606607 0.012012012 1.381381
## 12608 0.607607608 0.012012012 1.380380
## 12609 0.608608609 0.012012012 1.379379
## 12610 0.609609610 0.012012012 1.378378
```

```
## 12611 0.610610611 0.012012012 1.377377
## 12612 0.611611612 0.012012012 1.376376
## 12613 0.612612613 0.012012012 1.375375
## 12614 0.613613614 0.012012012 1.374374
## 12615 0.614614615 0.012012012 1.373373
## 12616 0.615615616 0.012012012 1.372372
## 12617 0.616616617 0.012012012 1.371371
## 12618 0.617617618 0.012012012 1.370370
## 12619 0.618618619 0.012012012 1.369369
## 12620 0.619619620 0.012012012 1.368368
## 12621 0.620620621 0.012012012 1.367367
## 12622 0.621621622 0.012012012 1.366366
## 12623 0.622622623 0.012012012 1.365365
## 12624 0.623623624 0.012012012 1.364364
## 12625 0.624624625 0.012012012 1.363363
## 12626 0.625625626 0.012012012 1.362362
## 12627 0.626626627 0.012012012 1.361361
## 12628 0.627627628 0.012012012 1.360360
## 12629 0.628628629 0.012012012 1.359359
## 12630 0.629629630 0.012012012 1.358358
## 12631 0.630630631 0.012012012 1.357357
## 12632 0.631631632 0.012012012 1.356356
## 12633 0.632632633 0.012012012 1.355355
## 12634 0.633633634 0.012012012 1.354354
## 12635 0.634634635 0.012012012 1.353353
## 12636 0.635635636 0.012012012 1.352352
## 12637 0.636636637 0.012012012 1.351351
## 12638 0.637637638 0.012012012 1.350350
## 12639 0.638638639 0.012012012 1.349349
## 12640 0.639639640 0.012012012 1.348348
## 12641 0.640640641 0.012012012 1.347347
## 12642 0.641641642 0.012012012 1.346346
## 12643 0.642642643 0.012012012 1.345345
## 12644 0.643643644 0.012012012 1.344344
## 12645 0.644644645 0.012012012 1.343343
## 12646 0.645645646 0.012012012 1.342342
## 12647 0.646646647 0.012012012 1.341341
## 12648 0.647647648 0.012012012 1.340340
## 12649 0.648648649 0.012012012 1.339339
## 12650 0.649649650 0.012012012 1.338338
## 12651 0.650650651 0.012012012 1.337337
## 12652 0.651651652 0.012012012 1.336336
## 12653 0.652652653 0.012012012 1.335335
## 12654 0.653653654 0.012012012 1.334334
## 12655 0.654654655 0.012012012 1.333333
## 12656 0.655655656 0.012012012 1.332332
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 387

```
## 12657 0.656656657 0.012012012 1.331331
## 12658 0.657657658 0.012012012 1.330330
## 12659 0.658658659 0.012012012 1.329329
## 12660 0.659659660 0.012012012 1.328328
## 12661 0.660660661 0.012012012 1.327327
## 12662 0.661661662 0.012012012 1.326326
## 12663 0.662662663 0.012012012 1.325325
## 12664 0.663663664 0.012012012 1.324324
## 12665 0.664664665 0.012012012 1.323323
## 12666 0.665665666 0.012012012 1.322322
## 12667 0.666666667 0.012012012 1.321321
## 12668 0.667667668 0.012012012 1.320320
## 12669 0.668668669 0.012012012 1.319319
## 12670 0.669669670 0.012012012 1.318318
## 12671 0.670670671 0.012012012 1.317317
## 12672 0.671671672 0.012012012 1.316316
## 12673 0.672672673 0.012012012 1.315315
## 12674 0.673673674 0.012012012 1.314314
## 12675 0.674674675 0.012012012 1.313313
## 12676 0.675675676 0.012012012 1.312312
## 12677 0.676676677 0.012012012 1.311311
## 12678 0.677677678 0.012012012 1.310310
## 12679 0.678678679 0.012012012 1.309309
## 12680 0.679679680 0.012012012 1.308308
## 12681 0.680680681 0.012012012 1.307307
## 12682 0.681681682 0.012012012 1.306306
## 12683 0.682682683 0.012012012 1.305305
## 12684 0.683683684 0.012012012 1.304304
## 12685 0.684684685 0.012012012 1.303303
## 12686 0.685685686 0.012012012 1.302302
## 12687 0.686686687 0.012012012 1.301301
## 12688 0.687687688 0.012012012 1.300300
## 12689 0.688688689 0.012012012 1.299299
## 12690 0.689689690 0.012012012 1.298298
## 12691 0.690690691 0.012012012 1.297297
## 12692 0.691691692 0.012012012 1.296296
## 12693 0.692692693 0.012012012 1.295295
## 12694 0.693693694 0.012012012 1.294294
## 12695 0.694694695 0.012012012 1.293293
## 12696 0.695695696 0.012012012 1.292292
## 12697 0.696696697 0.012012012 1.291291
## 12698 0.697697698 0.012012012 1.290290
## 12699 0.698698699 0.012012012 1.289289
## 12700 0.699699700 0.012012012 1.288288
## 12701 0.700700701 0.012012012 1.287287
## 12702 0.701701702 0.012012012 1.286286
```

```
## 12703 0.702702703 0.012012012 1.285285
## 12704 0.703703704 0.012012012 1.284284
## 12705 0.704704705 0.012012012 1.283283
## 12706 0.705705706 0.012012012 1.282282
## 12707 0.706706707 0.012012012 1.281281
## 12708 0.707707708 0.012012012 1.280280
## 12709 0.708708709 0.012012012 1.279279
## 12710 0.709709710 0.012012012 1.278278
## 12711 0.710710711 0.012012012 1.277277
## 12712 0.711711712 0.012012012 1.276276
## 12713 0.712712713 0.012012012 1.275275
## 12714 0.713713714 0.012012012 1.274274
## 12715 0.714714715 0.012012012 1.273273
## 12716 0.715715716 0.012012012 1.272272
## 12717 0.716716717 0.012012012 1.271271
## 12718 0.717717718 0.012012012 1.270270
## 12719 0.718718719 0.012012012 1.269269
## 12720 0.719719720 0.012012012 1.268268
## 12721 0.720720721 0.012012012 1.267267
## 12722 0.721721722 0.012012012 1.266266
## 12723 0.722722723 0.012012012 1.265265
## 12724 0.723723724 0.012012012 1.264264
## 12725 0.724724725 0.012012012 1.263263
## 12726 0.725725726 0.012012012 1.262262
## 12727 0.726726727 0.012012012 1.261261
## 12728 0.727727728 0.012012012 1.260260
## 12729 0.728728729 0.012012012 1.259259
## 12730 0.729729730 0.012012012 1.258258
## 12731 0.730730731 0.012012012 1.257257
## 12732 0.731731732 0.012012012 1.256256
## 12733 0.732732733 0.012012012 1.255255
## 12734 0.733733734 0.012012012 1.254254
## 12735 0.734734735 0.012012012 1.253253
## 12736 0.735735736 0.012012012 1.252252
## 12737 0.736736737 0.012012012 1.251251
## 12738 0.737737738 0.012012012 1.250250
## 12739 0.738738739 0.012012012 1.249249
## 12740 0.739739740 0.012012012 1.248248
## 12741 0.740740741 0.012012012 1.247247
## 12742 0.741741742 0.012012012 1.246246
## 12743 0.742742743 0.012012012 1.245245
## 12744 0.743743744 0.012012012 1.244244
## 12745 0.744744745 0.012012012 1.243243
## 12746 0.745745746 0.012012012 1.242242
## 12747 0.746746747 0.012012012 1.241241
## 12748 0.747747748 0.012012012 1.240240
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 389

```
## 12749 0.748748749 0.012012012 1.239239
## 12750 0.749749750 0.012012012 1.238238
## 12751 0.750750751 0.012012012 1.237237
## 12752 0.751751752 0.012012012 1.236236
## 12753 0.752752753 0.012012012 1.235235
## 12754 0.753753754 0.012012012 1.234234
## 12755 0.754754755 0.012012012 1.233233
## 12756 0.755755756 0.012012012 1.232232
## 12757 0.756756757 0.012012012 1.231231
## 12758 0.757757758 0.012012012 1.230230
## 12759 0.758758759 0.012012012 1.229229
## 12760 0.759759760 0.012012012 1.228228
## 12761 0.760760761 0.012012012 1.227227
## 12762 0.761761762 0.012012012 1.226226
## 12763 0.762762763 0.012012012 1.225225
## 12764 0.763763764 0.012012012 1.224224
## 12765 0.764764765 0.012012012 1.223223
## 12766 0.765765766 0.012012012 1.222222
## 12767 0.766766767 0.012012012 1.221221
## 12768 0.767767768 0.012012012 1.220220
## 12769 0.768768769 0.012012012 1.219219
## 12770 0.769769770 0.012012012 1.218218
## 12771 0.770770771 0.012012012 1.217217
## 12772 0.771771772 0.012012012 1.216216
## 12773 0.772772773 0.012012012 1.215215
## 12774 0.773773774 0.012012012 1.214214
## 12775 0.774774775 0.012012012 1.213213
## 12776 0.775775776 0.012012012 1.212212
## 12777 0.776776777 0.012012012 1.211211
## 12778 0.777777778 0.012012012 1.210210
## 12779 0.778778779 0.012012012 1.209209
## 12780 0.779779780 0.012012012 1.208208
## 12781 0.780780781 0.012012012 1.207207
## 12782 0.781781782 0.012012012 1.206206
## 12783 0.782782783 0.012012012 1.205205
## 12784 0.783783784 0.012012012 1.204204
## 12785 0.784784785 0.012012012 1.203203
## 12786 0.785785786 0.012012012 1.202202
## 12787 0.786786787 0.012012012 1.201201
## 12788 0.787787788 0.012012012 1.200200
## 12789 0.788788789 0.012012012 1.199199
## 12790 0.789789790 0.012012012 1.198198
## 12791 0.790790791 0.012012012 1.197197
## 12792 0.791791792 0.012012012 1.196196
## 12793 0.792792793 0.012012012 1.195195
## 12794 0.793793794 0.012012012 1.194194
```

```
## 12795 0.794794795 0.012012012 1.193193
## 12796 0.795795796 0.012012012 1.192192
## 12797 0.796796797 0.012012012 1.191191
## 12798 0.797797798 0.012012012 1.190190
## 12799 0.798798799 0.012012012 1.189189
## 12800 0.799799800 0.012012012 1.188188
## 12801 0.800800801 0.012012012 1.187187
## 12802 0.801801802 0.012012012 1.186186
## 12803 0.802802803 0.012012012 1.185185
## 12804 0.803803804 0.012012012 1.184184
## 12805 0.804804805 0.012012012 1.183183
## 12806 0.805805806 0.012012012 1.182182
## 12807 0.806806807 0.012012012 1.181181
## 12808 0.807807808 0.012012012 1.180180
## 12809 0.808808809 0.012012012 1.179179
## 12810 0.809809810 0.012012012 1.178178
## 12811 0.810810811 0.012012012 1.177177
## 12812 0.811811812 0.012012012 1.176176
## 12813 0.812812813 0.012012012 1.175175
## 12814 0.813813814 0.012012012 1.174174
## 12815 0.814814815 0.012012012 1.173173
## 12816 0.815815816 0.012012012 1.172172
## 12817 0.816816817 0.012012012 1.171171
## 12818 0.817817818 0.012012012 1.170170
## 12819 0.818818819 0.012012012 1.169169
## 12820 0.819819820 0.012012012 1.168168
## 12821 0.820820821 0.012012012 1.167167
## 12822 0.821821822 0.012012012 1.166166
## 12823 0.822822823 0.012012012 1.165165
## 12824 0.823823824 0.012012012 1.164164
## 12825 0.824824825 0.012012012 1.163163
## 12826 0.825825826 0.012012012 1.162162
## 12827 0.826826827 0.012012012 1.161161
## 12828 0.827827828 0.012012012 1.160160
## 12829 0.828828829 0.012012012 1.159159
## 12830 0.829829830 0.012012012 1.158158
## 12831 0.830830831 0.012012012 1.157157
## 12832 0.831831832 0.012012012 1.156156
## 12833 0.832832833 0.012012012 1.155155
## 12834 0.833833834 0.012012012 1.154154
## 12835 0.834834835 0.012012012 1.153153
## 12836 0.835835836 0.012012012 1.152152
## 12837 0.836836837 0.012012012 1.151151
## 12838 0.837837838 0.012012012 1.150150
## 12839 0.838838839 0.012012012 1.149149
## 12840 0.839839840 0.012012012 1.148148
```

```

## 12841 0.840840841 0.012012012 1.147147
## 12842 0.841841842 0.012012012 1.146146
## 12843 0.842842843 0.012012012 1.145145
## 12844 0.843843844 0.012012012 1.144144
## 12845 0.844844845 0.012012012 1.143143
## 12846 0.845845846 0.012012012 1.142142
## 12847 0.846846847 0.012012012 1.141141
## 12848 0.847847848 0.012012012 1.140140
## 12849 0.848848849 0.012012012 1.139139
## 12850 0.849849850 0.012012012 1.138138
## 12851 0.850850851 0.012012012 1.137137
## 12852 0.851851852 0.012012012 1.136136
## 12853 0.852852853 0.012012012 1.135135
## 12854 0.853853854 0.012012012 1.134134
## 12855 0.854854855 0.012012012 1.133133
## 12856 0.855855856 0.012012012 1.132132
## 12857 0.856856857 0.012012012 1.131131
## 12858 0.857857858 0.012012012 1.130130
## 12859 0.858858859 0.012012012 1.129129
## 12860 0.859859860 0.012012012 1.128128
## 12861 0.860860861 0.012012012 1.127127
## 12862 0.861861862 0.012012012 1.126126
## 12863 0.862862863 0.012012012 1.125125
## 12864 0.863863864 0.012012012 1.124124
## 12865 0.864864865 0.012012012 1.123123
## 12866 0.865865866 0.012012012 1.122122
## 12867 0.866866867 0.012012012 1.121121
## 12868 0.867867868 0.012012012 1.120120
## 12869 0.868868869 0.012012012 1.119119
## 12870 0.869869870 0.012012012 1.118118
## 12871 0.870870871 0.012012012 1.117117
## 12872 0.871871872 0.012012012 1.116116
## 12873 0.872872873 0.012012012 1.115115
## 12874 0.873873874 0.012012012 1.114114
## 12875 0.874874875 0.012012012 1.113113
## 12876 0.875875876 0.012012012 1.112112
## 12877 0.876876877 0.012012012 1.111111
## 12878 0.877877878 0.012012012 1.110110
## 12879 0.878878879 0.012012012 1.109109
## 12880 0.879879880 0.012012012 1.108108
## 12881 0.880880881 0.012012012 1.107107
## 12882 0.881881882 0.012012012 1.106106
## 12883 0.882882883 0.012012012 1.105105
## 12884 0.883883884 0.012012012 1.104104
## 12885 0.884884885 0.012012012 1.103103
## 12886 0.885885886 0.012012012 1.102102

```

```
## 12887 0.886886887 0.012012012 1.101101
## 12888 0.887887888 0.012012012 1.100100
## 12889 0.888888889 0.012012012 1.099099
## 12890 0.889889890 0.012012012 1.098098
## 12891 0.890890891 0.012012012 1.097097
## 12892 0.891891892 0.012012012 1.096096
## 12893 0.892892893 0.012012012 1.095095
## 12894 0.893893894 0.012012012 1.094094
## 12895 0.894894895 0.012012012 1.093093
## 12896 0.895895896 0.012012012 1.092092
## 12897 0.896896897 0.012012012 1.091091
## 12898 0.897897898 0.012012012 1.090090
## 12899 0.898898899 0.012012012 1.089089
## 12900 0.899899900 0.012012012 1.088088
## 12901 0.900900901 0.012012012 1.087087
## 12902 0.901901902 0.012012012 1.086086
## 12903 0.902902903 0.012012012 1.085085
## 12904 0.903903904 0.012012012 1.084084
## 12905 0.904904905 0.012012012 1.083083
## 12906 0.905905906 0.012012012 1.082082
## 12907 0.906906907 0.012012012 1.081081
## 12908 0.907907908 0.012012012 1.080080
## 12909 0.908908909 0.012012012 1.079079
## 12910 0.909909910 0.012012012 1.078078
## 12911 0.910910911 0.012012012 1.077077
## 12912 0.911911912 0.012012012 1.076076
## 12913 0.912912913 0.012012012 1.075075
## 12914 0.913913914 0.012012012 1.074074
## 12915 0.914914915 0.012012012 1.073073
## 12916 0.915915916 0.012012012 1.072072
## 12917 0.916916917 0.012012012 1.071071
## 12918 0.917917918 0.012012012 1.070070
## 12919 0.918918919 0.012012012 1.069069
## 12920 0.919919920 0.012012012 1.068068
## 12921 0.920920921 0.012012012 1.067067
## 12922 0.921921922 0.012012012 1.066066
## 12923 0.922922923 0.012012012 1.065065
## 12924 0.923923924 0.012012012 1.064064
## 12925 0.924924925 0.012012012 1.063063
## 12926 0.925925926 0.012012012 1.062062
## 12927 0.926926927 0.012012012 1.061061
## 12928 0.927927928 0.012012012 1.060060
## 12929 0.928928929 0.012012012 1.059059
## 12930 0.929929930 0.012012012 1.058058
## 12931 0.930930931 0.012012012 1.057057
## 12932 0.931931932 0.012012012 1.056056
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 393

```
## 12933 0.932932933 0.012012012 1.055055
## 12934 0.933933934 0.012012012 1.054054
## 12935 0.934934935 0.012012012 1.053053
## 12936 0.935935936 0.012012012 1.052052
## 12937 0.936936937 0.012012012 1.051051
## 12938 0.937937938 0.012012012 1.050050
## 12939 0.938938939 0.012012012 1.049049
## 12940 0.939939940 0.012012012 1.048048
## 12941 0.940940941 0.012012012 1.047047
## 12942 0.941941942 0.012012012 1.046046
## 12943 0.942942943 0.012012012 1.045045
## 12944 0.943943944 0.012012012 1.044044
## 12945 0.944944945 0.012012012 1.043043
## 12946 0.945945946 0.012012012 1.042042
## 12947 0.946946947 0.012012012 1.041041
## 12948 0.947947948 0.012012012 1.040040
## 12949 0.948948949 0.012012012 1.039039
## 12950 0.949949950 0.012012012 1.038038
## 12951 0.950950951 0.012012012 1.037037
## 12952 0.951951952 0.012012012 1.036036
## 12953 0.952952953 0.012012012 1.035035
## 12954 0.953953954 0.012012012 1.034034
## 12955 0.954954955 0.012012012 1.033033
## 12956 0.955955956 0.012012012 1.032032
## 12957 0.956956957 0.012012012 1.031031
## 12958 0.957957958 0.012012012 1.030030
## 12959 0.958958959 0.012012012 1.029029
## 12960 0.959959960 0.012012012 1.028028
## 12961 0.960960961 0.012012012 1.027027
## 12962 0.961961962 0.012012012 1.026026
## 12963 0.962962963 0.012012012 1.025025
## 12964 0.963963964 0.012012012 1.024024
## 12965 0.964964965 0.012012012 1.023023
## 12966 0.965965966 0.012012012 1.022022
## 12967 0.966966967 0.012012012 1.021021
## 12968 0.967967968 0.012012012 1.020020
## 12969 0.968968969 0.012012012 1.019019
## 12970 0.969969970 0.012012012 1.018018
## 12971 0.970970971 0.012012012 1.017017
## 12972 0.971971972 0.012012012 1.016016
## 12973 0.972972973 0.012012012 1.015015
## 12974 0.973973974 0.012012012 1.014014
## 12975 0.974974975 0.012012012 1.013013
## 12976 0.975975976 0.012012012 1.012012
## 12977 0.976976977 0.012012012 1.011011
## 12978 0.977977978 0.012012012 1.010010
```

```
## 12979 0.978978979 0.012012012 1.009009
## 12980 0.979979980 0.012012012 1.008008
## 12981 0.980980981 0.012012012 1.007007
## 12982 0.981981982 0.012012012 1.006006
## 12983 0.982982983 0.012012012 1.005005
## 12984 0.983983984 0.012012012 1.004004
## 12985 0.984984985 0.012012012 1.003003
## 12986 0.985985986 0.012012012 1.002002
## 12987 0.986986987 0.012012012 1.001001
## 12988 0.987987988 0.012012012 1.000000
## 12989 0.988988989 0.012012012 0.998999
## 12990 0.989989990 0.012012012 0.997998
## 12991 0.990990991 0.012012012 0.996997
## 12992 0.991991992 0.012012012 0.995996
## 12993 0.992992993 0.012012012 0.994995
## 12994 0.993993994 0.012012012 0.993994
## 12995 0.994994995 0.012012012 0.992993
## 12996 0.995995996 0.012012012 0.991992
## 12997 0.996996997 0.012012012 0.990991
## 12998 0.997997998 0.012012012 0.989990
## 12999 0.998998999 0.012012012 0.988989
## 13000 1.000000000 0.012012012 0.987988
## 13001 0.000000000 0.013013013 1.986987
## 13002 0.001001001 0.013013013 1.985986
## 13003 0.002002002 0.013013013 1.984985
## 13004 0.003003003 0.013013013 1.983984
## 13005 0.004004004 0.013013013 1.982983
## 13006 0.005005005 0.013013013 1.981982
## 13007 0.006006006 0.013013013 1.980981
## 13008 0.007007007 0.013013013 1.979980
## 13009 0.008008008 0.013013013 1.978979
## 13010 0.009009009 0.013013013 1.977978
## 13011 0.010010010 0.013013013 1.976977
## 13012 0.011011011 0.013013013 1.975976
## 13013 0.012012012 0.013013013 1.974975
## 13014 0.013013013 0.013013013 1.973974
## 13015 0.014014014 0.013013013 1.972973
## 13016 0.015015015 0.013013013 1.971972
## 13017 0.016016016 0.013013013 1.970971
## 13018 0.017017017 0.013013013 1.969970
## 13019 0.018018018 0.013013013 1.968969
## 13020 0.019019019 0.013013013 1.967968
## 13021 0.020020020 0.013013013 1.966967
## 13022 0.021021021 0.013013013 1.965966
## 13023 0.022022022 0.013013013 1.964965
## 13024 0.023023023 0.013013013 1.963964
```

```

## 13025 0.024024024 0.013013013 1.962963
## 13026 0.025025025 0.013013013 1.961962
## 13027 0.026026026 0.013013013 1.960961
## 13028 0.027027027 0.013013013 1.959960
## 13029 0.028028028 0.013013013 1.958959
## 13030 0.029029029 0.013013013 1.957958
## 13031 0.030030030 0.013013013 1.956957
## 13032 0.031031031 0.013013013 1.955956
## 13033 0.032032032 0.013013013 1.954955
## 13034 0.033033033 0.013013013 1.953954
## 13035 0.034034034 0.013013013 1.952953
## 13036 0.035035035 0.013013013 1.951952
## 13037 0.036036036 0.013013013 1.950951
## 13038 0.037037037 0.013013013 1.949950
## 13039 0.038038038 0.013013013 1.948949
## 13040 0.039039039 0.013013013 1.947948
## 13041 0.040040040 0.013013013 1.946947
## 13042 0.041041041 0.013013013 1.945946
## 13043 0.042042042 0.013013013 1.944945
## 13044 0.043043043 0.013013013 1.943944
## 13045 0.044044044 0.013013013 1.942943
## 13046 0.045045045 0.013013013 1.941942
## 13047 0.046046046 0.013013013 1.940941
## 13048 0.047047047 0.013013013 1.939940
## 13049 0.048048048 0.013013013 1.938939
## 13050 0.049049049 0.013013013 1.937938
## 13051 0.050050050 0.013013013 1.936937
## 13052 0.051051051 0.013013013 1.935936
## 13053 0.052052052 0.013013013 1.934935
## 13054 0.053053053 0.013013013 1.933934
## 13055 0.054054054 0.013013013 1.932933
## 13056 0.055055055 0.013013013 1.931932
## 13057 0.056056056 0.013013013 1.930931
## 13058 0.057057057 0.013013013 1.929930
## 13059 0.058058058 0.013013013 1.928929
## 13060 0.059059059 0.013013013 1.927928
## 13061 0.060060060 0.013013013 1.926927
## 13062 0.061061061 0.013013013 1.925926
## 13063 0.062062062 0.013013013 1.924925
## 13064 0.063063063 0.013013013 1.923924
## 13065 0.064064064 0.013013013 1.922923
## 13066 0.065065065 0.013013013 1.921922
## 13067 0.066066066 0.013013013 1.920921
## 13068 0.067067067 0.013013013 1.919920
## 13069 0.068068068 0.013013013 1.918919
## 13070 0.069069069 0.013013013 1.917918

```

```
## 13071 0.070070070 0.013013013 1.916917
## 13072 0.071071071 0.013013013 1.915916
## 13073 0.072072072 0.013013013 1.914915
## 13074 0.073073073 0.013013013 1.913914
## 13075 0.074074074 0.013013013 1.912913
## 13076 0.075075075 0.013013013 1.911912
## 13077 0.076076076 0.013013013 1.910911
## 13078 0.077077077 0.013013013 1.909910
## 13079 0.078078078 0.013013013 1.908909
## 13080 0.079079079 0.013013013 1.907908
## 13081 0.080080080 0.013013013 1.906907
## 13082 0.081081081 0.013013013 1.905906
## 13083 0.082082082 0.013013013 1.904905
## 13084 0.083083083 0.013013013 1.903904
## 13085 0.084084084 0.013013013 1.902903
## 13086 0.085085085 0.013013013 1.901902
## 13087 0.086086086 0.013013013 1.900901
## 13088 0.087087087 0.013013013 1.899900
## 13089 0.088088088 0.013013013 1.898899
## 13090 0.089089089 0.013013013 1.897898
## 13091 0.090090090 0.013013013 1.896897
## 13092 0.091091091 0.013013013 1.895896
## 13093 0.092092092 0.013013013 1.894895
## 13094 0.093093093 0.013013013 1.893894
## 13095 0.094094094 0.013013013 1.892893
## 13096 0.095095095 0.013013013 1.891892
## 13097 0.096096096 0.013013013 1.890891
## 13098 0.097097097 0.013013013 1.889890
## 13099 0.098098098 0.013013013 1.888889
## 13100 0.099099099 0.013013013 1.887888
## 13101 0.100100100 0.013013013 1.886887
## 13102 0.101101101 0.013013013 1.885886
## 13103 0.102102102 0.013013013 1.884885
## 13104 0.103103103 0.013013013 1.883884
## 13105 0.104104104 0.013013013 1.882883
## 13106 0.105105105 0.013013013 1.881882
## 13107 0.106106106 0.013013013 1.880881
## 13108 0.107107107 0.013013013 1.879880
## 13109 0.108108108 0.013013013 1.878879
## 13110 0.109109109 0.013013013 1.877878
## 13111 0.110110110 0.013013013 1.876877
## 13112 0.111111111 0.013013013 1.875876
## 13113 0.112112112 0.013013013 1.874875
## 13114 0.113113113 0.013013013 1.873874
## 13115 0.114114114 0.013013013 1.872873
## 13116 0.115115115 0.013013013 1.871872
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 397

```
## 13117 0.116116116 0.013013013 1.870871
## 13118 0.117117117 0.013013013 1.869870
## 13119 0.118118118 0.013013013 1.868869
## 13120 0.119119119 0.013013013 1.867868
## 13121 0.120120120 0.013013013 1.866867
## 13122 0.121121121 0.013013013 1.865866
## 13123 0.122122122 0.013013013 1.864865
## 13124 0.123123123 0.013013013 1.863864
## 13125 0.124124124 0.013013013 1.862863
## 13126 0.125125125 0.013013013 1.861862
## 13127 0.126126126 0.013013013 1.860861
## 13128 0.127127127 0.013013013 1.859860
## 13129 0.128128128 0.013013013 1.858859
## 13130 0.129129129 0.013013013 1.857858
## 13131 0.130130130 0.013013013 1.856857
## 13132 0.131131131 0.013013013 1.855856
## 13133 0.132132132 0.013013013 1.854855
## 13134 0.133133133 0.013013013 1.853854
## 13135 0.134134134 0.013013013 1.852853
## 13136 0.135135135 0.013013013 1.851852
## 13137 0.136136136 0.013013013 1.850851
## 13138 0.137137137 0.013013013 1.849850
## 13139 0.138138138 0.013013013 1.848849
## 13140 0.139139139 0.013013013 1.847848
## 13141 0.140140140 0.013013013 1.846847
## 13142 0.141141141 0.013013013 1.845846
## 13143 0.142142142 0.013013013 1.844845
## 13144 0.143143143 0.013013013 1.843844
## 13145 0.144144144 0.013013013 1.842843
## 13146 0.145145145 0.013013013 1.841842
## 13147 0.146146146 0.013013013 1.840841
## 13148 0.147147147 0.013013013 1.839840
## 13149 0.148148148 0.013013013 1.838839
## 13150 0.149149149 0.013013013 1.837838
## 13151 0.150150150 0.013013013 1.836837
## 13152 0.151151151 0.013013013 1.835836
## 13153 0.152152152 0.013013013 1.834835
## 13154 0.153153153 0.013013013 1.833834
## 13155 0.154154154 0.013013013 1.832833
## 13156 0.155155155 0.013013013 1.831832
## 13157 0.156156156 0.013013013 1.830831
## 13158 0.157157157 0.013013013 1.829830
## 13159 0.158158158 0.013013013 1.828829
## 13160 0.159159159 0.013013013 1.827828
## 13161 0.160160160 0.013013013 1.826827
## 13162 0.161161161 0.013013013 1.825826
```

```
## 13163 0.162162162 0.013013013 1.824825
## 13164 0.163163163 0.013013013 1.823824
## 13165 0.164164164 0.013013013 1.822823
## 13166 0.165165165 0.013013013 1.821822
## 13167 0.166166166 0.013013013 1.820821
## 13168 0.167167167 0.013013013 1.819820
## 13169 0.168168168 0.013013013 1.818819
## 13170 0.169169169 0.013013013 1.817818
## 13171 0.170170170 0.013013013 1.816817
## 13172 0.171171171 0.013013013 1.815816
## 13173 0.172172172 0.013013013 1.814815
## 13174 0.173173173 0.013013013 1.813814
## 13175 0.174174174 0.013013013 1.812813
## 13176 0.175175175 0.013013013 1.811812
## 13177 0.176176176 0.013013013 1.810811
## 13178 0.177177177 0.013013013 1.809810
## 13179 0.178178178 0.013013013 1.808809
## 13180 0.179179179 0.013013013 1.807808
## 13181 0.180180180 0.013013013 1.806807
## 13182 0.181181181 0.013013013 1.805806
## 13183 0.182182182 0.013013013 1.804805
## 13184 0.183183183 0.013013013 1.803804
## 13185 0.184184184 0.013013013 1.802803
## 13186 0.185185185 0.013013013 1.801802
## 13187 0.186186186 0.013013013 1.800801
## 13188 0.187187187 0.013013013 1.799800
## 13189 0.188188188 0.013013013 1.798799
## 13190 0.189189189 0.013013013 1.797798
## 13191 0.190190190 0.013013013 1.796797
## 13192 0.191191191 0.013013013 1.795796
## 13193 0.192192192 0.013013013 1.794795
## 13194 0.193193193 0.013013013 1.793794
## 13195 0.194194194 0.013013013 1.792793
## 13196 0.195195195 0.013013013 1.791792
## 13197 0.196196196 0.013013013 1.790791
## 13198 0.197197197 0.013013013 1.789790
## 13199 0.198198198 0.013013013 1.788789
## 13200 0.199199199 0.013013013 1.787788
## 13201 0.200200200 0.013013013 1.786787
## 13202 0.201201201 0.013013013 1.785786
## 13203 0.202202202 0.013013013 1.784785
## 13204 0.203203203 0.013013013 1.783784
## 13205 0.204204204 0.013013013 1.782783
## 13206 0.205205205 0.013013013 1.781782
## 13207 0.206206206 0.013013013 1.780781
## 13208 0.207207207 0.013013013 1.779780
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 399

```
## 13209 0.208208208 0.013013013 1.778779
## 13210 0.209209209 0.013013013 1.777778
## 13211 0.210210210 0.013013013 1.776777
## 13212 0.211211211 0.013013013 1.775776
## 13213 0.212212212 0.013013013 1.774775
## 13214 0.213213213 0.013013013 1.773774
## 13215 0.214214214 0.013013013 1.772773
## 13216 0.215215215 0.013013013 1.771772
## 13217 0.216216216 0.013013013 1.770771
## 13218 0.217217217 0.013013013 1.769770
## 13219 0.218218218 0.013013013 1.768769
## 13220 0.219219219 0.013013013 1.767768
## 13221 0.220220220 0.013013013 1.766767
## 13222 0.221221221 0.013013013 1.765766
## 13223 0.222222222 0.013013013 1.764765
## 13224 0.223223223 0.013013013 1.763764
## 13225 0.224224224 0.013013013 1.762763
## 13226 0.225225225 0.013013013 1.761762
## 13227 0.226226226 0.013013013 1.760761
## 13228 0.227227227 0.013013013 1.759760
## 13229 0.228228228 0.013013013 1.758759
## 13230 0.229229229 0.013013013 1.757758
## 13231 0.230230230 0.013013013 1.756757
## 13232 0.231231231 0.013013013 1.755756
## 13233 0.232232232 0.013013013 1.754755
## 13234 0.233233233 0.013013013 1.753754
## 13235 0.234234234 0.013013013 1.752753
## 13236 0.235235235 0.013013013 1.751752
## 13237 0.236236236 0.013013013 1.750751
## 13238 0.237237237 0.013013013 1.749750
## 13239 0.238238238 0.013013013 1.748749
## 13240 0.239239239 0.013013013 1.747748
## 13241 0.240240240 0.013013013 1.746747
## 13242 0.241241241 0.013013013 1.745746
## 13243 0.242242242 0.013013013 1.744745
## 13244 0.243243243 0.013013013 1.743744
## 13245 0.244244244 0.013013013 1.742743
## 13246 0.245245245 0.013013013 1.741742
## 13247 0.246246246 0.013013013 1.740741
## 13248 0.247247247 0.013013013 1.739740
## 13249 0.248248248 0.013013013 1.738739
## 13250 0.249249249 0.013013013 1.737738
## 13251 0.250250250 0.013013013 1.736737
## 13252 0.251251251 0.013013013 1.735736
## 13253 0.252252252 0.013013013 1.734735
## 13254 0.253253253 0.013013013 1.733734
```

```
## 13255 0.254254254 0.013013013 1.732733
## 13256 0.255255255 0.013013013 1.731732
## 13257 0.256256256 0.013013013 1.730731
## 13258 0.257257257 0.013013013 1.729730
## 13259 0.258258258 0.013013013 1.728729
## 13260 0.259259259 0.013013013 1.727728
## 13261 0.260260260 0.013013013 1.726727
## 13262 0.261261261 0.013013013 1.725726
## 13263 0.262262262 0.013013013 1.724725
## 13264 0.263263263 0.013013013 1.723724
## 13265 0.264264264 0.013013013 1.722723
## 13266 0.265265265 0.013013013 1.721722
## 13267 0.266266266 0.013013013 1.720721
## 13268 0.267267267 0.013013013 1.719720
## 13269 0.268268268 0.013013013 1.718719
## 13270 0.269269269 0.013013013 1.717718
## 13271 0.270270270 0.013013013 1.716717
## 13272 0.271271271 0.013013013 1.715716
## 13273 0.272272272 0.013013013 1.714715
## 13274 0.273273273 0.013013013 1.713714
## 13275 0.274274274 0.013013013 1.712713
## 13276 0.275275275 0.013013013 1.711712
## 13277 0.276276276 0.013013013 1.710711
## 13278 0.277277277 0.013013013 1.709710
## 13279 0.278278278 0.013013013 1.708709
## 13280 0.279279279 0.013013013 1.707708
## 13281 0.280280280 0.013013013 1.706707
## 13282 0.281281281 0.013013013 1.705706
## 13283 0.282282282 0.013013013 1.704705
## 13284 0.283283283 0.013013013 1.703704
## 13285 0.284284284 0.013013013 1.702703
## 13286 0.285285285 0.013013013 1.701702
## 13287 0.286286286 0.013013013 1.700701
## 13288 0.287287287 0.013013013 1.699700
## 13289 0.288288288 0.013013013 1.698699
## 13290 0.289289289 0.013013013 1.697698
## 13291 0.290290290 0.013013013 1.696697
## 13292 0.291291291 0.013013013 1.695696
## 13293 0.292292292 0.013013013 1.694695
## 13294 0.293293293 0.013013013 1.693694
## 13295 0.294294294 0.013013013 1.692693
## 13296 0.295295295 0.013013013 1.691692
## 13297 0.296296296 0.013013013 1.690691
## 13298 0.297297297 0.013013013 1.689690
## 13299 0.298298298 0.013013013 1.688689
## 13300 0.299299299 0.013013013 1.687688
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 401

```
## 13301 0.300300300 0.013013013 1.686687
## 13302 0.301301301 0.013013013 1.685686
## 13303 0.302302302 0.013013013 1.684685
## 13304 0.303303303 0.013013013 1.683684
## 13305 0.304304304 0.013013013 1.682683
## 13306 0.305305305 0.013013013 1.681682
## 13307 0.306306306 0.013013013 1.680681
## 13308 0.307307307 0.013013013 1.679680
## 13309 0.308308308 0.013013013 1.678679
## 13310 0.309309309 0.013013013 1.677678
## 13311 0.310310310 0.013013013 1.676677
## 13312 0.311311311 0.013013013 1.675676
## 13313 0.312312312 0.013013013 1.674675
## 13314 0.313313313 0.013013013 1.673674
## 13315 0.314314314 0.013013013 1.672673
## 13316 0.315315315 0.013013013 1.671672
## 13317 0.316316316 0.013013013 1.670671
## 13318 0.317317317 0.013013013 1.669670
## 13319 0.318318318 0.013013013 1.668669
## 13320 0.319319319 0.013013013 1.667668
## 13321 0.320320320 0.013013013 1.666667
## 13322 0.321321321 0.013013013 1.665666
## 13323 0.322322322 0.013013013 1.664665
## 13324 0.323323323 0.013013013 1.663664
## 13325 0.324324324 0.013013013 1.662663
## 13326 0.325325325 0.013013013 1.661662
## 13327 0.326326326 0.013013013 1.660661
## 13328 0.327327327 0.013013013 1.659660
## 13329 0.328328328 0.013013013 1.658659
## 13330 0.329329329 0.013013013 1.657658
## 13331 0.330330330 0.013013013 1.656657
## 13332 0.331331331 0.013013013 1.655656
## 13333 0.332332332 0.013013013 1.654655
## 13334 0.333333333 0.013013013 1.653654
## 13335 0.334334334 0.013013013 1.652653
## 13336 0.335335335 0.013013013 1.651652
## 13337 0.336336336 0.013013013 1.650651
## 13338 0.337337337 0.013013013 1.649650
## 13339 0.338338338 0.013013013 1.648649
## 13340 0.339339339 0.013013013 1.647648
## 13341 0.340340340 0.013013013 1.646647
## 13342 0.341341341 0.013013013 1.645646
## 13343 0.342342342 0.013013013 1.644645
## 13344 0.343343343 0.013013013 1.643644
## 13345 0.344344344 0.013013013 1.642643
## 13346 0.345345345 0.013013013 1.641642
```

```
## 13347 0.346346346 0.013013013 1.640641
## 13348 0.347347347 0.013013013 1.639640
## 13349 0.348348348 0.013013013 1.638639
## 13350 0.349349349 0.013013013 1.637638
## 13351 0.350350350 0.013013013 1.636637
## 13352 0.351351351 0.013013013 1.635636
## 13353 0.352352352 0.013013013 1.634635
## 13354 0.353353353 0.013013013 1.633634
## 13355 0.354354354 0.013013013 1.632633
## 13356 0.355355355 0.013013013 1.631632
## 13357 0.356356356 0.013013013 1.630631
## 13358 0.357357357 0.013013013 1.629630
## 13359 0.358358358 0.013013013 1.628629
## 13360 0.359359359 0.013013013 1.627628
## 13361 0.360360360 0.013013013 1.626627
## 13362 0.361361361 0.013013013 1.625626
## 13363 0.362362362 0.013013013 1.624625
## 13364 0.363363363 0.013013013 1.623624
## 13365 0.364364364 0.013013013 1.622623
## 13366 0.365365365 0.013013013 1.621622
## 13367 0.366366366 0.013013013 1.620621
## 13368 0.367367367 0.013013013 1.619620
## 13369 0.368368368 0.013013013 1.618619
## 13370 0.369369369 0.013013013 1.617618
## 13371 0.370370370 0.013013013 1.616617
## 13372 0.371371371 0.013013013 1.615616
## 13373 0.372372372 0.013013013 1.614615
## 13374 0.373373373 0.013013013 1.613614
## 13375 0.374374374 0.013013013 1.612613
## 13376 0.375375375 0.013013013 1.611612
## 13377 0.376376376 0.013013013 1.610611
## 13378 0.377377377 0.013013013 1.609610
## 13379 0.378378378 0.013013013 1.608609
## 13380 0.379379379 0.013013013 1.607608
## 13381 0.380380380 0.013013013 1.606607
## 13382 0.381381381 0.013013013 1.605606
## 13383 0.382382382 0.013013013 1.604605
## 13384 0.383383383 0.013013013 1.603604
## 13385 0.384384384 0.013013013 1.602603
## 13386 0.385385385 0.013013013 1.601602
## 13387 0.386386386 0.013013013 1.600601
## 13388 0.387387387 0.013013013 1.599600
## 13389 0.388388388 0.013013013 1.598599
## 13390 0.389389389 0.013013013 1.597598
## 13391 0.390390390 0.013013013 1.596597
## 13392 0.391391391 0.013013013 1.595596
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 403

```

## 13393 0.392392392 0.013013013 1.594595
## 13394 0.393393393 0.013013013 1.593594
## 13395 0.394394394 0.013013013 1.592593
## 13396 0.395395395 0.013013013 1.591592
## 13397 0.396396396 0.013013013 1.590591
## 13398 0.397397397 0.013013013 1.589590
## 13399 0.398398398 0.013013013 1.588589
## 13400 0.399399399 0.013013013 1.587588
## 13401 0.400400400 0.013013013 1.586587
## 13402 0.401401401 0.013013013 1.585586
## 13403 0.402402402 0.013013013 1.584585
## 13404 0.403403403 0.013013013 1.583584
## 13405 0.404404404 0.013013013 1.582583
## 13406 0.405405405 0.013013013 1.581582
## 13407 0.406406406 0.013013013 1.580581
## 13408 0.407407407 0.013013013 1.579580
## 13409 0.408408408 0.013013013 1.578579
## 13410 0.409409409 0.013013013 1.577578
## 13411 0.410410410 0.013013013 1.576577
## 13412 0.411411411 0.013013013 1.575576
## 13413 0.412412412 0.013013013 1.574575
## 13414 0.413413413 0.013013013 1.573574
## 13415 0.414414414 0.013013013 1.572573
## 13416 0.415415415 0.013013013 1.571572
## 13417 0.416416416 0.013013013 1.570571
## 13418 0.417417417 0.013013013 1.569570
## 13419 0.418418418 0.013013013 1.568569
## 13420 0.419419419 0.013013013 1.567568
## 13421 0.420420420 0.013013013 1.566567
## 13422 0.421421421 0.013013013 1.565566
## 13423 0.422422422 0.013013013 1.564565
## 13424 0.423423423 0.013013013 1.563564
## 13425 0.424424424 0.013013013 1.562563
## 13426 0.425425425 0.013013013 1.561562
## 13427 0.426426426 0.013013013 1.560561
## 13428 0.427427427 0.013013013 1.559560
## 13429 0.428428428 0.013013013 1.558559
## 13430 0.429429429 0.013013013 1.557558
## 13431 0.430430430 0.013013013 1.556557
## 13432 0.431431431 0.013013013 1.555556
## 13433 0.432432432 0.013013013 1.554555
## 13434 0.433433433 0.013013013 1.553554
## 13435 0.434434434 0.013013013 1.552553
## 13436 0.435435435 0.013013013 1.551552
## 13437 0.436436436 0.013013013 1.550551
## 13438 0.437437437 0.013013013 1.549550

```

```
## 13439 0.438438438 0.013013013 1.548549
## 13440 0.439439439 0.013013013 1.547548
## 13441 0.440440440 0.013013013 1.546547
## 13442 0.441441441 0.013013013 1.545546
## 13443 0.442442442 0.013013013 1.544545
## 13444 0.443443443 0.013013013 1.543544
## 13445 0.444444444 0.013013013 1.542543
## 13446 0.445445445 0.013013013 1.541542
## 13447 0.446446446 0.013013013 1.540541
## 13448 0.447447447 0.013013013 1.539540
## 13449 0.448448448 0.013013013 1.538539
## 13450 0.449449449 0.013013013 1.537538
## 13451 0.450450450 0.013013013 1.536537
## 13452 0.451451451 0.013013013 1.535536
## 13453 0.452452452 0.013013013 1.534535
## 13454 0.453453453 0.013013013 1.533534
## 13455 0.454454454 0.013013013 1.532533
## 13456 0.455455455 0.013013013 1.531532
## 13457 0.456456456 0.013013013 1.530531
## 13458 0.457457457 0.013013013 1.529530
## 13459 0.458458458 0.013013013 1.528529
## 13460 0.459459459 0.013013013 1.527528
## 13461 0.460460460 0.013013013 1.526527
## 13462 0.461461461 0.013013013 1.525526
## 13463 0.462462462 0.013013013 1.524525
## 13464 0.463463463 0.013013013 1.523524
## 13465 0.464464464 0.013013013 1.522523
## 13466 0.465465465 0.013013013 1.521522
## 13467 0.466466466 0.013013013 1.520521
## 13468 0.467467467 0.013013013 1.519520
## 13469 0.468468468 0.013013013 1.518519
## 13470 0.469469469 0.013013013 1.517518
## 13471 0.470470470 0.013013013 1.516517
## 13472 0.471471471 0.013013013 1.515516
## 13473 0.472472472 0.013013013 1.514515
## 13474 0.473473473 0.013013013 1.513514
## 13475 0.474474474 0.013013013 1.512513
## 13476 0.475475475 0.013013013 1.511512
## 13477 0.476476476 0.013013013 1.510511
## 13478 0.477477477 0.013013013 1.509510
## 13479 0.478478478 0.013013013 1.508509
## 13480 0.479479479 0.013013013 1.507508
## 13481 0.480480480 0.013013013 1.506507
## 13482 0.481481481 0.013013013 1.505506
## 13483 0.482482482 0.013013013 1.504505
## 13484 0.483483483 0.013013013 1.503504
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 405

```

## 13485 0.484484484 0.013013013 1.502503
## 13486 0.485485485 0.013013013 1.501502
## 13487 0.486486486 0.013013013 1.500501
## 13488 0.487487487 0.013013013 1.499499
## 13489 0.488488488 0.013013013 1.498498
## 13490 0.489489489 0.013013013 1.497497
## 13491 0.490490490 0.013013013 1.496496
## 13492 0.491491491 0.013013013 1.495495
## 13493 0.492492492 0.013013013 1.494494
## 13494 0.493493493 0.013013013 1.493493
## 13495 0.494494494 0.013013013 1.492492
## 13496 0.495495495 0.013013013 1.491491
## 13497 0.496496496 0.013013013 1.490490
## 13498 0.497497497 0.013013013 1.489489
## 13499 0.498498498 0.013013013 1.488488
## 13500 0.499499499 0.013013013 1.487487
## 13501 0.500500501 0.013013013 1.486486
## 13502 0.501501502 0.013013013 1.485485
## 13503 0.502502503 0.013013013 1.484484
## 13504 0.503503504 0.013013013 1.483483
## 13505 0.504504505 0.013013013 1.482482
## 13506 0.505505506 0.013013013 1.481481
## 13507 0.506506507 0.013013013 1.480480
## 13508 0.507507508 0.013013013 1.479479
## 13509 0.508508509 0.013013013 1.478478
## 13510 0.509509510 0.013013013 1.477477
## 13511 0.510510511 0.013013013 1.476476
## 13512 0.511511512 0.013013013 1.475475
## 13513 0.512512513 0.013013013 1.474474
## 13514 0.513513514 0.013013013 1.473473
## 13515 0.514514515 0.013013013 1.472472
## 13516 0.515515516 0.013013013 1.471471
## 13517 0.516516517 0.013013013 1.470470
## 13518 0.517517518 0.013013013 1.469469
## 13519 0.518518519 0.013013013 1.468468
## 13520 0.519519520 0.013013013 1.467467
## 13521 0.520520521 0.013013013 1.466466
## 13522 0.521521522 0.013013013 1.465465
## 13523 0.522522523 0.013013013 1.464464
## 13524 0.523523524 0.013013013 1.463463
## 13525 0.524524525 0.013013013 1.462462
## 13526 0.525525526 0.013013013 1.461461
## 13527 0.526526527 0.013013013 1.460460
## 13528 0.527527528 0.013013013 1.459459
## 13529 0.528528529 0.013013013 1.458458
## 13530 0.529529530 0.013013013 1.457457

```

```
## 13531 0.530530531 0.013013013 1.456456
## 13532 0.531531532 0.013013013 1.455455
## 13533 0.532532533 0.013013013 1.454454
## 13534 0.533533534 0.013013013 1.453453
## 13535 0.534534535 0.013013013 1.452452
## 13536 0.535535536 0.013013013 1.451451
## 13537 0.536536537 0.013013013 1.450450
## 13538 0.537537538 0.013013013 1.449449
## 13539 0.538538539 0.013013013 1.448448
## 13540 0.539539540 0.013013013 1.447447
## 13541 0.540540541 0.013013013 1.446446
## 13542 0.541541542 0.013013013 1.445445
## 13543 0.542542543 0.013013013 1.444444
## 13544 0.543543544 0.013013013 1.443443
## 13545 0.544544545 0.013013013 1.442442
## 13546 0.545545546 0.013013013 1.441441
## 13547 0.546546547 0.013013013 1.440440
## 13548 0.547547548 0.013013013 1.439439
## 13549 0.548548549 0.013013013 1.438438
## 13550 0.549549550 0.013013013 1.437437
## 13551 0.550550551 0.013013013 1.436436
## 13552 0.551551552 0.013013013 1.435435
## 13553 0.552552553 0.013013013 1.434434
## 13554 0.553553554 0.013013013 1.433433
## 13555 0.554554555 0.013013013 1.432432
## 13556 0.555555556 0.013013013 1.431431
## 13557 0.556556557 0.013013013 1.430430
## 13558 0.557557558 0.013013013 1.429429
## 13559 0.558558559 0.013013013 1.428428
## 13560 0.559559560 0.013013013 1.427427
## 13561 0.560560561 0.013013013 1.426426
## 13562 0.561561562 0.013013013 1.425425
## 13563 0.562562563 0.013013013 1.424424
## 13564 0.563563564 0.013013013 1.423423
## 13565 0.564564565 0.013013013 1.422422
## 13566 0.565565566 0.013013013 1.421421
## 13567 0.566566567 0.013013013 1.420420
## 13568 0.567567568 0.013013013 1.419419
## 13569 0.568568569 0.013013013 1.418418
## 13570 0.569569570 0.013013013 1.417417
## 13571 0.570570571 0.013013013 1.416416
## 13572 0.571571572 0.013013013 1.415415
## 13573 0.572572573 0.013013013 1.414414
## 13574 0.573573574 0.013013013 1.413413
## 13575 0.574574575 0.013013013 1.412412
## 13576 0.575575576 0.013013013 1.411411
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 407

```
## 13577 0.576576577 0.013013013 1.410410
## 13578 0.577577578 0.013013013 1.409409
## 13579 0.578578579 0.013013013 1.408408
## 13580 0.579579580 0.013013013 1.407407
## 13581 0.580580581 0.013013013 1.406406
## 13582 0.581581582 0.013013013 1.405405
## 13583 0.582582583 0.013013013 1.404404
## 13584 0.583583584 0.013013013 1.403403
## 13585 0.584584585 0.013013013 1.402402
## 13586 0.585585586 0.013013013 1.401401
## 13587 0.586586587 0.013013013 1.400400
## 13588 0.587587588 0.013013013 1.399399
## 13589 0.588588589 0.013013013 1.398398
## 13590 0.589589590 0.013013013 1.397397
## 13591 0.590590591 0.013013013 1.396396
## 13592 0.591591592 0.013013013 1.395395
## 13593 0.592592593 0.013013013 1.394394
## 13594 0.593593594 0.013013013 1.393393
## 13595 0.594594595 0.013013013 1.392392
## 13596 0.595595596 0.013013013 1.391391
## 13597 0.596596597 0.013013013 1.390390
## 13598 0.597597598 0.013013013 1.389389
## 13599 0.598598599 0.013013013 1.388388
## 13600 0.599599600 0.013013013 1.387387
## 13601 0.600600601 0.013013013 1.386386
## 13602 0.601601602 0.013013013 1.385385
## 13603 0.602602603 0.013013013 1.384384
## 13604 0.603603604 0.013013013 1.383383
## 13605 0.604604605 0.013013013 1.382382
## 13606 0.605605606 0.013013013 1.381381
## 13607 0.606606607 0.013013013 1.380380
## 13608 0.607607608 0.013013013 1.379379
## 13609 0.608608609 0.013013013 1.378378
## 13610 0.609609610 0.013013013 1.377377
## 13611 0.610610611 0.013013013 1.376376
## 13612 0.611611612 0.013013013 1.375375
## 13613 0.612612613 0.013013013 1.374374
## 13614 0.613613614 0.013013013 1.373373
## 13615 0.614614615 0.013013013 1.372372
## 13616 0.615615616 0.013013013 1.371371
## 13617 0.616616617 0.013013013 1.370370
## 13618 0.617617618 0.013013013 1.369369
## 13619 0.618618619 0.013013013 1.368368
## 13620 0.619619620 0.013013013 1.367367
## 13621 0.620620621 0.013013013 1.366366
## 13622 0.621621622 0.013013013 1.365365
```

```
## 13623 0.622622623 0.013013013 1.364364
## 13624 0.623623624 0.013013013 1.363363
## 13625 0.624624625 0.013013013 1.362362
## 13626 0.625625626 0.013013013 1.361361
## 13627 0.626626627 0.013013013 1.360360
## 13628 0.627627628 0.013013013 1.359359
## 13629 0.628628629 0.013013013 1.358358
## 13630 0.629629630 0.013013013 1.357357
## 13631 0.630630631 0.013013013 1.356356
## 13632 0.631631632 0.013013013 1.355355
## 13633 0.632632633 0.013013013 1.354354
## 13634 0.633633634 0.013013013 1.353353
## 13635 0.634634635 0.013013013 1.352352
## 13636 0.635635636 0.013013013 1.351351
## 13637 0.636636637 0.013013013 1.350350
## 13638 0.637637638 0.013013013 1.349349
## 13639 0.638638639 0.013013013 1.348348
## 13640 0.639639640 0.013013013 1.347347
## 13641 0.640640641 0.013013013 1.346346
## 13642 0.641641642 0.013013013 1.345345
## 13643 0.642642643 0.013013013 1.344344
## 13644 0.643643644 0.013013013 1.343343
## 13645 0.644644645 0.013013013 1.342342
## 13646 0.645645646 0.013013013 1.341341
## 13647 0.646646647 0.013013013 1.340340
## 13648 0.647647648 0.013013013 1.339339
## 13649 0.648648649 0.013013013 1.338338
## 13650 0.649649650 0.013013013 1.337337
## 13651 0.650650651 0.013013013 1.336336
## 13652 0.651651652 0.013013013 1.335335
## 13653 0.652652653 0.013013013 1.334334
## 13654 0.653653654 0.013013013 1.333333
## 13655 0.654654655 0.013013013 1.332332
## 13656 0.6556555656 0.013013013 1.331331
## 13657 0.656656657 0.013013013 1.330330
## 13658 0.657657658 0.013013013 1.329329
## 13659 0.658658659 0.013013013 1.328328
## 13660 0.659659660 0.013013013 1.327327
## 13661 0.660660661 0.013013013 1.326326
## 13662 0.661661662 0.013013013 1.325325
## 13663 0.662662663 0.013013013 1.324324
## 13664 0.663663664 0.013013013 1.323323
## 13665 0.664664665 0.013013013 1.322322
## 13666 0.665665666 0.013013013 1.321321
## 13667 0.666666667 0.013013013 1.320320
## 13668 0.667667668 0.013013013 1.319319
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 409

```
## 13669 0.668668669 0.013013013 1.318318
## 13670 0.669669670 0.013013013 1.317317
## 13671 0.670670671 0.013013013 1.316316
## 13672 0.671671672 0.013013013 1.315315
## 13673 0.672672673 0.013013013 1.314314
## 13674 0.673673674 0.013013013 1.313313
## 13675 0.674674675 0.013013013 1.312312
## 13676 0.675675676 0.013013013 1.311311
## 13677 0.676676677 0.013013013 1.310310
## 13678 0.677677678 0.013013013 1.309309
## 13679 0.678678679 0.013013013 1.308308
## 13680 0.679679680 0.013013013 1.307307
## 13681 0.680680681 0.013013013 1.306306
## 13682 0.681681682 0.013013013 1.305305
## 13683 0.682682683 0.013013013 1.304304
## 13684 0.683683684 0.013013013 1.303303
## 13685 0.684684685 0.013013013 1.302302
## 13686 0.685685686 0.013013013 1.301301
## 13687 0.686686687 0.013013013 1.300300
## 13688 0.687687688 0.013013013 1.299299
## 13689 0.688688689 0.013013013 1.298298
## 13690 0.689689690 0.013013013 1.297297
## 13691 0.690690691 0.013013013 1.296296
## 13692 0.691691692 0.013013013 1.295295
## 13693 0.692692693 0.013013013 1.294294
## 13694 0.693693694 0.013013013 1.293293
## 13695 0.694694695 0.013013013 1.292292
## 13696 0.695695696 0.013013013 1.291291
## 13697 0.696696697 0.013013013 1.290290
## 13698 0.697697698 0.013013013 1.289289
## 13699 0.698698699 0.013013013 1.288288
## 13700 0.699699700 0.013013013 1.287287
## 13701 0.700700701 0.013013013 1.286286
## 13702 0.701701702 0.013013013 1.285285
## 13703 0.702702703 0.013013013 1.284284
## 13704 0.703703704 0.013013013 1.283283
## 13705 0.704704705 0.013013013 1.282282
## 13706 0.705705706 0.013013013 1.281281
## 13707 0.706706707 0.013013013 1.280280
## 13708 0.707707708 0.013013013 1.279279
## 13709 0.708708709 0.013013013 1.278278
## 13710 0.709709710 0.013013013 1.277277
## 13711 0.710710711 0.013013013 1.276276
## 13712 0.711711712 0.013013013 1.275275
## 13713 0.712712713 0.013013013 1.274274
## 13714 0.713713714 0.013013013 1.273273
```

```
## 13715 0.714714715 0.013013013 1.272272
## 13716 0.715715716 0.013013013 1.271271
## 13717 0.716716717 0.013013013 1.270270
## 13718 0.717717718 0.013013013 1.269269
## 13719 0.718718719 0.013013013 1.268268
## 13720 0.719719720 0.013013013 1.267267
## 13721 0.720720721 0.013013013 1.266266
## 13722 0.721721722 0.013013013 1.265265
## 13723 0.722722723 0.013013013 1.264264
## 13724 0.723723724 0.013013013 1.263263
## 13725 0.724724725 0.013013013 1.262262
## 13726 0.725725726 0.013013013 1.261261
## 13727 0.726726727 0.013013013 1.260260
## 13728 0.727727728 0.013013013 1.259259
## 13729 0.728728729 0.013013013 1.258258
## 13730 0.729729730 0.013013013 1.257257
## 13731 0.730730731 0.013013013 1.256256
## 13732 0.731731732 0.013013013 1.255255
## 13733 0.732732733 0.013013013 1.254254
## 13734 0.733733734 0.013013013 1.253253
## 13735 0.734734735 0.013013013 1.252252
## 13736 0.735735736 0.013013013 1.251251
## 13737 0.736736737 0.013013013 1.250250
## 13738 0.737737738 0.013013013 1.249249
## 13739 0.738738739 0.013013013 1.248248
## 13740 0.739739740 0.013013013 1.247247
## 13741 0.740740741 0.013013013 1.246246
## 13742 0.741741742 0.013013013 1.245245
## 13743 0.742742743 0.013013013 1.244244
## 13744 0.743743744 0.013013013 1.243243
## 13745 0.7447444745 0.013013013 1.242242
## 13746 0.745745746 0.013013013 1.241241
## 13747 0.746746747 0.013013013 1.240240
## 13748 0.747747748 0.013013013 1.239239
## 13749 0.748748749 0.013013013 1.238238
## 13750 0.749749750 0.013013013 1.237237
## 13751 0.750750751 0.013013013 1.236236
## 13752 0.751751752 0.013013013 1.235235
## 13753 0.752752753 0.013013013 1.234234
## 13754 0.753753754 0.013013013 1.233233
## 13755 0.754754755 0.013013013 1.232232
## 13756 0.755755756 0.013013013 1.231231
## 13757 0.756756757 0.013013013 1.230230
## 13758 0.757757758 0.013013013 1.229229
## 13759 0.758758759 0.013013013 1.228228
## 13760 0.759759760 0.013013013 1.227227
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 411

```

## 13761 0.760760761 0.013013013 1.226226
## 13762 0.761761762 0.013013013 1.225225
## 13763 0.762762763 0.013013013 1.224224
## 13764 0.763763764 0.013013013 1.223223
## 13765 0.764764765 0.013013013 1.222222
## 13766 0.765765766 0.013013013 1.221221
## 13767 0.766766767 0.013013013 1.220220
## 13768 0.767767768 0.013013013 1.219219
## 13769 0.768768769 0.013013013 1.218218
## 13770 0.769769770 0.013013013 1.217217
## 13771 0.770770771 0.013013013 1.216216
## 13772 0.771771772 0.013013013 1.215215
## 13773 0.772772773 0.013013013 1.214214
## 13774 0.773773774 0.013013013 1.213213
## 13775 0.774774775 0.013013013 1.212212
## 13776 0.775775776 0.013013013 1.211211
## 13777 0.776776777 0.013013013 1.210210
## 13778 0.777777778 0.013013013 1.209209
## 13779 0.778778779 0.013013013 1.208208
## 13780 0.779779780 0.013013013 1.207207
## 13781 0.780780781 0.013013013 1.206206
## 13782 0.781781782 0.013013013 1.205205
## 13783 0.782782783 0.013013013 1.204204
## 13784 0.783783784 0.013013013 1.203203
## 13785 0.784784785 0.013013013 1.202202
## 13786 0.785785786 0.013013013 1.201201
## 13787 0.786786787 0.013013013 1.200200
## 13788 0.787787788 0.013013013 1.199199
## 13789 0.788788789 0.013013013 1.198198
## 13790 0.789789790 0.013013013 1.197197
## 13791 0.790790791 0.013013013 1.196196
## 13792 0.791791792 0.013013013 1.195195
## 13793 0.792792793 0.013013013 1.194194
## 13794 0.793793794 0.013013013 1.193193
## 13795 0.794794795 0.013013013 1.192192
## 13796 0.795795796 0.013013013 1.191191
## 13797 0.796796797 0.013013013 1.190190
## 13798 0.797797798 0.013013013 1.189189
## 13799 0.798798799 0.013013013 1.188188
## 13800 0.799799800 0.013013013 1.187187
## 13801 0.800800801 0.013013013 1.186186
## 13802 0.801801802 0.013013013 1.185185
## 13803 0.802802803 0.013013013 1.184184
## 13804 0.803803804 0.013013013 1.183183
## 13805 0.804804805 0.013013013 1.182182
## 13806 0.805805806 0.013013013 1.181181

```

```
## 13807 0.806806807 0.013013013 1.180180
## 13808 0.807807808 0.013013013 1.179179
## 13809 0.808808809 0.013013013 1.178178
## 13810 0.809809810 0.013013013 1.177177
## 13811 0.810810811 0.013013013 1.176176
## 13812 0.811811812 0.013013013 1.175175
## 13813 0.812812813 0.013013013 1.174174
## 13814 0.813813814 0.013013013 1.173173
## 13815 0.814814815 0.013013013 1.172172
## 13816 0.815815816 0.013013013 1.171171
## 13817 0.816816817 0.013013013 1.170170
## 13818 0.817817818 0.013013013 1.169169
## 13819 0.818818819 0.013013013 1.168168
## 13820 0.819819820 0.013013013 1.167167
## 13821 0.820820821 0.013013013 1.166166
## 13822 0.821821822 0.013013013 1.165165
## 13823 0.822822823 0.013013013 1.164164
## 13824 0.823823824 0.013013013 1.163163
## 13825 0.824824825 0.013013013 1.162162
## 13826 0.825825826 0.013013013 1.161161
## 13827 0.826826827 0.013013013 1.160160
## 13828 0.827827828 0.013013013 1.159159
## 13829 0.828828829 0.013013013 1.158158
## 13830 0.829829830 0.013013013 1.157157
## 13831 0.830830831 0.013013013 1.156156
## 13832 0.831831832 0.013013013 1.155155
## 13833 0.832832833 0.013013013 1.154154
## 13834 0.833833834 0.013013013 1.153153
## 13835 0.834834835 0.013013013 1.152152
## 13836 0.835835836 0.013013013 1.151151
## 13837 0.836836837 0.013013013 1.150150
## 13838 0.837837838 0.013013013 1.149149
## 13839 0.838838839 0.013013013 1.148148
## 13840 0.839839840 0.013013013 1.147147
## 13841 0.840840841 0.013013013 1.146146
## 13842 0.841841842 0.013013013 1.145145
## 13843 0.842842843 0.013013013 1.144144
## 13844 0.843843844 0.013013013 1.143143
## 13845 0.844844845 0.013013013 1.142142
## 13846 0.845845846 0.013013013 1.141141
## 13847 0.846846847 0.013013013 1.140140
## 13848 0.847847848 0.013013013 1.139139
## 13849 0.848848849 0.013013013 1.138138
## 13850 0.849849850 0.013013013 1.137137
## 13851 0.850850851 0.013013013 1.136136
## 13852 0.851851852 0.013013013 1.135135
```

```

## 13853 0.852852853 0.013013013 1.134134
## 13854 0.853853854 0.013013013 1.133133
## 13855 0.854854855 0.013013013 1.132132
## 13856 0.855855856 0.013013013 1.131131
## 13857 0.856856857 0.013013013 1.130130
## 13858 0.857857858 0.013013013 1.129129
## 13859 0.858858859 0.013013013 1.128128
## 13860 0.859859860 0.013013013 1.127127
## 13861 0.860860861 0.013013013 1.126126
## 13862 0.861861862 0.013013013 1.125125
## 13863 0.862862863 0.013013013 1.124124
## 13864 0.863863864 0.013013013 1.123123
## 13865 0.864864865 0.013013013 1.122122
## 13866 0.865865866 0.013013013 1.121121
## 13867 0.866866867 0.013013013 1.120120
## 13868 0.867867868 0.013013013 1.119119
## 13869 0.868868869 0.013013013 1.118118
## 13870 0.869869870 0.013013013 1.117117
## 13871 0.870870871 0.013013013 1.116116
## 13872 0.871871872 0.013013013 1.115115
## 13873 0.872872873 0.013013013 1.114114
## 13874 0.873873874 0.013013013 1.113113
## 13875 0.874874875 0.013013013 1.112112
## 13876 0.875875876 0.013013013 1.111111
## 13877 0.876876877 0.013013013 1.110110
## 13878 0.877877878 0.013013013 1.109109
## 13879 0.878878879 0.013013013 1.108108
## 13880 0.879879880 0.013013013 1.107107
## 13881 0.880880881 0.013013013 1.106106
## 13882 0.881881882 0.013013013 1.105105
## 13883 0.882882883 0.013013013 1.104104
## 13884 0.883883884 0.013013013 1.103103
## 13885 0.884884885 0.013013013 1.102102
## 13886 0.885885886 0.013013013 1.101101
## 13887 0.886886887 0.013013013 1.100100
## 13888 0.887887888 0.013013013 1.099099
## 13889 0.888888889 0.013013013 1.098098
## 13890 0.889889890 0.013013013 1.097097
## 13891 0.890890891 0.013013013 1.096096
## 13892 0.891891892 0.013013013 1.095095
## 13893 0.892892893 0.013013013 1.094094
## 13894 0.893893894 0.013013013 1.093093
## 13895 0.894894895 0.013013013 1.092092
## 13896 0.895895896 0.013013013 1.091091
## 13897 0.896896897 0.013013013 1.090090
## 13898 0.897897898 0.013013013 1.089089

```

```
## 13899 0.898898899 0.013013013 1.088088
## 13900 0.899899900 0.013013013 1.087087
## 13901 0.900900901 0.013013013 1.086086
## 13902 0.901901902 0.013013013 1.085085
## 13903 0.902902903 0.013013013 1.084084
## 13904 0.903903904 0.013013013 1.083083
## 13905 0.904904905 0.013013013 1.082082
## 13906 0.905905906 0.013013013 1.081081
## 13907 0.906906907 0.013013013 1.080080
## 13908 0.907907908 0.013013013 1.079079
## 13909 0.908908909 0.013013013 1.078078
## 13910 0.909909910 0.013013013 1.077077
## 13911 0.910910911 0.013013013 1.076076
## 13912 0.911911912 0.013013013 1.075075
## 13913 0.912912913 0.013013013 1.074074
## 13914 0.913913914 0.013013013 1.073073
## 13915 0.914914915 0.013013013 1.072072
## 13916 0.915915916 0.013013013 1.071071
## 13917 0.916916917 0.013013013 1.070070
## 13918 0.917917918 0.013013013 1.069069
## 13919 0.918918919 0.013013013 1.068068
## 13920 0.919919920 0.013013013 1.067067
## 13921 0.920920921 0.013013013 1.066066
## 13922 0.921921922 0.013013013 1.065065
## 13923 0.922922923 0.013013013 1.064064
## 13924 0.923923924 0.013013013 1.063063
## 13925 0.924924925 0.013013013 1.062062
## 13926 0.925925926 0.013013013 1.061061
## 13927 0.926926927 0.013013013 1.060060
## 13928 0.927927928 0.013013013 1.059059
## 13929 0.928928929 0.013013013 1.058058
## 13930 0.929929930 0.013013013 1.057057
## 13931 0.930930931 0.013013013 1.056056
## 13932 0.931931932 0.013013013 1.055055
## 13933 0.932932933 0.013013013 1.054054
## 13934 0.933933934 0.013013013 1.053053
## 13935 0.934934935 0.013013013 1.052052
## 13936 0.935935936 0.013013013 1.051051
## 13937 0.936936937 0.013013013 1.050050
## 13938 0.937937938 0.013013013 1.049049
## 13939 0.938938939 0.013013013 1.048048
## 13940 0.939939940 0.013013013 1.047047
## 13941 0.940940941 0.013013013 1.046046
## 13942 0.941941942 0.013013013 1.045045
## 13943 0.942942943 0.013013013 1.044044
## 13944 0.943943944 0.013013013 1.043043
```

```

## 13945 0.944944945 0.013013013 1.042042
## 13946 0.945945946 0.013013013 1.041041
## 13947 0.946946947 0.013013013 1.040040
## 13948 0.947947948 0.013013013 1.039039
## 13949 0.948948949 0.013013013 1.038038
## 13950 0.949949950 0.013013013 1.037037
## 13951 0.950950951 0.013013013 1.036036
## 13952 0.951951952 0.013013013 1.035035
## 13953 0.952952953 0.013013013 1.034034
## 13954 0.953953954 0.013013013 1.033033
## 13955 0.954954955 0.013013013 1.032032
## 13956 0.955955956 0.013013013 1.031031
## 13957 0.956956957 0.013013013 1.030030
## 13958 0.957957958 0.013013013 1.029029
## 13959 0.958958959 0.013013013 1.028028
## 13960 0.959959960 0.013013013 1.027027
## 13961 0.960960961 0.013013013 1.026026
## 13962 0.961961962 0.013013013 1.025025
## 13963 0.962962963 0.013013013 1.024024
## 13964 0.963963964 0.013013013 1.023023
## 13965 0.964964965 0.013013013 1.022022
## 13966 0.965965966 0.013013013 1.021021
## 13967 0.966966967 0.013013013 1.020020
## 13968 0.967967968 0.013013013 1.019019
## 13969 0.968968969 0.013013013 1.018018
## 13970 0.969969970 0.013013013 1.017017
## 13971 0.970970971 0.013013013 1.016016
## 13972 0.971971972 0.013013013 1.015015
## 13973 0.972972973 0.013013013 1.014014
## 13974 0.973973974 0.013013013 1.013013
## 13975 0.974974975 0.013013013 1.012012
## 13976 0.975975976 0.013013013 1.011011
## 13977 0.976976977 0.013013013 1.010010
## 13978 0.977977978 0.013013013 1.009009
## 13979 0.978978979 0.013013013 1.008008
## 13980 0.979979980 0.013013013 1.007007
## 13981 0.980980981 0.013013013 1.006006
## 13982 0.981981982 0.013013013 1.005005
## 13983 0.982982983 0.013013013 1.004004
## 13984 0.983983984 0.013013013 1.003003
## 13985 0.984984985 0.013013013 1.002002
## 13986 0.985985986 0.013013013 1.001001
## 13987 0.986986987 0.013013013 1.000000
## 13988 0.987987988 0.013013013 0.998999
## 13989 0.988988989 0.013013013 0.997998
## 13990 0.989989990 0.013013013 0.996997

```

```
## 13991 0.990990991 0.013013013 0.995996
## 13992 0.991991992 0.013013013 0.994995
## 13993 0.992992993 0.013013013 0.993994
## 13994 0.993993994 0.013013013 0.992993
## 13995 0.994994995 0.013013013 0.991992
## 13996 0.995995996 0.013013013 0.990991
## 13997 0.996996997 0.013013013 0.989990
## 13998 0.997997998 0.013013013 0.988989
## 13999 0.998998999 0.013013013 0.987988
## 14000 1.000000000 0.013013013 0.986987
## 14001 0.000000000 0.014014014 1.985986
## 14002 0.001001001 0.014014014 1.984985
## 14003 0.002002002 0.014014014 1.983984
## 14004 0.003003003 0.014014014 1.982983
## 14005 0.004004004 0.014014014 1.981982
## 14006 0.005005005 0.014014014 1.980981
## 14007 0.006006006 0.014014014 1.979980
## 14008 0.007007007 0.014014014 1.978979
## 14009 0.008008008 0.014014014 1.977978
## 14010 0.009009009 0.014014014 1.976977
## 14011 0.010010010 0.014014014 1.975976
## 14012 0.011011011 0.014014014 1.974975
## 14013 0.012012012 0.014014014 1.973974
## 14014 0.013013013 0.014014014 1.972973
## 14015 0.014014014 0.014014014 1.971972
## 14016 0.015015015 0.014014014 1.970971
## 14017 0.016016016 0.014014014 1.969970
## 14018 0.017017017 0.014014014 1.968969
## 14019 0.018018018 0.014014014 1.967968
## 14020 0.019019019 0.014014014 1.966967
## 14021 0.020020020 0.014014014 1.965966
## 14022 0.021021021 0.014014014 1.964965
## 14023 0.022022022 0.014014014 1.963964
## 14024 0.023023023 0.014014014 1.962963
## 14025 0.024024024 0.014014014 1.961962
## 14026 0.025025025 0.014014014 1.960961
## 14027 0.026026026 0.014014014 1.959960
## 14028 0.027027027 0.014014014 1.958959
## 14029 0.028028028 0.014014014 1.957958
## 14030 0.029029029 0.014014014 1.956957
## 14031 0.030030030 0.014014014 1.955956
## 14032 0.031031031 0.014014014 1.954955
## 14033 0.032032032 0.014014014 1.953954
## 14034 0.033033033 0.014014014 1.952953
## 14035 0.034034034 0.014014014 1.951952
## 14036 0.035035035 0.014014014 1.950951
```

```

## 14037 0.036036036 0.014014014 1.949950
## 14038 0.037037037 0.014014014 1.948949
## 14039 0.038038038 0.014014014 1.947948
## 14040 0.039039039 0.014014014 1.946947
## 14041 0.040040040 0.014014014 1.945946
## 14042 0.041041041 0.014014014 1.944945
## 14043 0.042042042 0.014014014 1.943944
## 14044 0.043043043 0.014014014 1.942943
## 14045 0.044044044 0.014014014 1.941942
## 14046 0.045045045 0.014014014 1.940941
## 14047 0.046046046 0.014014014 1.939940
## 14048 0.047047047 0.014014014 1.938939
## 14049 0.048048048 0.014014014 1.937938
## 14050 0.049049049 0.014014014 1.936937
## 14051 0.050050050 0.014014014 1.935936
## 14052 0.051051051 0.014014014 1.934935
## 14053 0.052052052 0.014014014 1.933934
## 14054 0.053053053 0.014014014 1.932933
## 14055 0.054054054 0.014014014 1.931932
## 14056 0.055055055 0.014014014 1.930931
## 14057 0.056056056 0.014014014 1.929930
## 14058 0.057057057 0.014014014 1.928929
## 14059 0.058058058 0.014014014 1.927928
## 14060 0.059059059 0.014014014 1.926927
## 14061 0.060060060 0.014014014 1.925926
## 14062 0.061061061 0.014014014 1.924925
## 14063 0.062062062 0.014014014 1.923924
## 14064 0.063063063 0.014014014 1.922923
## 14065 0.064064064 0.014014014 1.921922
## 14066 0.065065065 0.014014014 1.920921
## 14067 0.066066066 0.014014014 1.919920
## 14068 0.067067067 0.014014014 1.918919
## 14069 0.068068068 0.014014014 1.917918
## 14070 0.069069069 0.014014014 1.916917
## 14071 0.070070070 0.014014014 1.915916
## 14072 0.071071071 0.014014014 1.914915
## 14073 0.072072072 0.014014014 1.913914
## 14074 0.073073073 0.014014014 1.912913
## 14075 0.074074074 0.014014014 1.911912
## 14076 0.075075075 0.014014014 1.910911
## 14077 0.076076076 0.014014014 1.909910
## 14078 0.077077077 0.014014014 1.908909
## 14079 0.078078078 0.014014014 1.907908
## 14080 0.079079079 0.014014014 1.906907
## 14081 0.080080080 0.014014014 1.905906
## 14082 0.081081081 0.014014014 1.904905

```

```
## 14083 0.082082082 0.014014014 1.903904
## 14084 0.083083083 0.014014014 1.902903
## 14085 0.084084084 0.014014014 1.901902
## 14086 0.085085085 0.014014014 1.900901
## 14087 0.086086086 0.014014014 1.899900
## 14088 0.087087087 0.014014014 1.898899
## 14089 0.088088088 0.014014014 1.897898
## 14090 0.089089089 0.014014014 1.896897
## 14091 0.090090090 0.014014014 1.895896
## 14092 0.091091091 0.014014014 1.894895
## 14093 0.092092092 0.014014014 1.893894
## 14094 0.093093093 0.014014014 1.892893
## 14095 0.094094094 0.014014014 1.891892
## 14096 0.095095095 0.014014014 1.890891
## 14097 0.096096096 0.014014014 1.889890
## 14098 0.097097097 0.014014014 1.888889
## 14099 0.098098098 0.014014014 1.887888
## 14100 0.099099099 0.014014014 1.886887
## 14101 0.100100100 0.014014014 1.885886
## 14102 0.101101101 0.014014014 1.884885
## 14103 0.102102102 0.014014014 1.883884
## 14104 0.103103103 0.014014014 1.882883
## 14105 0.104104104 0.014014014 1.881882
## 14106 0.105105105 0.014014014 1.880881
## 14107 0.106106106 0.014014014 1.879880
## 14108 0.107107107 0.014014014 1.878879
## 14109 0.108108108 0.014014014 1.877878
## 14110 0.109109109 0.014014014 1.876877
## 14111 0.110110110 0.014014014 1.875876
## 14112 0.111111111 0.014014014 1.874875
## 14113 0.112112112 0.014014014 1.873874
## 14114 0.113113113 0.014014014 1.872873
## 14115 0.114114114 0.014014014 1.871872
## 14116 0.115115115 0.014014014 1.870871
## 14117 0.116116116 0.014014014 1.869870
## 14118 0.117117117 0.014014014 1.868869
## 14119 0.118118118 0.014014014 1.867868
## 14120 0.119119119 0.014014014 1.866867
## 14121 0.120120120 0.014014014 1.865866
## 14122 0.121121121 0.014014014 1.864865
## 14123 0.122122122 0.014014014 1.863864
## 14124 0.123123123 0.014014014 1.862863
## 14125 0.124124124 0.014014014 1.861862
## 14126 0.125125125 0.014014014 1.860861
## 14127 0.126126126 0.014014014 1.859860
## 14128 0.127127127 0.014014014 1.858859
```

```

## 14129 0.128128128 0.014014014 1.857858
## 14130 0.129129129 0.014014014 1.856857
## 14131 0.130130130 0.014014014 1.855856
## 14132 0.131131131 0.014014014 1.854855
## 14133 0.132132132 0.014014014 1.853854
## 14134 0.133133133 0.014014014 1.852853
## 14135 0.134134134 0.014014014 1.851852
## 14136 0.135135135 0.014014014 1.850851
## 14137 0.136136136 0.014014014 1.849850
## 14138 0.137137137 0.014014014 1.848849
## 14139 0.138138138 0.014014014 1.847848
## 14140 0.139139139 0.014014014 1.846847
## 14141 0.140140140 0.014014014 1.845846
## 14142 0.141141141 0.014014014 1.844845
## 14143 0.142142142 0.014014014 1.843844
## 14144 0.143143143 0.014014014 1.842843
## 14145 0.144144144 0.014014014 1.841842
## 14146 0.145145145 0.014014014 1.840841
## 14147 0.146146146 0.014014014 1.839840
## 14148 0.147147147 0.014014014 1.838839
## 14149 0.148148148 0.014014014 1.837838
## 14150 0.149149149 0.014014014 1.836837
## 14151 0.150150150 0.014014014 1.835836
## 14152 0.151151151 0.014014014 1.834835
## 14153 0.152152152 0.014014014 1.833834
## 14154 0.153153153 0.014014014 1.832833
## 14155 0.154154154 0.014014014 1.831832
## 14156 0.155155155 0.014014014 1.830831
## 14157 0.156156156 0.014014014 1.829830
## 14158 0.157157157 0.014014014 1.828829
## 14159 0.158158158 0.014014014 1.827828
## 14160 0.159159159 0.014014014 1.826827
## 14161 0.160160160 0.014014014 1.825826
## 14162 0.161161161 0.014014014 1.824825
## 14163 0.162162162 0.014014014 1.823824
## 14164 0.163163163 0.014014014 1.822823
## 14165 0.164164164 0.014014014 1.821822
## 14166 0.165165165 0.014014014 1.820821
## 14167 0.166166166 0.014014014 1.819820
## 14168 0.167167167 0.014014014 1.818819
## 14169 0.168168168 0.014014014 1.817818
## 14170 0.169169169 0.014014014 1.816817
## 14171 0.170170170 0.014014014 1.815816
## 14172 0.171171171 0.014014014 1.814815
## 14173 0.172172172 0.014014014 1.813814
## 14174 0.173173173 0.014014014 1.812813

```

```
## 14175 0.174174174 0.014014014 1.811812
## 14176 0.175175175 0.014014014 1.810811
## 14177 0.176176176 0.014014014 1.809810
## 14178 0.177177177 0.014014014 1.808809
## 14179 0.178178178 0.014014014 1.807808
## 14180 0.179179179 0.014014014 1.806807
## 14181 0.180180180 0.014014014 1.805806
## 14182 0.181181181 0.014014014 1.804805
## 14183 0.182182182 0.014014014 1.803804
## 14184 0.183183183 0.014014014 1.802803
## 14185 0.184184184 0.014014014 1.801802
## 14186 0.185185185 0.014014014 1.800801
## 14187 0.186186186 0.014014014 1.799800
## 14188 0.187187187 0.014014014 1.798799
## 14189 0.188188188 0.014014014 1.797798
## 14190 0.189189189 0.014014014 1.796797
## 14191 0.190190190 0.014014014 1.795796
## 14192 0.191191191 0.014014014 1.794795
## 14193 0.192192192 0.014014014 1.793794
## 14194 0.193193193 0.014014014 1.792793
## 14195 0.194194194 0.014014014 1.791792
## 14196 0.195195195 0.014014014 1.790791
## 14197 0.196196196 0.014014014 1.789790
## 14198 0.197197197 0.014014014 1.788789
## 14199 0.198198198 0.014014014 1.787788
## 14200 0.199199199 0.014014014 1.786787
## 14201 0.200200200 0.014014014 1.785786
## 14202 0.201201201 0.014014014 1.784785
## 14203 0.202202202 0.014014014 1.783784
## 14204 0.203203203 0.014014014 1.782783
## 14205 0.204204204 0.014014014 1.781782
## 14206 0.205205205 0.014014014 1.780781
## 14207 0.206206206 0.014014014 1.779780
## 14208 0.207207207 0.014014014 1.778779
## 14209 0.208208208 0.014014014 1.777778
## 14210 0.209209209 0.014014014 1.776777
## 14211 0.210210210 0.014014014 1.775776
## 14212 0.211211211 0.014014014 1.774775
## 14213 0.212212212 0.014014014 1.773774
## 14214 0.213213213 0.014014014 1.772773
## 14215 0.214214214 0.014014014 1.771772
## 14216 0.215215215 0.014014014 1.770771
## 14217 0.216216216 0.014014014 1.769770
## 14218 0.217217217 0.014014014 1.768769
## 14219 0.218218218 0.014014014 1.767768
## 14220 0.219219219 0.014014014 1.766767
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 421

```
## 14221 0.220220220 0.014014014 1.765766
## 14222 0.221221221 0.014014014 1.764765
## 14223 0.222222222 0.014014014 1.763764
## 14224 0.223223223 0.014014014 1.762763
## 14225 0.224224224 0.014014014 1.761762
## 14226 0.225225225 0.014014014 1.760761
## 14227 0.226226226 0.014014014 1.759760
## 14228 0.227227227 0.014014014 1.758759
## 14229 0.228228228 0.014014014 1.757758
## 14230 0.229229229 0.014014014 1.756757
## 14231 0.230230230 0.014014014 1.755756
## 14232 0.231231231 0.014014014 1.754755
## 14233 0.232232232 0.014014014 1.753754
## 14234 0.233233233 0.014014014 1.752753
## 14235 0.234234234 0.014014014 1.751752
## 14236 0.235235235 0.014014014 1.750751
## 14237 0.236236236 0.014014014 1.749750
## 14238 0.237237237 0.014014014 1.748749
## 14239 0.238238238 0.014014014 1.747748
## 14240 0.239239239 0.014014014 1.746747
## 14241 0.240240240 0.014014014 1.745746
## 14242 0.241241241 0.014014014 1.744745
## 14243 0.242242242 0.014014014 1.743744
## 14244 0.243243243 0.014014014 1.742743
## 14245 0.244244244 0.014014014 1.741742
## 14246 0.245245245 0.014014014 1.740741
## 14247 0.246246246 0.014014014 1.739740
## 14248 0.247247247 0.014014014 1.738739
## 14249 0.248248248 0.014014014 1.737738
## 14250 0.249249249 0.014014014 1.736737
## 14251 0.250250250 0.014014014 1.735736
## 14252 0.251251251 0.014014014 1.734735
## 14253 0.252252252 0.014014014 1.733734
## 14254 0.253253253 0.014014014 1.732733
## 14255 0.254254254 0.014014014 1.731732
## 14256 0.255255255 0.014014014 1.730731
## 14257 0.256256256 0.014014014 1.729730
## 14258 0.257257257 0.014014014 1.728729
## 14259 0.258258258 0.014014014 1.727728
## 14260 0.259259259 0.014014014 1.726727
## 14261 0.260260260 0.014014014 1.725726
## 14262 0.261261261 0.014014014 1.724725
## 14263 0.262262262 0.014014014 1.723724
## 14264 0.263263263 0.014014014 1.722723
## 14265 0.264264264 0.014014014 1.721722
## 14266 0.265265265 0.014014014 1.720721
```

```
## 14267 0.266266266 0.014014014 1.719720
## 14268 0.267267267 0.014014014 1.718719
## 14269 0.268268268 0.014014014 1.717718
## 14270 0.269269269 0.014014014 1.716717
## 14271 0.270270270 0.014014014 1.715716
## 14272 0.271271271 0.014014014 1.714715
## 14273 0.272272272 0.014014014 1.713714
## 14274 0.273273273 0.014014014 1.712713
## 14275 0.274274274 0.014014014 1.711712
## 14276 0.275275275 0.014014014 1.710711
## 14277 0.276276276 0.014014014 1.709710
## 14278 0.277277277 0.014014014 1.708709
## 14279 0.278278278 0.014014014 1.707708
## 14280 0.279279279 0.014014014 1.706707
## 14281 0.280280280 0.014014014 1.705706
## 14282 0.281281281 0.014014014 1.704705
## 14283 0.282282282 0.014014014 1.703704
## 14284 0.283283283 0.014014014 1.702703
## 14285 0.284284284 0.014014014 1.701702
## 14286 0.285285285 0.014014014 1.700701
## 14287 0.286286286 0.014014014 1.699700
## 14288 0.287287287 0.014014014 1.698699
## 14289 0.288288288 0.014014014 1.697698
## 14290 0.289289289 0.014014014 1.696697
## 14291 0.290290290 0.014014014 1.695696
## 14292 0.291291291 0.014014014 1.694695
## 14293 0.292292292 0.014014014 1.693694
## 14294 0.293293293 0.014014014 1.692693
## 14295 0.294294294 0.014014014 1.691692
## 14296 0.295295295 0.014014014 1.690691
## 14297 0.296296296 0.014014014 1.689690
## 14298 0.297297297 0.014014014 1.688689
## 14299 0.298298298 0.014014014 1.687688
## 14300 0.299299299 0.014014014 1.686687
## 14301 0.300300300 0.014014014 1.685686
## 14302 0.301301301 0.014014014 1.684685
## 14303 0.302302302 0.014014014 1.683684
## 14304 0.303303303 0.014014014 1.682683
## 14305 0.304304304 0.014014014 1.681682
## 14306 0.305305305 0.014014014 1.680681
## 14307 0.306306306 0.014014014 1.679680
## 14308 0.307307307 0.014014014 1.678679
## 14309 0.308308308 0.014014014 1.677678
## 14310 0.309309309 0.014014014 1.676677
## 14311 0.310310310 0.014014014 1.675676
## 14312 0.311311311 0.014014014 1.674675
```

```
## 14313 0.312312312 0.014014014 1.673674
## 14314 0.313313313 0.014014014 1.672673
## 14315 0.314314314 0.014014014 1.671672
## 14316 0.315315315 0.014014014 1.670671
## 14317 0.316316316 0.014014014 1.669670
## 14318 0.317317317 0.014014014 1.668669
## 14319 0.318318318 0.014014014 1.667668
## 14320 0.319319319 0.014014014 1.666667
## 14321 0.320320320 0.014014014 1.665666
## 14322 0.321321321 0.014014014 1.664665
## 14323 0.322322322 0.014014014 1.663664
## 14324 0.323323323 0.014014014 1.662663
## 14325 0.324324324 0.014014014 1.661662
## 14326 0.325325325 0.014014014 1.660661
## 14327 0.326326326 0.014014014 1.659660
## 14328 0.327327327 0.014014014 1.658659
## 14329 0.328328328 0.014014014 1.657658
## 14330 0.329329329 0.014014014 1.656657
## 14331 0.330330330 0.014014014 1.655656
## 14332 0.331331331 0.014014014 1.654655
## 14333 0.332332332 0.014014014 1.653654
## 14334 0.333333333 0.014014014 1.652653
## 14335 0.334334334 0.014014014 1.651652
## 14336 0.335335335 0.014014014 1.650651
## 14337 0.336336336 0.014014014 1.649650
## 14338 0.337337337 0.014014014 1.648649
## 14339 0.338338338 0.014014014 1.647648
## 14340 0.339339339 0.014014014 1.646647
## 14341 0.340340340 0.014014014 1.645646
## 14342 0.341341341 0.014014014 1.644645
## 14343 0.342342342 0.014014014 1.643644
## 14344 0.343343343 0.014014014 1.642643
## 14345 0.344344344 0.014014014 1.641642
## 14346 0.345345345 0.014014014 1.640641
## 14347 0.346346346 0.014014014 1.639640
## 14348 0.347347347 0.014014014 1.638639
## 14349 0.348348348 0.014014014 1.637638
## 14350 0.349349349 0.014014014 1.636637
## 14351 0.350350350 0.014014014 1.635636
## 14352 0.351351351 0.014014014 1.634635
## 14353 0.352352352 0.014014014 1.633634
## 14354 0.353353353 0.014014014 1.632633
## 14355 0.354354354 0.014014014 1.631632
## 14356 0.355355355 0.014014014 1.630631
## 14357 0.356356356 0.014014014 1.629630
## 14358 0.357357357 0.014014014 1.628629
```

```
## 14359 0.358358358 0.014014014 1.627628
## 14360 0.359359359 0.014014014 1.626627
## 14361 0.360360360 0.014014014 1.625626
## 14362 0.361361361 0.014014014 1.624625
## 14363 0.362362362 0.014014014 1.623624
## 14364 0.363363363 0.014014014 1.622623
## 14365 0.364364364 0.014014014 1.621622
## 14366 0.365365365 0.014014014 1.620621
## 14367 0.366366366 0.014014014 1.619620
## 14368 0.367367367 0.014014014 1.618619
## 14369 0.368368368 0.014014014 1.617618
## 14370 0.369369369 0.014014014 1.616617
## 14371 0.370370370 0.014014014 1.615616
## 14372 0.371371371 0.014014014 1.614615
## 14373 0.372372372 0.014014014 1.613614
## 14374 0.373373373 0.014014014 1.612613
## 14375 0.374374374 0.014014014 1.611612
## 14376 0.375375375 0.014014014 1.610611
## 14377 0.376376376 0.014014014 1.609610
## 14378 0.377377377 0.014014014 1.608609
## 14379 0.378378378 0.014014014 1.607608
## 14380 0.379379379 0.014014014 1.606607
## 14381 0.380380380 0.014014014 1.605606
## 14382 0.381381381 0.014014014 1.604605
## 14383 0.382382382 0.014014014 1.603604
## 14384 0.383383383 0.014014014 1.602603
## 14385 0.384384384 0.014014014 1.601602
## 14386 0.385385385 0.014014014 1.600601
## 14387 0.386386386 0.014014014 1.599600
## 14388 0.387387387 0.014014014 1.598599
## 14389 0.388388388 0.014014014 1.597598
## 14390 0.389389389 0.014014014 1.596597
## 14391 0.390390390 0.014014014 1.595596
## 14392 0.391391391 0.014014014 1.594595
## 14393 0.392392392 0.014014014 1.593594
## 14394 0.393393393 0.014014014 1.592593
## 14395 0.394394394 0.014014014 1.591592
## 14396 0.395395395 0.014014014 1.590591
## 14397 0.396396396 0.014014014 1.589590
## 14398 0.397397397 0.014014014 1.588589
## 14399 0.398398398 0.014014014 1.587588
## 14400 0.399399399 0.014014014 1.586587
## 14401 0.400400400 0.014014014 1.585586
## 14402 0.401401401 0.014014014 1.584585
## 14403 0.402402402 0.014014014 1.583584
## 14404 0.403403403 0.014014014 1.582583
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 425

```
## 14405 0.404404404 0.014014014 1.581582
## 14406 0.405405405 0.014014014 1.580581
## 14407 0.406406406 0.014014014 1.579580
## 14408 0.407407407 0.014014014 1.578579
## 14409 0.408408408 0.014014014 1.577578
## 14410 0.409409409 0.014014014 1.576577
## 14411 0.410410410 0.014014014 1.575576
## 14412 0.411411411 0.014014014 1.574575
## 14413 0.412412412 0.014014014 1.573574
## 14414 0.413413413 0.014014014 1.572573
## 14415 0.414414414 0.014014014 1.571572
## 14416 0.415415415 0.014014014 1.570571
## 14417 0.416416416 0.014014014 1.569570
## 14418 0.417417417 0.014014014 1.568569
## 14419 0.418418418 0.014014014 1.567568
## 14420 0.419419419 0.014014014 1.566567
## 14421 0.420420420 0.014014014 1.565566
## 14422 0.421421421 0.014014014 1.564565
## 14423 0.422422422 0.014014014 1.563564
## 14424 0.423423423 0.014014014 1.562563
## 14425 0.424424424 0.014014014 1.561562
## 14426 0.425425425 0.014014014 1.560561
## 14427 0.426426426 0.014014014 1.559560
## 14428 0.427427427 0.014014014 1.558559
## 14429 0.428428428 0.014014014 1.557558
## 14430 0.429429429 0.014014014 1.556557
## 14431 0.430430430 0.014014014 1.555556
## 14432 0.431431431 0.014014014 1.554555
## 14433 0.432432432 0.014014014 1.553554
## 14434 0.433433433 0.014014014 1.552553
## 14435 0.434434434 0.014014014 1.551552
## 14436 0.435435435 0.014014014 1.550551
## 14437 0.436436436 0.014014014 1.549550
## 14438 0.437437437 0.014014014 1.548549
## 14439 0.438438438 0.014014014 1.547548
## 14440 0.439439439 0.014014014 1.546547
## 14441 0.440440440 0.014014014 1.545546
## 14442 0.441441441 0.014014014 1.544545
## 14443 0.442442442 0.014014014 1.543544
## 14444 0.443443443 0.014014014 1.542543
## 14445 0.444444444 0.014014014 1.541542
## 14446 0.445445445 0.014014014 1.540541
## 14447 0.446446446 0.014014014 1.539540
## 14448 0.447447447 0.014014014 1.538539
## 14449 0.448448448 0.014014014 1.537538
## 14450 0.449449449 0.014014014 1.536537
```

```
## 14451 0.450450450 0.014014014 1.535536
## 14452 0.451451451 0.014014014 1.534535
## 14453 0.452452452 0.014014014 1.533534
## 14454 0.453453453 0.014014014 1.532533
## 14455 0.454454454 0.014014014 1.531532
## 14456 0.455455455 0.014014014 1.530531
## 14457 0.456456456 0.014014014 1.529530
## 14458 0.457457457 0.014014014 1.528529
## 14459 0.458458458 0.014014014 1.527528
## 14460 0.459459459 0.014014014 1.526527
## 14461 0.460460460 0.014014014 1.525526
## 14462 0.461461461 0.014014014 1.524525
## 14463 0.462462462 0.014014014 1.523524
## 14464 0.463463463 0.014014014 1.522523
## 14465 0.464464464 0.014014014 1.521522
## 14466 0.465465465 0.014014014 1.520521
## 14467 0.466466466 0.014014014 1.519520
## 14468 0.467467467 0.014014014 1.518519
## 14469 0.468468468 0.014014014 1.517518
## 14470 0.469469469 0.014014014 1.516517
## 14471 0.470470470 0.014014014 1.515516
## 14472 0.471471471 0.014014014 1.514515
## 14473 0.472472472 0.014014014 1.513514
## 14474 0.473473473 0.014014014 1.512513
## 14475 0.474474474 0.014014014 1.511512
## 14476 0.475475475 0.014014014 1.510511
## 14477 0.476476476 0.014014014 1.509510
## 14478 0.477477477 0.014014014 1.508509
## 14479 0.478478478 0.014014014 1.507508
## 14480 0.479479479 0.014014014 1.506507
## 14481 0.480480480 0.014014014 1.505506
## 14482 0.481481481 0.014014014 1.504505
## 14483 0.482482482 0.014014014 1.503504
## 14484 0.483483483 0.014014014 1.502503
## 14485 0.484484484 0.014014014 1.501502
## 14486 0.485485485 0.014014014 1.500501
## 14487 0.486486486 0.014014014 1.499499
## 14488 0.487487487 0.014014014 1.498498
## 14489 0.488488488 0.014014014 1.497497
## 14490 0.489489489 0.014014014 1.496496
## 14491 0.490490490 0.014014014 1.495495
## 14492 0.491491491 0.014014014 1.494494
## 14493 0.492492492 0.014014014 1.493493
## 14494 0.493493493 0.014014014 1.492492
## 14495 0.494494494 0.014014014 1.491491
## 14496 0.495495495 0.014014014 1.490490
```

```

## 14497 0.496496496 0.014014014 1.489489
## 14498 0.497497497 0.014014014 1.488488
## 14499 0.498498498 0.014014014 1.487487
## 14500 0.499499499 0.014014014 1.486486
## 14501 0.500500501 0.014014014 1.485485
## 14502 0.501501502 0.014014014 1.484484
## 14503 0.502502503 0.014014014 1.483483
## 14504 0.503503504 0.014014014 1.482482
## 14505 0.504504505 0.014014014 1.481481
## 14506 0.505505506 0.014014014 1.480480
## 14507 0.506506507 0.014014014 1.479479
## 14508 0.507507508 0.014014014 1.478478
## 14509 0.508508509 0.014014014 1.477477
## 14510 0.509509510 0.014014014 1.476476
## 14511 0.510510511 0.014014014 1.475475
## 14512 0.511511512 0.014014014 1.474474
## 14513 0.512512513 0.014014014 1.473473
## 14514 0.513513514 0.014014014 1.472472
## 14515 0.514514515 0.014014014 1.471471
## 14516 0.515515516 0.014014014 1.470470
## 14517 0.516516517 0.014014014 1.469469
## 14518 0.517517518 0.014014014 1.468468
## 14519 0.518518519 0.014014014 1.467467
## 14520 0.519519520 0.014014014 1.466466
## 14521 0.520520521 0.014014014 1.465465
## 14522 0.521521522 0.014014014 1.464464
## 14523 0.522522523 0.014014014 1.463463
## 14524 0.523523524 0.014014014 1.462462
## 14525 0.524524525 0.014014014 1.461461
## 14526 0.525525526 0.014014014 1.460460
## 14527 0.526526527 0.014014014 1.459459
## 14528 0.527527528 0.014014014 1.458458
## 14529 0.528528529 0.014014014 1.457457
## 14530 0.529529530 0.014014014 1.456456
## 14531 0.530530531 0.014014014 1.455455
## 14532 0.531531532 0.014014014 1.454454
## 14533 0.532532533 0.014014014 1.453453
## 14534 0.533533534 0.014014014 1.452452
## 14535 0.534534535 0.014014014 1.451451
## 14536 0.535535536 0.014014014 1.450450
## 14537 0.536536537 0.014014014 1.449449
## 14538 0.537537538 0.014014014 1.448448
## 14539 0.538538539 0.014014014 1.447447
## 14540 0.539539540 0.014014014 1.446446
## 14541 0.540540541 0.014014014 1.445445
## 14542 0.541541542 0.014014014 1.444444

```

```
## 14543 0.542542543 0.014014014 1.443443
## 14544 0.543543544 0.014014014 1.442442
## 14545 0.544544545 0.014014014 1.441441
## 14546 0.545545546 0.014014014 1.440440
## 14547 0.546546547 0.014014014 1.439439
## 14548 0.547547548 0.014014014 1.438438
## 14549 0.548548549 0.014014014 1.437437
## 14550 0.549549550 0.014014014 1.436436
## 14551 0.550550551 0.014014014 1.435435
## 14552 0.551551552 0.014014014 1.434434
## 14553 0.552552553 0.014014014 1.433433
## 14554 0.553553554 0.014014014 1.432432
## 14555 0.554554555 0.014014014 1.431431
## 14556 0.555555556 0.014014014 1.430430
## 14557 0.556556557 0.014014014 1.429429
## 14558 0.557557558 0.014014014 1.428428
## 14559 0.558558559 0.014014014 1.427427
## 14560 0.559559560 0.014014014 1.426426
## 14561 0.560560561 0.014014014 1.425425
## 14562 0.561561562 0.014014014 1.424424
## 14563 0.562562563 0.014014014 1.423423
## 14564 0.563563564 0.014014014 1.422422
## 14565 0.564564565 0.014014014 1.421421
## 14566 0.565565566 0.014014014 1.420420
## 14567 0.566566567 0.014014014 1.419419
## 14568 0.567567568 0.014014014 1.418418
## 14569 0.568568569 0.014014014 1.417417
## 14570 0.569569570 0.014014014 1.416416
## 14571 0.570570571 0.014014014 1.415415
## 14572 0.571571572 0.014014014 1.414414
## 14573 0.572572573 0.014014014 1.413413
## 14574 0.573573574 0.014014014 1.412412
## 14575 0.574574575 0.014014014 1.411411
## 14576 0.575575576 0.014014014 1.410410
## 14577 0.576576577 0.014014014 1.409409
## 14578 0.577577578 0.014014014 1.408408
## 14579 0.578578579 0.014014014 1.407407
## 14580 0.579579580 0.014014014 1.406406
## 14581 0.580580581 0.014014014 1.405405
## 14582 0.581581582 0.014014014 1.404404
## 14583 0.582582583 0.014014014 1.403403
## 14584 0.583583584 0.014014014 1.402402
## 14585 0.584584585 0.014014014 1.401401
## 14586 0.585585586 0.014014014 1.400400
## 14587 0.586586587 0.014014014 1.399399
## 14588 0.587587588 0.014014014 1.398398
```

```
## 14589 0.588588589 0.014014014 1.397397
## 14590 0.589589590 0.014014014 1.396396
## 14591 0.590590591 0.014014014 1.395395
## 14592 0.591591592 0.014014014 1.394394
## 14593 0.592592593 0.014014014 1.393393
## 14594 0.593593594 0.014014014 1.392392
## 14595 0.594594595 0.014014014 1.391391
## 14596 0.595595596 0.014014014 1.390390
## 14597 0.596596597 0.014014014 1.389389
## 14598 0.597597598 0.014014014 1.388388
## 14599 0.598598599 0.014014014 1.387387
## 14600 0.599599600 0.014014014 1.386386
## 14601 0.600600601 0.014014014 1.385385
## 14602 0.601601602 0.014014014 1.384384
## 14603 0.602602603 0.014014014 1.383383
## 14604 0.603603604 0.014014014 1.382382
## 14605 0.604604605 0.014014014 1.381381
## 14606 0.605605606 0.014014014 1.380380
## 14607 0.606606607 0.014014014 1.379379
## 14608 0.607607608 0.014014014 1.378378
## 14609 0.608608609 0.014014014 1.377377
## 14610 0.609609610 0.014014014 1.376376
## 14611 0.610610611 0.014014014 1.375375
## 14612 0.611611612 0.014014014 1.374374
## 14613 0.612612613 0.014014014 1.373373
## 14614 0.613613614 0.014014014 1.372372
## 14615 0.614614615 0.014014014 1.371371
## 14616 0.615615616 0.014014014 1.370370
## 14617 0.616616617 0.014014014 1.369369
## 14618 0.617617618 0.014014014 1.368368
## 14619 0.618618619 0.014014014 1.367367
## 14620 0.619619620 0.014014014 1.366366
## 14621 0.620620621 0.014014014 1.365365
## 14622 0.621621622 0.014014014 1.364364
## 14623 0.622622623 0.014014014 1.363363
## 14624 0.623623624 0.014014014 1.362362
## 14625 0.624624625 0.014014014 1.361361
## 14626 0.625625626 0.014014014 1.360360
## 14627 0.626626627 0.014014014 1.359359
## 14628 0.627627628 0.014014014 1.358358
## 14629 0.628628629 0.014014014 1.357357
## 14630 0.629629630 0.014014014 1.356356
## 14631 0.630630631 0.014014014 1.355355
## 14632 0.631631632 0.014014014 1.354354
## 14633 0.632632633 0.014014014 1.353353
## 14634 0.633633634 0.014014014 1.352352
```

```
## 14635 0.634634635 0.014014014 1.351351
## 14636 0.635635636 0.014014014 1.350350
## 14637 0.636636637 0.014014014 1.349349
## 14638 0.637637638 0.014014014 1.348348
## 14639 0.638638639 0.014014014 1.347347
## 14640 0.639639640 0.014014014 1.346346
## 14641 0.640640641 0.014014014 1.345345
## 14642 0.641641642 0.014014014 1.344344
## 14643 0.642642643 0.014014014 1.343343
## 14644 0.643643644 0.014014014 1.342342
## 14645 0.644644645 0.014014014 1.341341
## 14646 0.645645646 0.014014014 1.340340
## 14647 0.646646647 0.014014014 1.339339
## 14648 0.647647648 0.014014014 1.338338
## 14649 0.648648649 0.014014014 1.337337
## 14650 0.649649650 0.014014014 1.336336
## 14651 0.650650651 0.014014014 1.335335
## 14652 0.651651652 0.014014014 1.334334
## 14653 0.652652653 0.014014014 1.333333
## 14654 0.653653654 0.014014014 1.332332
## 14655 0.654654655 0.014014014 1.331331
## 14656 0.6556555656 0.014014014 1.330330
## 14657 0.656656657 0.014014014 1.329329
## 14658 0.657657658 0.014014014 1.328328
## 14659 0.658658659 0.014014014 1.327327
## 14660 0.659659660 0.014014014 1.326326
## 14661 0.660660661 0.014014014 1.325325
## 14662 0.661661662 0.014014014 1.324324
## 14663 0.662662663 0.014014014 1.323323
## 14664 0.663663664 0.014014014 1.322322
## 14665 0.664664665 0.014014014 1.321321
## 14666 0.665665666 0.014014014 1.320320
## 14667 0.666666667 0.014014014 1.319319
## 14668 0.667667668 0.014014014 1.318318
## 14669 0.668668669 0.014014014 1.317317
## 14670 0.669669670 0.014014014 1.316316
## 14671 0.670670671 0.014014014 1.315315
## 14672 0.671671672 0.014014014 1.314314
## 14673 0.672672673 0.014014014 1.313313
## 14674 0.673673674 0.014014014 1.312312
## 14675 0.674674675 0.014014014 1.311311
## 14676 0.675675676 0.014014014 1.310310
## 14677 0.676676677 0.014014014 1.309309
## 14678 0.677677678 0.014014014 1.308308
## 14679 0.678678679 0.014014014 1.307307
## 14680 0.679679680 0.014014014 1.306306
```

```

## 14681 0.680680681 0.014014014 1.305305
## 14682 0.681681682 0.014014014 1.304304
## 14683 0.682682683 0.014014014 1.303303
## 14684 0.683683684 0.014014014 1.302302
## 14685 0.684684685 0.014014014 1.301301
## 14686 0.685685686 0.014014014 1.300300
## 14687 0.686686687 0.014014014 1.299299
## 14688 0.687687688 0.014014014 1.298298
## 14689 0.688688689 0.014014014 1.297297
## 14690 0.689689690 0.014014014 1.296296
## 14691 0.690690691 0.014014014 1.295295
## 14692 0.691691692 0.014014014 1.294294
## 14693 0.692692693 0.014014014 1.293293
## 14694 0.693693694 0.014014014 1.292292
## 14695 0.694694695 0.014014014 1.291291
## 14696 0.695695696 0.014014014 1.290290
## 14697 0.696696697 0.014014014 1.289289
## 14698 0.697697698 0.014014014 1.288288
## 14699 0.698698699 0.014014014 1.287287
## 14700 0.699699700 0.014014014 1.286286
## 14701 0.700700701 0.014014014 1.285285
## 14702 0.701701702 0.014014014 1.284284
## 14703 0.702702703 0.014014014 1.283283
## 14704 0.703703704 0.014014014 1.282282
## 14705 0.704704705 0.014014014 1.281281
## 14706 0.705705706 0.014014014 1.280280
## 14707 0.706706707 0.014014014 1.279279
## 14708 0.707707708 0.014014014 1.278278
## 14709 0.708708709 0.014014014 1.277277
## 14710 0.709709710 0.014014014 1.276276
## 14711 0.710710711 0.014014014 1.275275
## 14712 0.711711712 0.014014014 1.274274
## 14713 0.712712713 0.014014014 1.273273
## 14714 0.713713714 0.014014014 1.272272
## 14715 0.714714715 0.014014014 1.271271
## 14716 0.715715716 0.014014014 1.270270
## 14717 0.716716717 0.014014014 1.269269
## 14718 0.717717718 0.014014014 1.268268
## 14719 0.718718719 0.014014014 1.267267
## 14720 0.719719720 0.014014014 1.266266
## 14721 0.720720721 0.014014014 1.265265
## 14722 0.721721722 0.014014014 1.264264
## 14723 0.722722723 0.014014014 1.263263
## 14724 0.723723724 0.014014014 1.262262
## 14725 0.724724725 0.014014014 1.261261
## 14726 0.725725726 0.014014014 1.260260

```

```
## 14727 0.726726727 0.014014014 1.259259
## 14728 0.727727728 0.014014014 1.258258
## 14729 0.728728729 0.014014014 1.257257
## 14730 0.729729730 0.014014014 1.256256
## 14731 0.730730731 0.014014014 1.255255
## 14732 0.731731732 0.014014014 1.254254
## 14733 0.732732733 0.014014014 1.253253
## 14734 0.733733734 0.014014014 1.252252
## 14735 0.734734735 0.014014014 1.251251
## 14736 0.735735736 0.014014014 1.250250
## 14737 0.736736737 0.014014014 1.249249
## 14738 0.737737738 0.014014014 1.248248
## 14739 0.738738739 0.014014014 1.247247
## 14740 0.739739740 0.014014014 1.246246
## 14741 0.740740741 0.014014014 1.245245
## 14742 0.741741742 0.014014014 1.244244
## 14743 0.742742743 0.014014014 1.243243
## 14744 0.743743744 0.014014014 1.242242
## 14745 0.744744745 0.014014014 1.241241
## 14746 0.745745746 0.014014014 1.240240
## 14747 0.746746747 0.014014014 1.239239
## 14748 0.747747748 0.014014014 1.238238
## 14749 0.748748749 0.014014014 1.237237
## 14750 0.749749750 0.014014014 1.236236
## 14751 0.750750751 0.014014014 1.235235
## 14752 0.751751752 0.014014014 1.234234
## 14753 0.752752753 0.014014014 1.233233
## 14754 0.753753754 0.014014014 1.232232
## 14755 0.754754755 0.014014014 1.231231
## 14756 0.755755756 0.014014014 1.230230
## 14757 0.756756757 0.014014014 1.229229
## 14758 0.757757758 0.014014014 1.228228
## 14759 0.758758759 0.014014014 1.227227
## 14760 0.759759760 0.014014014 1.226226
## 14761 0.760760761 0.014014014 1.225225
## 14762 0.761761762 0.014014014 1.224224
## 14763 0.762762763 0.014014014 1.223223
## 14764 0.763763764 0.014014014 1.222222
## 14765 0.764764765 0.014014014 1.221221
## 14766 0.765765766 0.014014014 1.220220
## 14767 0.766766767 0.014014014 1.219219
## 14768 0.767767768 0.014014014 1.218218
## 14769 0.768768769 0.014014014 1.217217
## 14770 0.769769770 0.014014014 1.216216
## 14771 0.770770771 0.014014014 1.215215
## 14772 0.771771772 0.014014014 1.214214
```

```

## 14773 0.772772773 0.014014014 1.213213
## 14774 0.773773774 0.014014014 1.212212
## 14775 0.774774775 0.014014014 1.211211
## 14776 0.775775776 0.014014014 1.210210
## 14777 0.776776777 0.014014014 1.209209
## 14778 0.777777778 0.014014014 1.208208
## 14779 0.778778779 0.014014014 1.207207
## 14780 0.779779780 0.014014014 1.206206
## 14781 0.780780781 0.014014014 1.205205
## 14782 0.781781782 0.014014014 1.204204
## 14783 0.782782783 0.014014014 1.203203
## 14784 0.783783784 0.014014014 1.202202
## 14785 0.784784785 0.014014014 1.201201
## 14786 0.785785786 0.014014014 1.200200
## 14787 0.786786787 0.014014014 1.199199
## 14788 0.787787788 0.014014014 1.198198
## 14789 0.788788789 0.014014014 1.197197
## 14790 0.789789790 0.014014014 1.196196
## 14791 0.790790791 0.014014014 1.195195
## 14792 0.791791792 0.014014014 1.194194
## 14793 0.792792793 0.014014014 1.193193
## 14794 0.793793794 0.014014014 1.192192
## 14795 0.794794795 0.014014014 1.191191
## 14796 0.795795796 0.014014014 1.190190
## 14797 0.796796797 0.014014014 1.189189
## 14798 0.797797798 0.014014014 1.188188
## 14799 0.798798799 0.014014014 1.187187
## 14800 0.799799800 0.014014014 1.186186
## 14801 0.800800801 0.014014014 1.185185
## 14802 0.801801802 0.014014014 1.184184
## 14803 0.802802803 0.014014014 1.183183
## 14804 0.803803804 0.014014014 1.182182
## 14805 0.804804805 0.014014014 1.181181
## 14806 0.805805806 0.014014014 1.180180
## 14807 0.806806807 0.014014014 1.179179
## 14808 0.807807808 0.014014014 1.178178
## 14809 0.808808809 0.014014014 1.177177
## 14810 0.809809810 0.014014014 1.176176
## 14811 0.810810811 0.014014014 1.175175
## 14812 0.811811812 0.014014014 1.174174
## 14813 0.812812813 0.014014014 1.173173
## 14814 0.813813814 0.014014014 1.172172
## 14815 0.814814815 0.014014014 1.171171
## 14816 0.815815816 0.014014014 1.170170
## 14817 0.816816817 0.014014014 1.169169
## 14818 0.817817818 0.014014014 1.168168

```

```
## 14819 0.818818819 0.014014014 1.167167
## 14820 0.819819820 0.014014014 1.166166
## 14821 0.820820821 0.014014014 1.165165
## 14822 0.821821822 0.014014014 1.164164
## 14823 0.822822823 0.014014014 1.163163
## 14824 0.823823824 0.014014014 1.162162
## 14825 0.824824825 0.014014014 1.161161
## 14826 0.825825826 0.014014014 1.160160
## 14827 0.826826827 0.014014014 1.159159
## 14828 0.827827828 0.014014014 1.158158
## 14829 0.828828829 0.014014014 1.157157
## 14830 0.829829830 0.014014014 1.156156
## 14831 0.830830831 0.014014014 1.155155
## 14832 0.831831832 0.014014014 1.154154
## 14833 0.832832833 0.014014014 1.153153
## 14834 0.833833834 0.014014014 1.152152
## 14835 0.834834835 0.014014014 1.151151
## 14836 0.835835836 0.014014014 1.150150
## 14837 0.836836837 0.014014014 1.149149
## 14838 0.837837838 0.014014014 1.148148
## 14839 0.838838839 0.014014014 1.147147
## 14840 0.839839840 0.014014014 1.146146
## 14841 0.840840841 0.014014014 1.145145
## 14842 0.841841842 0.014014014 1.144144
## 14843 0.842842843 0.014014014 1.143143
## 14844 0.843843844 0.014014014 1.142142
## 14845 0.844844845 0.014014014 1.141141
## 14846 0.845845846 0.014014014 1.140140
## 14847 0.846846847 0.014014014 1.139139
## 14848 0.847847848 0.014014014 1.138138
## 14849 0.848848849 0.014014014 1.137137
## 14850 0.849849850 0.014014014 1.136136
## 14851 0.850850851 0.014014014 1.135135
## 14852 0.851851852 0.014014014 1.134134
## 14853 0.852852853 0.014014014 1.133133
## 14854 0.853853854 0.014014014 1.132132
## 14855 0.854854855 0.014014014 1.131131
## 14856 0.8558555856 0.014014014 1.130130
## 14857 0.856856857 0.014014014 1.129129
## 14858 0.857857858 0.014014014 1.128128
## 14859 0.858858859 0.014014014 1.127127
## 14860 0.859859860 0.014014014 1.126126
## 14861 0.860860861 0.014014014 1.125125
## 14862 0.861861862 0.014014014 1.124124
## 14863 0.862862863 0.014014014 1.123123
## 14864 0.863863864 0.014014014 1.122122
```

```
## 14865 0.864864865 0.014014014 1.121121
## 14866 0.865865866 0.014014014 1.120120
## 14867 0.866866867 0.014014014 1.119119
## 14868 0.867867868 0.014014014 1.118118
## 14869 0.868868869 0.014014014 1.117117
## 14870 0.869869870 0.014014014 1.116116
## 14871 0.870870871 0.014014014 1.115115
## 14872 0.871871872 0.014014014 1.114114
## 14873 0.872872873 0.014014014 1.113113
## 14874 0.873873874 0.014014014 1.112112
## 14875 0.874874875 0.014014014 1.111111
## 14876 0.875875876 0.014014014 1.110110
## 14877 0.876876877 0.014014014 1.109109
## 14878 0.877877878 0.014014014 1.108108
## 14879 0.878878879 0.014014014 1.107107
## 14880 0.879879880 0.014014014 1.106106
## 14881 0.880880881 0.014014014 1.105105
## 14882 0.881881882 0.014014014 1.104104
## 14883 0.882882883 0.014014014 1.103103
## 14884 0.883883884 0.014014014 1.102102
## 14885 0.884884885 0.014014014 1.101101
## 14886 0.885885886 0.014014014 1.100100
## 14887 0.886886887 0.014014014 1.099099
## 14888 0.887887888 0.014014014 1.098098
## 14889 0.888888889 0.014014014 1.097097
## 14890 0.889889890 0.014014014 1.096096
## 14891 0.890890891 0.014014014 1.095095
## 14892 0.891891892 0.014014014 1.094094
## 14893 0.892892893 0.014014014 1.093093
## 14894 0.893893894 0.014014014 1.092092
## 14895 0.894894895 0.014014014 1.091091
## 14896 0.895895896 0.014014014 1.090090
## 14897 0.896896897 0.014014014 1.089089
## 14898 0.897897898 0.014014014 1.088088
## 14899 0.898898899 0.014014014 1.087087
## 14900 0.899899900 0.014014014 1.086086
## 14901 0.900900901 0.014014014 1.085085
## 14902 0.901901902 0.014014014 1.084084
## 14903 0.902902903 0.014014014 1.083083
## 14904 0.903903904 0.014014014 1.082082
## 14905 0.904904905 0.014014014 1.081081
## 14906 0.905905906 0.014014014 1.080080
## 14907 0.906906907 0.014014014 1.079079
## 14908 0.907907908 0.014014014 1.078078
## 14909 0.908908909 0.014014014 1.077077
## 14910 0.909909910 0.014014014 1.076076
```

```
## 14911 0.910910911 0.014014014 1.075075
## 14912 0.911911912 0.014014014 1.074074
## 14913 0.912912913 0.014014014 1.073073
## 14914 0.913913914 0.014014014 1.072072
## 14915 0.914914915 0.014014014 1.071071
## 14916 0.915915916 0.014014014 1.070070
## 14917 0.916916917 0.014014014 1.069069
## 14918 0.917917918 0.014014014 1.068068
## 14919 0.918918919 0.014014014 1.067067
## 14920 0.919919920 0.014014014 1.066066
## 14921 0.920920921 0.014014014 1.065065
## 14922 0.921921922 0.014014014 1.064064
## 14923 0.922922923 0.014014014 1.063063
## 14924 0.923923924 0.014014014 1.062062
## 14925 0.924924925 0.014014014 1.061061
## 14926 0.925925926 0.014014014 1.060060
## 14927 0.926926927 0.014014014 1.059059
## 14928 0.927927928 0.014014014 1.058058
## 14929 0.928928929 0.014014014 1.057057
## 14930 0.929929930 0.014014014 1.056056
## 14931 0.930930931 0.014014014 1.055055
## 14932 0.931931932 0.014014014 1.054054
## 14933 0.932932933 0.014014014 1.053053
## 14934 0.933933934 0.014014014 1.052052
## 14935 0.934934935 0.014014014 1.051051
## 14936 0.935935936 0.014014014 1.050050
## 14937 0.936936937 0.014014014 1.049049
## 14938 0.937937938 0.014014014 1.048048
## 14939 0.938938939 0.014014014 1.047047
## 14940 0.939939940 0.014014014 1.046046
## 14941 0.940940941 0.014014014 1.045045
## 14942 0.941941942 0.014014014 1.044044
## 14943 0.942942943 0.014014014 1.043043
## 14944 0.943943944 0.014014014 1.042042
## 14945 0.9449444945 0.014014014 1.041041
## 14946 0.945945946 0.014014014 1.040040
## 14947 0.946946947 0.014014014 1.039039
## 14948 0.947947948 0.014014014 1.038038
## 14949 0.948948949 0.014014014 1.037037
## 14950 0.949949950 0.014014014 1.036036
## 14951 0.950950951 0.014014014 1.035035
## 14952 0.951951952 0.014014014 1.034034
## 14953 0.952952953 0.014014014 1.033033
## 14954 0.953953954 0.014014014 1.032032
## 14955 0.954954955 0.014014014 1.031031
## 14956 0.955955956 0.014014014 1.030030
```

```

## 14957 0.956956957 0.014014014 1.029029
## 14958 0.957957958 0.014014014 1.028028
## 14959 0.958958959 0.014014014 1.027027
## 14960 0.959959960 0.014014014 1.026026
## 14961 0.960960961 0.014014014 1.025025
## 14962 0.961961962 0.014014014 1.024024
## 14963 0.962962963 0.014014014 1.023023
## 14964 0.963963964 0.014014014 1.022022
## 14965 0.964964965 0.014014014 1.021021
## 14966 0.965965966 0.014014014 1.020020
## 14967 0.966966967 0.014014014 1.019019
## 14968 0.967967968 0.014014014 1.018018
## 14969 0.968968969 0.014014014 1.017017
## 14970 0.969969970 0.014014014 1.016016
## 14971 0.970970971 0.014014014 1.015015
## 14972 0.971971972 0.014014014 1.014014
## 14973 0.972972973 0.014014014 1.013013
## 14974 0.973973974 0.014014014 1.012012
## 14975 0.974974975 0.014014014 1.011011
## 14976 0.975975976 0.014014014 1.010010
## 14977 0.976976977 0.014014014 1.009009
## 14978 0.977977978 0.014014014 1.008008
## 14979 0.978978979 0.014014014 1.007007
## 14980 0.979979980 0.014014014 1.006006
## 14981 0.980980981 0.014014014 1.005005
## 14982 0.981981982 0.014014014 1.004004
## 14983 0.982982983 0.014014014 1.003003
## 14984 0.983983984 0.014014014 1.002002
## 14985 0.984984985 0.014014014 1.001001
## 14986 0.985985986 0.014014014 1.000000
## 14987 0.986986987 0.014014014 0.998999
## 14988 0.987987988 0.014014014 0.997998
## 14989 0.988988989 0.014014014 0.996997
## 14990 0.989989990 0.014014014 0.995996
## 14991 0.990990991 0.014014014 0.994995
## 14992 0.991991992 0.014014014 0.993994
## 14993 0.992992993 0.014014014 0.992993
## 14994 0.993993994 0.014014014 0.991992
## 14995 0.994994995 0.014014014 0.990991
## 14996 0.995995996 0.014014014 0.989990
## 14997 0.996996997 0.014014014 0.988989
## 14998 0.997997998 0.014014014 0.987988
## 14999 0.998998999 0.014014014 0.986987
## 15000 1.000000000 0.014014014 0.985986
## 15001 0.000000000 0.015015015 1.984985
## 15002 0.001001001 0.015015015 1.983984

```

```
## 15003 0.002002002 0.015015015 1.982983
## 15004 0.003003003 0.015015015 1.981982
## 15005 0.004004004 0.015015015 1.980981
## 15006 0.005005005 0.015015015 1.979980
## 15007 0.006006006 0.015015015 1.978979
## 15008 0.007007007 0.015015015 1.977978
## 15009 0.008008008 0.015015015 1.976977
## 15010 0.009009009 0.015015015 1.975976
## 15011 0.010010010 0.015015015 1.974975
## 15012 0.011011011 0.015015015 1.973974
## 15013 0.012012012 0.015015015 1.972973
## 15014 0.013013013 0.015015015 1.971972
## 15015 0.014014014 0.015015015 1.970971
## 15016 0.015015015 0.015015015 1.969970
## 15017 0.016016016 0.015015015 1.968969
## 15018 0.017017017 0.015015015 1.967968
## 15019 0.018018018 0.015015015 1.966967
## 15020 0.019019019 0.015015015 1.965966
## 15021 0.020020020 0.015015015 1.964965
## 15022 0.021021021 0.015015015 1.963964
## 15023 0.022022022 0.015015015 1.962963
## 15024 0.023023023 0.015015015 1.961962
## 15025 0.024024024 0.015015015 1.960961
## 15026 0.025025025 0.015015015 1.959960
## 15027 0.026026026 0.015015015 1.958959
## 15028 0.027027027 0.015015015 1.957958
## 15029 0.028028028 0.015015015 1.956957
## 15030 0.029029029 0.015015015 1.955956
## 15031 0.030030030 0.015015015 1.954955
## 15032 0.031031031 0.015015015 1.953954
## 15033 0.032032032 0.015015015 1.952953
## 15034 0.033033033 0.015015015 1.951952
## 15035 0.034034034 0.015015015 1.950951
## 15036 0.035035035 0.015015015 1.949950
## 15037 0.036036036 0.015015015 1.948949
## 15038 0.037037037 0.015015015 1.947948
## 15039 0.038038038 0.015015015 1.946947
## 15040 0.039039039 0.015015015 1.945946
## 15041 0.040040040 0.015015015 1.944945
## 15042 0.041041041 0.015015015 1.943944
## 15043 0.042042042 0.015015015 1.942943
## 15044 0.043043043 0.015015015 1.941942
## 15045 0.044044044 0.015015015 1.940941
## 15046 0.045045045 0.015015015 1.939940
## 15047 0.046046046 0.015015015 1.938939
## 15048 0.047047047 0.015015015 1.937938
```

```

## 15049 0.048048048 0.015015015 1.936937
## 15050 0.049049049 0.015015015 1.935936
## 15051 0.050050050 0.015015015 1.934935
## 15052 0.051051051 0.015015015 1.933934
## 15053 0.052052052 0.015015015 1.932933
## 15054 0.053053053 0.015015015 1.931932
## 15055 0.054054054 0.015015015 1.930931
## 15056 0.055055055 0.015015015 1.929930
## 15057 0.056056056 0.015015015 1.928929
## 15058 0.057057057 0.015015015 1.927928
## 15059 0.058058058 0.015015015 1.926927
## 15060 0.059059059 0.015015015 1.925926
## 15061 0.060060060 0.015015015 1.924925
## 15062 0.061061061 0.015015015 1.923924
## 15063 0.062062062 0.015015015 1.922923
## 15064 0.063063063 0.015015015 1.921922
## 15065 0.064064064 0.015015015 1.920921
## 15066 0.065065065 0.015015015 1.919920
## 15067 0.066066066 0.015015015 1.918919
## 15068 0.067067067 0.015015015 1.917918
## 15069 0.068068068 0.015015015 1.916917
## 15070 0.069069069 0.015015015 1.915916
## 15071 0.070070070 0.015015015 1.914915
## 15072 0.071071071 0.015015015 1.913914
## 15073 0.072072072 0.015015015 1.912913
## 15074 0.073073073 0.015015015 1.911912
## 15075 0.074074074 0.015015015 1.910911
## 15076 0.075075075 0.015015015 1.909910
## 15077 0.076076076 0.015015015 1.908909
## 15078 0.077077077 0.015015015 1.907908
## 15079 0.078078078 0.015015015 1.906907
## 15080 0.079079079 0.015015015 1.905906
## 15081 0.080080080 0.015015015 1.904905
## 15082 0.081081081 0.015015015 1.903904
## 15083 0.082082082 0.015015015 1.902903
## 15084 0.083083083 0.015015015 1.901902
## 15085 0.084084084 0.015015015 1.900901
## 15086 0.085085085 0.015015015 1.899900
## 15087 0.086086086 0.015015015 1.898899
## 15088 0.087087087 0.015015015 1.897898
## 15089 0.088088088 0.015015015 1.896897
## 15090 0.089089089 0.015015015 1.895896
## 15091 0.090090090 0.015015015 1.894895
## 15092 0.091091091 0.015015015 1.893894
## 15093 0.092092092 0.015015015 1.892893
## 15094 0.093093093 0.015015015 1.891892

```

```
## 15095 0.094094094 0.015015015 1.890891
## 15096 0.095095095 0.015015015 1.889890
## 15097 0.096096096 0.015015015 1.888889
## 15098 0.097097097 0.015015015 1.887888
## 15099 0.098098098 0.015015015 1.886887
## 15100 0.099099099 0.015015015 1.885886
## 15101 0.100100100 0.015015015 1.884885
## 15102 0.101101101 0.015015015 1.883884
## 15103 0.102102102 0.015015015 1.882883
## 15104 0.103103103 0.015015015 1.881882
## 15105 0.104104104 0.015015015 1.880881
## 15106 0.105105105 0.015015015 1.879880
## 15107 0.106106106 0.015015015 1.878879
## 15108 0.107107107 0.015015015 1.877878
## 15109 0.108108108 0.015015015 1.876877
## 15110 0.109109109 0.015015015 1.875876
## 15111 0.110110110 0.015015015 1.874875
## 15112 0.111111111 0.015015015 1.873874
## 15113 0.112112112 0.015015015 1.872873
## 15114 0.113113113 0.015015015 1.871872
## 15115 0.114114114 0.015015015 1.870871
## 15116 0.115115115 0.015015015 1.869870
## 15117 0.116116116 0.015015015 1.868869
## 15118 0.117117117 0.015015015 1.867868
## 15119 0.118118118 0.015015015 1.866867
## 15120 0.119119119 0.015015015 1.865866
## 15121 0.120120120 0.015015015 1.864865
## 15122 0.121121121 0.015015015 1.863864
## 15123 0.122122122 0.015015015 1.862863
## 15124 0.123123123 0.015015015 1.861862
## 15125 0.124124124 0.015015015 1.860861
## 15126 0.125125125 0.015015015 1.859860
## 15127 0.126126126 0.015015015 1.858859
## 15128 0.127127127 0.015015015 1.857858
## 15129 0.128128128 0.015015015 1.856857
## 15130 0.129129129 0.015015015 1.855856
## 15131 0.130130130 0.015015015 1.854855
## 15132 0.131131131 0.015015015 1.853854
## 15133 0.132132132 0.015015015 1.852853
## 15134 0.133133133 0.015015015 1.851852
## 15135 0.134134134 0.015015015 1.850851
## 15136 0.135135135 0.015015015 1.849850
## 15137 0.136136136 0.015015015 1.848849
## 15138 0.137137137 0.015015015 1.847848
## 15139 0.138138138 0.015015015 1.846847
## 15140 0.139139139 0.015015015 1.845846
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 441

```
## 15141 0.140140140 0.015015015 1.844845
## 15142 0.141141141 0.015015015 1.843844
## 15143 0.142142142 0.015015015 1.842843
## 15144 0.143143143 0.015015015 1.841842
## 15145 0.144144144 0.015015015 1.840841
## 15146 0.145145145 0.015015015 1.839840
## 15147 0.146146146 0.015015015 1.838839
## 15148 0.147147147 0.015015015 1.837838
## 15149 0.148148148 0.015015015 1.836837
## 15150 0.149149149 0.015015015 1.835836
## 15151 0.150150150 0.015015015 1.834835
## 15152 0.151151151 0.015015015 1.833834
## 15153 0.152152152 0.015015015 1.832833
## 15154 0.153153153 0.015015015 1.831832
## 15155 0.154154154 0.015015015 1.830831
## 15156 0.155155155 0.015015015 1.829830
## 15157 0.156156156 0.015015015 1.828829
## 15158 0.157157157 0.015015015 1.827828
## 15159 0.158158158 0.015015015 1.826827
## 15160 0.159159159 0.015015015 1.825826
## 15161 0.160160160 0.015015015 1.824825
## 15162 0.161161161 0.015015015 1.823824
## 15163 0.162162162 0.015015015 1.822823
## 15164 0.163163163 0.015015015 1.821822
## 15165 0.164164164 0.015015015 1.820821
## 15166 0.165165165 0.015015015 1.819820
## 15167 0.166166166 0.015015015 1.818819
## 15168 0.167167167 0.015015015 1.817818
## 15169 0.168168168 0.015015015 1.816817
## 15170 0.169169169 0.015015015 1.815816
## 15171 0.170170170 0.015015015 1.814815
## 15172 0.171171171 0.015015015 1.813814
## 15173 0.172172172 0.015015015 1.812813
## 15174 0.173173173 0.015015015 1.811812
## 15175 0.174174174 0.015015015 1.810811
## 15176 0.175175175 0.015015015 1.809810
## 15177 0.176176176 0.015015015 1.808809
## 15178 0.177177177 0.015015015 1.807808
## 15179 0.178178178 0.015015015 1.806807
## 15180 0.179179179 0.015015015 1.805806
## 15181 0.180180180 0.015015015 1.804805
## 15182 0.181181181 0.015015015 1.803804
## 15183 0.182182182 0.015015015 1.802803
## 15184 0.183183183 0.015015015 1.801802
## 15185 0.184184184 0.015015015 1.800801
## 15186 0.185185185 0.015015015 1.799800
```

```
## 15187 0.186186186 0.015015015 1.798799
## 15188 0.187187187 0.015015015 1.797798
## 15189 0.188188188 0.015015015 1.796797
## 15190 0.189189189 0.015015015 1.795796
## 15191 0.190190190 0.015015015 1.794795
## 15192 0.191191191 0.015015015 1.793794
## 15193 0.192192192 0.015015015 1.792793
## 15194 0.193193193 0.015015015 1.791792
## 15195 0.194194194 0.015015015 1.790791
## 15196 0.195195195 0.015015015 1.789790
## 15197 0.196196196 0.015015015 1.788789
## 15198 0.197197197 0.015015015 1.787788
## 15199 0.198198198 0.015015015 1.786787
## 15200 0.199199199 0.015015015 1.785786
## 15201 0.200200200 0.015015015 1.784785
## 15202 0.201201201 0.015015015 1.783784
## 15203 0.202202202 0.015015015 1.782783
## 15204 0.203203203 0.015015015 1.781782
## 15205 0.204204204 0.015015015 1.780781
## 15206 0.205205205 0.015015015 1.779780
## 15207 0.206206206 0.015015015 1.778779
## 15208 0.207207207 0.015015015 1.777778
## 15209 0.208208208 0.015015015 1.776777
## 15210 0.209209209 0.015015015 1.775776
## 15211 0.210210210 0.015015015 1.774775
## 15212 0.211211211 0.015015015 1.773774
## 15213 0.212212212 0.015015015 1.772773
## 15214 0.213213213 0.015015015 1.771772
## 15215 0.214214214 0.015015015 1.770771
## 15216 0.215215215 0.015015015 1.769770
## 15217 0.216216216 0.015015015 1.768769
## 15218 0.217217217 0.015015015 1.767768
## 15219 0.218218218 0.015015015 1.766767
## 15220 0.219219219 0.015015015 1.765766
## 15221 0.220220220 0.015015015 1.764765
## 15222 0.221221221 0.015015015 1.763764
## 15223 0.222222222 0.015015015 1.762763
## 15224 0.223223223 0.015015015 1.761762
## 15225 0.224224224 0.015015015 1.760761
## 15226 0.225225225 0.015015015 1.759760
## 15227 0.226226226 0.015015015 1.758759
## 15228 0.227227227 0.015015015 1.757758
## 15229 0.228228228 0.015015015 1.756757
## 15230 0.229229229 0.015015015 1.755756
## 15231 0.230230230 0.015015015 1.754755
## 15232 0.231231231 0.015015015 1.753754
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 443

```
## 15233 0.232232232 0.015015015 1.752753
## 15234 0.233233233 0.015015015 1.751752
## 15235 0.234234234 0.015015015 1.750751
## 15236 0.235235235 0.015015015 1.749750
## 15237 0.236236236 0.015015015 1.748749
## 15238 0.237237237 0.015015015 1.747748
## 15239 0.238238238 0.015015015 1.746747
## 15240 0.239239239 0.015015015 1.745746
## 15241 0.240240240 0.015015015 1.744745
## 15242 0.241241241 0.015015015 1.743744
## 15243 0.242242242 0.015015015 1.742743
## 15244 0.243243243 0.015015015 1.741742
## 15245 0.244244244 0.015015015 1.740741
## 15246 0.245245245 0.015015015 1.739740
## 15247 0.246246246 0.015015015 1.738739
## 15248 0.247247247 0.015015015 1.737738
## 15249 0.248248248 0.015015015 1.736737
## 15250 0.249249249 0.015015015 1.735736
## 15251 0.250250250 0.015015015 1.734735
## 15252 0.251251251 0.015015015 1.733734
## 15253 0.252252252 0.015015015 1.732733
## 15254 0.253253253 0.015015015 1.731732
## 15255 0.254254254 0.015015015 1.730731
## 15256 0.255255255 0.015015015 1.729730
## 15257 0.256256256 0.015015015 1.728729
## 15258 0.257257257 0.015015015 1.727728
## 15259 0.258258258 0.015015015 1.726727
## 15260 0.259259259 0.015015015 1.725726
## 15261 0.260260260 0.015015015 1.724725
## 15262 0.261261261 0.015015015 1.723724
## 15263 0.262262262 0.015015015 1.722723
## 15264 0.263263263 0.015015015 1.721722
## 15265 0.264264264 0.015015015 1.720721
## 15266 0.265265265 0.015015015 1.719720
## 15267 0.266266266 0.015015015 1.718719
## 15268 0.267267267 0.015015015 1.717718
## 15269 0.268268268 0.015015015 1.716717
## 15270 0.269269269 0.015015015 1.715716
## 15271 0.270270270 0.015015015 1.714715
## 15272 0.271271271 0.015015015 1.713714
## 15273 0.272272272 0.015015015 1.712713
## 15274 0.273273273 0.015015015 1.711712
## 15275 0.274274274 0.015015015 1.710711
## 15276 0.275275275 0.015015015 1.709710
## 15277 0.276276276 0.015015015 1.708709
## 15278 0.277277277 0.015015015 1.707708
```

```
## 15279 0.278278278 0.015015015 1.706707
## 15280 0.279279279 0.015015015 1.705706
## 15281 0.280280280 0.015015015 1.704705
## 15282 0.281281281 0.015015015 1.703704
## 15283 0.282282282 0.015015015 1.702703
## 15284 0.283283283 0.015015015 1.701702
## 15285 0.284284284 0.015015015 1.700701
## 15286 0.285285285 0.015015015 1.699700
## 15287 0.286286286 0.015015015 1.698699
## 15288 0.287287287 0.015015015 1.697698
## 15289 0.288288288 0.015015015 1.696697
## 15290 0.289289289 0.015015015 1.695696
## 15291 0.290290290 0.015015015 1.694695
## 15292 0.291291291 0.015015015 1.693694
## 15293 0.292292292 0.015015015 1.692693
## 15294 0.293293293 0.015015015 1.691692
## 15295 0.294294294 0.015015015 1.690691
## 15296 0.295295295 0.015015015 1.689690
## 15297 0.296296296 0.015015015 1.688689
## 15298 0.297297297 0.015015015 1.687688
## 15299 0.298298298 0.015015015 1.686687
## 15300 0.299299299 0.015015015 1.685686
## 15301 0.300300300 0.015015015 1.684685
## 15302 0.301301301 0.015015015 1.683684
## 15303 0.302302302 0.015015015 1.682683
## 15304 0.303303303 0.015015015 1.681682
## 15305 0.304304304 0.015015015 1.680681
## 15306 0.305305305 0.015015015 1.679680
## 15307 0.306306306 0.015015015 1.678679
## 15308 0.307307307 0.015015015 1.677678
## 15309 0.308308308 0.015015015 1.676677
## 15310 0.309309309 0.015015015 1.675676
## 15311 0.310310310 0.015015015 1.674675
## 15312 0.311311311 0.015015015 1.673674
## 15313 0.312312312 0.015015015 1.672673
## 15314 0.313313313 0.015015015 1.671672
## 15315 0.314314314 0.015015015 1.670671
## 15316 0.315315315 0.015015015 1.669670
## 15317 0.316316316 0.015015015 1.668669
## 15318 0.317317317 0.015015015 1.667668
## 15319 0.318318318 0.015015015 1.666667
## 15320 0.319319319 0.015015015 1.665666
## 15321 0.320320320 0.015015015 1.664665
## 15322 0.321321321 0.015015015 1.663664
## 15323 0.322322322 0.015015015 1.662663
## 15324 0.323323323 0.015015015 1.661662
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 445

```
## 15325 0.324324324 0.015015015 1.660661
## 15326 0.325325325 0.015015015 1.659660
## 15327 0.326326326 0.015015015 1.658659
## 15328 0.327327327 0.015015015 1.657658
## 15329 0.328328328 0.015015015 1.656657
## 15330 0.329329329 0.015015015 1.655656
## 15331 0.330330330 0.015015015 1.654655
## 15332 0.331331331 0.015015015 1.653654
## 15333 0.332332332 0.015015015 1.652653
## 15334 0.333333333 0.015015015 1.651652
## 15335 0.334334334 0.015015015 1.650651
## 15336 0.335335335 0.015015015 1.649650
## 15337 0.336336336 0.015015015 1.648649
## 15338 0.337337337 0.015015015 1.647648
## 15339 0.338338338 0.015015015 1.646647
## 15340 0.339339339 0.015015015 1.645646
## 15341 0.340340340 0.015015015 1.644645
## 15342 0.341341341 0.015015015 1.643644
## 15343 0.342342342 0.015015015 1.642643
## 15344 0.343343343 0.015015015 1.641642
## 15345 0.344344344 0.015015015 1.640641
## 15346 0.345345345 0.015015015 1.639640
## 15347 0.346346346 0.015015015 1.638639
## 15348 0.347347347 0.015015015 1.637638
## 15349 0.348348348 0.015015015 1.636637
## 15350 0.349349349 0.015015015 1.635636
## 15351 0.350350350 0.015015015 1.634635
## 15352 0.351351351 0.015015015 1.633634
## 15353 0.352352352 0.015015015 1.632633
## 15354 0.353353353 0.015015015 1.631632
## 15355 0.354354354 0.015015015 1.630631
## 15356 0.355355355 0.015015015 1.629630
## 15357 0.356356356 0.015015015 1.628629
## 15358 0.357357357 0.015015015 1.627628
## 15359 0.358358358 0.015015015 1.626627
## 15360 0.359359359 0.015015015 1.625626
## 15361 0.360360360 0.015015015 1.624625
## 15362 0.361361361 0.015015015 1.623624
## 15363 0.362362362 0.015015015 1.622623
## 15364 0.363363363 0.015015015 1.621622
## 15365 0.364364364 0.015015015 1.620621
## 15366 0.365365365 0.015015015 1.619620
## 15367 0.366366366 0.015015015 1.618619
## 15368 0.367367367 0.015015015 1.617618
## 15369 0.368368368 0.015015015 1.616617
## 15370 0.369369369 0.015015015 1.615616
```

```
## 15371 0.370370370 0.015015015 1.614615
## 15372 0.371371371 0.015015015 1.613614
## 15373 0.372372372 0.015015015 1.612613
## 15374 0.373373373 0.015015015 1.611612
## 15375 0.374374374 0.015015015 1.610611
## 15376 0.375375375 0.015015015 1.609610
## 15377 0.376376376 0.015015015 1.608609
## 15378 0.377377377 0.015015015 1.607608
## 15379 0.378378378 0.015015015 1.606607
## 15380 0.379379379 0.015015015 1.605606
## 15381 0.380380380 0.015015015 1.604605
## 15382 0.381381381 0.015015015 1.603604
## 15383 0.382382382 0.015015015 1.602603
## 15384 0.383383383 0.015015015 1.601602
## 15385 0.384384384 0.015015015 1.600601
## 15386 0.385385385 0.015015015 1.599600
## 15387 0.386386386 0.015015015 1.598599
## 15388 0.387387387 0.015015015 1.597598
## 15389 0.388388388 0.015015015 1.596597
## 15390 0.389389389 0.015015015 1.595596
## 15391 0.390390390 0.015015015 1.594595
## 15392 0.391391391 0.015015015 1.593594
## 15393 0.392392392 0.015015015 1.592593
## 15394 0.393393393 0.015015015 1.591592
## 15395 0.394394394 0.015015015 1.590591
## 15396 0.395395395 0.015015015 1.589590
## 15397 0.396396396 0.015015015 1.588589
## 15398 0.397397397 0.015015015 1.587588
## 15399 0.398398398 0.015015015 1.586587
## 15400 0.399399399 0.015015015 1.585586
## 15401 0.400400400 0.015015015 1.584585
## 15402 0.401401401 0.015015015 1.583584
## 15403 0.402402402 0.015015015 1.582583
## 15404 0.403403403 0.015015015 1.581582
## 15405 0.404404404 0.015015015 1.580581
## 15406 0.405405405 0.015015015 1.579580
## 15407 0.406406406 0.015015015 1.578579
## 15408 0.407407407 0.015015015 1.577578
## 15409 0.408408408 0.015015015 1.576577
## 15410 0.409409409 0.015015015 1.575576
## 15411 0.410410410 0.015015015 1.574575
## 15412 0.411411411 0.015015015 1.573574
## 15413 0.412412412 0.015015015 1.572573
## 15414 0.413413413 0.015015015 1.571572
## 15415 0.414414414 0.015015015 1.570571
## 15416 0.415415415 0.015015015 1.569570
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 447

```
## 15417 0.416416416 0.015015015 1.568569
## 15418 0.417417417 0.015015015 1.567568
## 15419 0.418418418 0.015015015 1.566567
## 15420 0.419419419 0.015015015 1.565566
## 15421 0.420420420 0.015015015 1.564565
## 15422 0.421421421 0.015015015 1.563564
## 15423 0.422422422 0.015015015 1.562563
## 15424 0.423423423 0.015015015 1.561562
## 15425 0.424424424 0.015015015 1.560561
## 15426 0.425425425 0.015015015 1.559560
## 15427 0.426426426 0.015015015 1.558559
## 15428 0.427427427 0.015015015 1.557558
## 15429 0.428428428 0.015015015 1.556557
## 15430 0.429429429 0.015015015 1.555556
## 15431 0.430430430 0.015015015 1.554555
## 15432 0.431431431 0.015015015 1.553554
## 15433 0.432432432 0.015015015 1.552553
## 15434 0.433433433 0.015015015 1.551552
## 15435 0.434434434 0.015015015 1.550551
## 15436 0.435435435 0.015015015 1.549550
## 15437 0.436436436 0.015015015 1.548549
## 15438 0.437437437 0.015015015 1.547548
## 15439 0.438438438 0.015015015 1.546547
## 15440 0.439439439 0.015015015 1.545546
## 15441 0.440440440 0.015015015 1.544545
## 15442 0.441441441 0.015015015 1.543544
## 15443 0.442442442 0.015015015 1.542543
## 15444 0.443443443 0.015015015 1.541542
## 15445 0.444444444 0.015015015 1.540541
## 15446 0.445445445 0.015015015 1.539540
## 15447 0.446446446 0.015015015 1.538539
## 15448 0.447447447 0.015015015 1.537538
## 15449 0.448448448 0.015015015 1.536537
## 15450 0.449449449 0.015015015 1.535536
## 15451 0.450450450 0.015015015 1.534535
## 15452 0.451451451 0.015015015 1.533534
## 15453 0.452452452 0.015015015 1.532533
## 15454 0.453453453 0.015015015 1.531532
## 15455 0.454454454 0.015015015 1.530531
## 15456 0.455455455 0.015015015 1.529530
## 15457 0.456456456 0.015015015 1.528529
## 15458 0.457457457 0.015015015 1.527528
## 15459 0.458458458 0.015015015 1.526527
## 15460 0.459459459 0.015015015 1.525526
## 15461 0.460460460 0.015015015 1.524525
## 15462 0.461461461 0.015015015 1.523524
```

```
## 15463 0.462462462 0.015015015 1.522523
## 15464 0.463463463 0.015015015 1.521522
## 15465 0.464464464 0.015015015 1.520521
## 15466 0.465465465 0.015015015 1.519520
## 15467 0.466466466 0.015015015 1.518519
## 15468 0.467467467 0.015015015 1.517518
## 15469 0.468468468 0.015015015 1.516517
## 15470 0.469469469 0.015015015 1.515516
## 15471 0.470470470 0.015015015 1.514515
## 15472 0.471471471 0.015015015 1.513514
## 15473 0.472472472 0.015015015 1.512513
## 15474 0.473473473 0.015015015 1.511512
## 15475 0.474474474 0.015015015 1.510511
## 15476 0.475475475 0.015015015 1.509510
## 15477 0.476476476 0.015015015 1.508509
## 15478 0.477477477 0.015015015 1.507508
## 15479 0.478478478 0.015015015 1.506507
## 15480 0.479479479 0.015015015 1.505506
## 15481 0.480480480 0.015015015 1.504505
## 15482 0.481481481 0.015015015 1.503504
## 15483 0.482482482 0.015015015 1.502503
## 15484 0.483483483 0.015015015 1.501502
## 15485 0.484484484 0.015015015 1.500501
## 15486 0.485485485 0.015015015 1.499499
## 15487 0.486486486 0.015015015 1.498498
## 15488 0.487487487 0.015015015 1.497497
## 15489 0.488488488 0.015015015 1.496496
## 15490 0.489489489 0.015015015 1.495495
## 15491 0.490490490 0.015015015 1.494494
## 15492 0.491491491 0.015015015 1.493493
## 15493 0.492492492 0.015015015 1.492492
## 15494 0.493493493 0.015015015 1.491491
## 15495 0.494494494 0.015015015 1.490490
## 15496 0.495495495 0.015015015 1.489489
## 15497 0.496496496 0.015015015 1.488488
## 15498 0.497497497 0.015015015 1.487487
## 15499 0.498498498 0.015015015 1.486486
## 15500 0.499499499 0.015015015 1.485485
## 15501 0.500500501 0.015015015 1.484484
## 15502 0.501501502 0.015015015 1.483483
## 15503 0.502502503 0.015015015 1.482482
## 15504 0.503503504 0.015015015 1.481481
## 15505 0.504504505 0.015015015 1.480480
## 15506 0.505505506 0.015015015 1.479479
## 15507 0.506506507 0.015015015 1.478478
## 15508 0.507507508 0.015015015 1.477477
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 449

```
## 15509 0.508508509 0.015015015 1.476476
## 15510 0.509509510 0.015015015 1.475475
## 15511 0.510510511 0.015015015 1.474474
## 15512 0.511511512 0.015015015 1.473473
## 15513 0.512512513 0.015015015 1.472472
## 15514 0.513513514 0.015015015 1.471471
## 15515 0.514514515 0.015015015 1.470470
## 15516 0.515515516 0.015015015 1.469469
## 15517 0.516516517 0.015015015 1.468468
## 15518 0.517517518 0.015015015 1.467467
## 15519 0.518518519 0.015015015 1.466466
## 15520 0.519519520 0.015015015 1.465465
## 15521 0.520520521 0.015015015 1.464464
## 15522 0.521521522 0.015015015 1.463463
## 15523 0.522522523 0.015015015 1.462462
## 15524 0.523523524 0.015015015 1.461461
## 15525 0.524524525 0.015015015 1.460460
## 15526 0.525525526 0.015015015 1.459459
## 15527 0.526526527 0.015015015 1.458458
## 15528 0.527527528 0.015015015 1.457457
## 15529 0.528528529 0.015015015 1.456456
## 15530 0.529529530 0.015015015 1.455455
## 15531 0.530530531 0.015015015 1.454454
## 15532 0.531531532 0.015015015 1.453453
## 15533 0.532532533 0.015015015 1.452452
## 15534 0.533533534 0.015015015 1.451451
## 15535 0.534534535 0.015015015 1.450450
## 15536 0.535535536 0.015015015 1.449449
## 15537 0.536536537 0.015015015 1.448448
## 15538 0.537537538 0.015015015 1.447447
## 15539 0.538538539 0.015015015 1.446446
## 15540 0.539539540 0.015015015 1.445445
## 15541 0.540540541 0.015015015 1.444444
## 15542 0.541541542 0.015015015 1.443443
## 15543 0.542542543 0.015015015 1.442442
## 15544 0.543543544 0.015015015 1.441441
## 15545 0.544544545 0.015015015 1.440440
## 15546 0.545545546 0.015015015 1.439439
## 15547 0.546546547 0.015015015 1.438438
## 15548 0.547547548 0.015015015 1.437437
## 15549 0.548548549 0.015015015 1.436436
## 15550 0.549549550 0.015015015 1.435435
## 15551 0.550550551 0.015015015 1.434434
## 15552 0.551551552 0.015015015 1.433433
## 15553 0.552552553 0.015015015 1.432432
## 15554 0.553553554 0.015015015 1.431431
```

```
## 15555 0.554554555 0.015015015 1.430430
## 15556 0.555555556 0.015015015 1.429429
## 15557 0.556556557 0.015015015 1.428428
## 15558 0.557557558 0.015015015 1.427427
## 15559 0.558558559 0.015015015 1.426426
## 15560 0.559559560 0.015015015 1.425425
## 15561 0.560560561 0.015015015 1.424424
## 15562 0.561561562 0.015015015 1.423423
## 15563 0.562562563 0.015015015 1.422422
## 15564 0.563563564 0.015015015 1.421421
## 15565 0.564564565 0.015015015 1.420420
## 15566 0.565565566 0.015015015 1.419419
## 15567 0.566566567 0.015015015 1.418418
## 15568 0.567567568 0.015015015 1.417417
## 15569 0.568568569 0.015015015 1.416416
## 15570 0.569569570 0.015015015 1.415415
## 15571 0.570570571 0.015015015 1.414414
## 15572 0.571571572 0.015015015 1.413413
## 15573 0.572572573 0.015015015 1.412412
## 15574 0.573573574 0.015015015 1.411411
## 15575 0.574574575 0.015015015 1.410410
## 15576 0.575575576 0.015015015 1.409409
## 15577 0.576576577 0.015015015 1.408408
## 15578 0.577577578 0.015015015 1.407407
## 15579 0.578578579 0.015015015 1.406406
## 15580 0.579579580 0.015015015 1.405405
## 15581 0.580580581 0.015015015 1.404404
## 15582 0.581581582 0.015015015 1.403403
## 15583 0.582582583 0.015015015 1.402402
## 15584 0.583583584 0.015015015 1.401401
## 15585 0.584584585 0.015015015 1.400400
## 15586 0.585585586 0.015015015 1.399399
## 15587 0.586586587 0.015015015 1.398398
## 15588 0.587587588 0.015015015 1.397397
## 15589 0.588588589 0.015015015 1.396396
## 15590 0.589589590 0.015015015 1.395395
## 15591 0.590590591 0.015015015 1.394394
## 15592 0.591591592 0.015015015 1.393393
## 15593 0.592592593 0.015015015 1.392392
## 15594 0.593593594 0.015015015 1.391391
## 15595 0.594594595 0.015015015 1.390390
## 15596 0.595595596 0.015015015 1.389389
## 15597 0.596596597 0.015015015 1.388388
## 15598 0.597597598 0.015015015 1.387387
## 15599 0.598598599 0.015015015 1.386386
## 15600 0.599599600 0.015015015 1.385385
```

```

## 15601 0.600600601 0.015015015 1.384384
## 15602 0.601601602 0.015015015 1.383383
## 15603 0.602602603 0.015015015 1.382382
## 15604 0.603603604 0.015015015 1.381381
## 15605 0.604604605 0.015015015 1.380380
## 15606 0.605605606 0.015015015 1.379379
## 15607 0.606606607 0.015015015 1.378378
## 15608 0.607607608 0.015015015 1.377377
## 15609 0.608608609 0.015015015 1.376376
## 15610 0.609609610 0.015015015 1.375375
## 15611 0.610610611 0.015015015 1.374374
## 15612 0.611611612 0.015015015 1.373373
## 15613 0.612612613 0.015015015 1.372372
## 15614 0.613613614 0.015015015 1.371371
## 15615 0.614614615 0.015015015 1.370370
## 15616 0.615615616 0.015015015 1.369369
## 15617 0.616616617 0.015015015 1.368368
## 15618 0.617617618 0.015015015 1.367367
## 15619 0.618618619 0.015015015 1.366366
## 15620 0.619619620 0.015015015 1.365365
## 15621 0.620620621 0.015015015 1.364364
## 15622 0.621621622 0.015015015 1.363363
## 15623 0.622622623 0.015015015 1.362362
## 15624 0.623623624 0.015015015 1.361361
## 15625 0.624624625 0.015015015 1.360360
## 15626 0.625625626 0.015015015 1.359359
## 15627 0.626626627 0.015015015 1.358358
## 15628 0.627627628 0.015015015 1.357357
## 15629 0.628628629 0.015015015 1.356356
## 15630 0.629629630 0.015015015 1.355355
## 15631 0.630630631 0.015015015 1.354354
## 15632 0.631631632 0.015015015 1.353353
## 15633 0.632632633 0.015015015 1.352352
## 15634 0.633633634 0.015015015 1.351351
## 15635 0.634634635 0.015015015 1.350350
## 15636 0.635635636 0.015015015 1.349349
## 15637 0.636636637 0.015015015 1.348348
## 15638 0.637637638 0.015015015 1.347347
## 15639 0.638638639 0.015015015 1.346346
## 15640 0.639639640 0.015015015 1.345345
## 15641 0.640640641 0.015015015 1.344344
## 15642 0.641641642 0.015015015 1.343343
## 15643 0.642642643 0.015015015 1.342342
## 15644 0.643643644 0.015015015 1.341341
## 15645 0.644644645 0.015015015 1.340340
## 15646 0.645645646 0.015015015 1.339339

```

```
## 15647 0.646646647 0.015015015 1.338338
## 15648 0.647647648 0.015015015 1.337337
## 15649 0.648648649 0.015015015 1.336336
## 15650 0.649649650 0.015015015 1.335335
## 15651 0.650650651 0.015015015 1.334334
## 15652 0.651651652 0.015015015 1.333333
## 15653 0.652652653 0.015015015 1.332332
## 15654 0.653653654 0.015015015 1.331331
## 15655 0.654654655 0.015015015 1.330330
## 15656 0.655655656 0.015015015 1.329329
## 15657 0.656656657 0.015015015 1.328328
## 15658 0.657657658 0.015015015 1.327327
## 15659 0.658658659 0.015015015 1.326326
## 15660 0.659659660 0.015015015 1.325325
## 15661 0.660660661 0.015015015 1.324324
## 15662 0.661661662 0.015015015 1.323323
## 15663 0.662662663 0.015015015 1.322322
## 15664 0.663663664 0.015015015 1.321321
## 15665 0.664664665 0.015015015 1.320320
## 15666 0.665665666 0.015015015 1.319319
## 15667 0.666666667 0.015015015 1.318318
## 15668 0.667667668 0.015015015 1.317317
## 15669 0.668668669 0.015015015 1.316316
## 15670 0.669669670 0.015015015 1.315315
## 15671 0.670670671 0.015015015 1.314314
## 15672 0.671671672 0.015015015 1.313313
## 15673 0.672672673 0.015015015 1.312312
## 15674 0.673673674 0.015015015 1.311311
## 15675 0.674674675 0.015015015 1.310310
## 15676 0.675675676 0.015015015 1.309309
## 15677 0.676676677 0.015015015 1.308308
## 15678 0.677677678 0.015015015 1.307307
## 15679 0.678678679 0.015015015 1.306306
## 15680 0.679679680 0.015015015 1.305305
## 15681 0.680680681 0.015015015 1.304304
## 15682 0.681681682 0.015015015 1.303303
## 15683 0.682682683 0.015015015 1.302302
## 15684 0.683683684 0.015015015 1.301301
## 15685 0.684684685 0.015015015 1.300300
## 15686 0.685685686 0.015015015 1.299299
## 15687 0.686686687 0.015015015 1.298298
## 15688 0.687687688 0.015015015 1.297297
## 15689 0.688688689 0.015015015 1.296296
## 15690 0.689689690 0.015015015 1.295295
## 15691 0.690690691 0.015015015 1.294294
## 15692 0.691691692 0.015015015 1.293293
```

```

## 15693 0.692692693 0.015015015 1.292292
## 15694 0.693693694 0.015015015 1.291291
## 15695 0.694694695 0.015015015 1.290290
## 15696 0.695695696 0.015015015 1.289289
## 15697 0.696696697 0.015015015 1.288288
## 15698 0.697697698 0.015015015 1.287287
## 15699 0.698698699 0.015015015 1.286286
## 15700 0.699699700 0.015015015 1.285285
## 15701 0.700700701 0.015015015 1.284284
## 15702 0.701701702 0.015015015 1.283283
## 15703 0.702702703 0.015015015 1.282282
## 15704 0.703703704 0.015015015 1.281281
## 15705 0.704704705 0.015015015 1.280280
## 15706 0.705705706 0.015015015 1.279279
## 15707 0.706706707 0.015015015 1.278278
## 15708 0.707707708 0.015015015 1.277277
## 15709 0.708708709 0.015015015 1.276276
## 15710 0.709709710 0.015015015 1.275275
## 15711 0.710710711 0.015015015 1.274274
## 15712 0.711711712 0.015015015 1.273273
## 15713 0.712712713 0.015015015 1.272272
## 15714 0.713713714 0.015015015 1.271271
## 15715 0.714714715 0.015015015 1.270270
## 15716 0.715715716 0.015015015 1.269269
## 15717 0.716716717 0.015015015 1.268268
## 15718 0.717717718 0.015015015 1.267267
## 15719 0.718718719 0.015015015 1.266266
## 15720 0.719719720 0.015015015 1.265265
## 15721 0.720720721 0.015015015 1.264264
## 15722 0.721721722 0.015015015 1.263263
## 15723 0.722722723 0.015015015 1.262262
## 15724 0.723723724 0.015015015 1.261261
## 15725 0.724724725 0.015015015 1.260260
## 15726 0.725725726 0.015015015 1.259259
## 15727 0.726726727 0.015015015 1.258258
## 15728 0.727727728 0.015015015 1.257257
## 15729 0.728728729 0.015015015 1.256256
## 15730 0.729729730 0.015015015 1.255255
## 15731 0.730730731 0.015015015 1.254254
## 15732 0.731731732 0.015015015 1.253253
## 15733 0.732732733 0.015015015 1.252252
## 15734 0.733733734 0.015015015 1.251251
## 15735 0.734734735 0.015015015 1.250250
## 15736 0.735735736 0.015015015 1.249249
## 15737 0.736736737 0.015015015 1.248248
## 15738 0.737737738 0.015015015 1.247247

```

```
## 15739 0.738738739 0.015015015 1.246246
## 15740 0.739739740 0.015015015 1.245245
## 15741 0.740740741 0.015015015 1.244244
## 15742 0.741741742 0.015015015 1.243243
## 15743 0.742742743 0.015015015 1.242242
## 15744 0.743743744 0.015015015 1.241241
## 15745 0.744744745 0.015015015 1.240240
## 15746 0.745745746 0.015015015 1.239239
## 15747 0.746746747 0.015015015 1.238238
## 15748 0.747747748 0.015015015 1.237237
## 15749 0.748748749 0.015015015 1.236236
## 15750 0.749749750 0.015015015 1.235235
## 15751 0.750750751 0.015015015 1.234234
## 15752 0.751751752 0.015015015 1.233233
## 15753 0.752752753 0.015015015 1.232232
## 15754 0.753753754 0.015015015 1.231231
## 15755 0.754754755 0.015015015 1.230230
## 15756 0.755755756 0.015015015 1.229229
## 15757 0.756756757 0.015015015 1.228228
## 15758 0.757757758 0.015015015 1.227227
## 15759 0.758758759 0.015015015 1.226226
## 15760 0.759759760 0.015015015 1.225225
## 15761 0.760760761 0.015015015 1.224224
## 15762 0.761761762 0.015015015 1.223223
## 15763 0.762762763 0.015015015 1.222222
## 15764 0.763763764 0.015015015 1.221221
## 15765 0.764764765 0.015015015 1.220220
## 15766 0.765765766 0.015015015 1.219219
## 15767 0.766766767 0.015015015 1.218218
## 15768 0.767767768 0.015015015 1.217217
## 15769 0.768768769 0.015015015 1.216216
## 15770 0.769769770 0.015015015 1.215215
## 15771 0.770770771 0.015015015 1.214214
## 15772 0.771771772 0.015015015 1.213213
## 15773 0.772772773 0.015015015 1.212212
## 15774 0.773773774 0.015015015 1.211211
## 15775 0.774774775 0.015015015 1.210210
## 15776 0.775775776 0.015015015 1.209209
## 15777 0.776776777 0.015015015 1.208208
## 15778 0.777777778 0.015015015 1.207207
## 15779 0.778778779 0.015015015 1.206206
## 15780 0.779779780 0.015015015 1.205205
## 15781 0.780780781 0.015015015 1.204204
## 15782 0.781781782 0.015015015 1.203203
## 15783 0.782782783 0.015015015 1.202202
## 15784 0.783783784 0.015015015 1.201201
```

```
## 15785 0.784784785 0.015015015 1.200200
## 15786 0.785785786 0.015015015 1.199199
## 15787 0.786786787 0.015015015 1.198198
## 15788 0.787787788 0.015015015 1.197197
## 15789 0.788788789 0.015015015 1.196196
## 15790 0.789789790 0.015015015 1.195195
## 15791 0.790790791 0.015015015 1.194194
## 15792 0.791791792 0.015015015 1.193193
## 15793 0.792792793 0.015015015 1.192192
## 15794 0.793793794 0.015015015 1.191191
## 15795 0.794794795 0.015015015 1.190190
## 15796 0.795795796 0.015015015 1.189189
## 15797 0.796796797 0.015015015 1.188188
## 15798 0.797797798 0.015015015 1.187187
## 15799 0.798798799 0.015015015 1.186186
## 15800 0.799799800 0.015015015 1.185185
## 15801 0.800800801 0.015015015 1.184184
## 15802 0.801801802 0.015015015 1.183183
## 15803 0.802802803 0.015015015 1.182182
## 15804 0.803803804 0.015015015 1.181181
## 15805 0.804804805 0.015015015 1.180180
## 15806 0.805805806 0.015015015 1.179179
## 15807 0.806806807 0.015015015 1.178178
## 15808 0.807807808 0.015015015 1.177177
## 15809 0.808808809 0.015015015 1.176176
## 15810 0.809809810 0.015015015 1.175175
## 15811 0.810810811 0.015015015 1.174174
## 15812 0.811811812 0.015015015 1.173173
## 15813 0.812812813 0.015015015 1.172172
## 15814 0.813813814 0.015015015 1.171171
## 15815 0.814814815 0.015015015 1.170170
## 15816 0.815815816 0.015015015 1.169169
## 15817 0.816816817 0.015015015 1.168168
## 15818 0.817817818 0.015015015 1.167167
## 15819 0.818818819 0.015015015 1.166166
## 15820 0.819819820 0.015015015 1.165165
## 15821 0.820820821 0.015015015 1.164164
## 15822 0.821821822 0.015015015 1.163163
## 15823 0.822822823 0.015015015 1.162162
## 15824 0.823823824 0.015015015 1.161161
## 15825 0.824824825 0.015015015 1.160160
## 15826 0.825825826 0.015015015 1.159159
## 15827 0.826826827 0.015015015 1.158158
## 15828 0.827827828 0.015015015 1.157157
## 15829 0.828828829 0.015015015 1.156156
## 15830 0.829829830 0.015015015 1.155155
```

```
## 15831 0.830830831 0.015015015 1.154154
## 15832 0.831831832 0.015015015 1.153153
## 15833 0.832832833 0.015015015 1.152152
## 15834 0.833833834 0.015015015 1.151151
## 15835 0.834834835 0.015015015 1.150150
## 15836 0.835835836 0.015015015 1.149149
## 15837 0.836836837 0.015015015 1.148148
## 15838 0.837837838 0.015015015 1.147147
## 15839 0.838838839 0.015015015 1.146146
## 15840 0.839839840 0.015015015 1.145145
## 15841 0.840840841 0.015015015 1.144144
## 15842 0.841841842 0.015015015 1.143143
## 15843 0.842842843 0.015015015 1.142142
## 15844 0.843843844 0.015015015 1.141141
## 15845 0.844844845 0.015015015 1.140140
## 15846 0.845845846 0.015015015 1.139139
## 15847 0.846846847 0.015015015 1.138138
## 15848 0.847847848 0.015015015 1.137137
## 15849 0.848848849 0.015015015 1.136136
## 15850 0.849849850 0.015015015 1.135135
## 15851 0.850850851 0.015015015 1.134134
## 15852 0.851851852 0.015015015 1.133133
## 15853 0.852852853 0.015015015 1.132132
## 15854 0.853853854 0.015015015 1.131131
## 15855 0.854854855 0.015015015 1.130130
## 15856 0.8558555856 0.015015015 1.129129
## 15857 0.856856857 0.015015015 1.128128
## 15858 0.857857858 0.015015015 1.127127
## 15859 0.858858859 0.015015015 1.126126
## 15860 0.859859860 0.015015015 1.125125
## 15861 0.860860861 0.015015015 1.124124
## 15862 0.861861862 0.015015015 1.123123
## 15863 0.862862863 0.015015015 1.122122
## 15864 0.863863864 0.015015015 1.121121
## 15865 0.864864865 0.015015015 1.120120
## 15866 0.865865866 0.015015015 1.119119
## 15867 0.866866867 0.015015015 1.118118
## 15868 0.867867868 0.015015015 1.117117
## 15869 0.868868869 0.015015015 1.116116
## 15870 0.869869870 0.015015015 1.115115
## 15871 0.870870871 0.015015015 1.114114
## 15872 0.871871872 0.015015015 1.113113
## 15873 0.872872873 0.015015015 1.112112
## 15874 0.873873874 0.015015015 1.111111
## 15875 0.874874875 0.015015015 1.110110
## 15876 0.875875876 0.015015015 1.109109
```

```

## 15877 0.876876877 0.015015015 1.108108
## 15878 0.877877878 0.015015015 1.107107
## 15879 0.878878879 0.015015015 1.106106
## 15880 0.879879880 0.015015015 1.105105
## 15881 0.880880881 0.015015015 1.104104
## 15882 0.881881882 0.015015015 1.103103
## 15883 0.882882883 0.015015015 1.102102
## 15884 0.883883884 0.015015015 1.101101
## 15885 0.884884885 0.015015015 1.100100
## 15886 0.885885886 0.015015015 1.099099
## 15887 0.886886887 0.015015015 1.098098
## 15888 0.887887888 0.015015015 1.097097
## 15889 0.888888889 0.015015015 1.096096
## 15890 0.889889890 0.015015015 1.095095
## 15891 0.890890891 0.015015015 1.094094
## 15892 0.891891892 0.015015015 1.093093
## 15893 0.892892893 0.015015015 1.092092
## 15894 0.893893894 0.015015015 1.091091
## 15895 0.894894895 0.015015015 1.090090
## 15896 0.895895896 0.015015015 1.089089
## 15897 0.896896897 0.015015015 1.088088
## 15898 0.897897898 0.015015015 1.087087
## 15899 0.898898899 0.015015015 1.086086
## 15900 0.899899900 0.015015015 1.085085
## 15901 0.900900901 0.015015015 1.084084
## 15902 0.901901902 0.015015015 1.083083
## 15903 0.902902903 0.015015015 1.082082
## 15904 0.903903904 0.015015015 1.081081
## 15905 0.904904905 0.015015015 1.080080
## 15906 0.905905906 0.015015015 1.079079
## 15907 0.906906907 0.015015015 1.078078
## 15908 0.907907908 0.015015015 1.077077
## 15909 0.908908909 0.015015015 1.076076
## 15910 0.909909910 0.015015015 1.075075
## 15911 0.910910911 0.015015015 1.074074
## 15912 0.911911912 0.015015015 1.073073
## 15913 0.912912913 0.015015015 1.072072
## 15914 0.913913914 0.015015015 1.071071
## 15915 0.914914915 0.015015015 1.070070
## 15916 0.915915916 0.015015015 1.069069
## 15917 0.916916917 0.015015015 1.068068
## 15918 0.917917918 0.015015015 1.067067
## 15919 0.918918919 0.015015015 1.066066
## 15920 0.919919920 0.015015015 1.065065
## 15921 0.920920921 0.015015015 1.064064
## 15922 0.921921922 0.015015015 1.063063

```

```
## 15923 0.922922923 0.015015015 1.062062
## 15924 0.923923924 0.015015015 1.061061
## 15925 0.924924925 0.015015015 1.060060
## 15926 0.925925926 0.015015015 1.059059
## 15927 0.926926927 0.015015015 1.058058
## 15928 0.927927928 0.015015015 1.057057
## 15929 0.928928929 0.015015015 1.056056
## 15930 0.929929930 0.015015015 1.055055
## 15931 0.930930931 0.015015015 1.054054
## 15932 0.931931932 0.015015015 1.053053
## 15933 0.932932933 0.015015015 1.052052
## 15934 0.933933934 0.015015015 1.051051
## 15935 0.934934935 0.015015015 1.050050
## 15936 0.935935936 0.015015015 1.049049
## 15937 0.936936937 0.015015015 1.048048
## 15938 0.937937938 0.015015015 1.047047
## 15939 0.938938939 0.015015015 1.046046
## 15940 0.939939940 0.015015015 1.045045
## 15941 0.940940941 0.015015015 1.044044
## 15942 0.941941942 0.015015015 1.043043
## 15943 0.942942943 0.015015015 1.042042
## 15944 0.943943944 0.015015015 1.041041
## 15945 0.944944945 0.015015015 1.040040
## 15946 0.945945946 0.015015015 1.039039
## 15947 0.946946947 0.015015015 1.038038
## 15948 0.947947948 0.015015015 1.037037
## 15949 0.948948949 0.015015015 1.036036
## 15950 0.949949950 0.015015015 1.035035
## 15951 0.950950951 0.015015015 1.034034
## 15952 0.951951952 0.015015015 1.033033
## 15953 0.952952953 0.015015015 1.032032
## 15954 0.953953954 0.015015015 1.031031
## 15955 0.954954955 0.015015015 1.030030
## 15956 0.955955956 0.015015015 1.029029
## 15957 0.956956957 0.015015015 1.028028
## 15958 0.957957958 0.015015015 1.027027
## 15959 0.958958959 0.015015015 1.026026
## 15960 0.959959960 0.015015015 1.025025
## 15961 0.960960961 0.015015015 1.024024
## 15962 0.961961962 0.015015015 1.023023
## 15963 0.962962963 0.015015015 1.022022
## 15964 0.963963964 0.015015015 1.021021
## 15965 0.964964965 0.015015015 1.020020
## 15966 0.965965966 0.015015015 1.019019
## 15967 0.966966967 0.015015015 1.018018
## 15968 0.967967968 0.015015015 1.017017
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 459

```
## 15969 0.968968969 0.015015015 1.016016
## 15970 0.969969970 0.015015015 1.015015
## 15971 0.970970971 0.015015015 1.014014
## 15972 0.971971972 0.015015015 1.013013
## 15973 0.972972973 0.015015015 1.012012
## 15974 0.973973974 0.015015015 1.011011
## 15975 0.974974975 0.015015015 1.010010
## 15976 0.975975976 0.015015015 1.009009
## 15977 0.976976977 0.015015015 1.008008
## 15978 0.977977978 0.015015015 1.007007
## 15979 0.978978979 0.015015015 1.006006
## 15980 0.979979980 0.015015015 1.005005
## 15981 0.980980981 0.015015015 1.004004
## 15982 0.981981982 0.015015015 1.003003
## 15983 0.982982983 0.015015015 1.002002
## 15984 0.983983984 0.015015015 1.001001
## 15985 0.984984985 0.015015015 1.000000
## 15986 0.985985986 0.015015015 0.998999
## 15987 0.986986987 0.015015015 0.997998
## 15988 0.987987988 0.015015015 0.996997
## 15989 0.988988989 0.015015015 0.995996
## 15990 0.989989990 0.015015015 0.994995
## 15991 0.990990991 0.015015015 0.993994
## 15992 0.991991992 0.015015015 0.992993
## 15993 0.992992993 0.015015015 0.991992
## 15994 0.993993994 0.015015015 0.990991
## 15995 0.994994995 0.015015015 0.989990
## 15996 0.995995996 0.015015015 0.988989
## 15997 0.996996997 0.015015015 0.987988
## 15998 0.997997998 0.015015015 0.986987
## 15999 0.998998999 0.015015015 0.985986
## 16000 1.000000000 0.015015015 0.984985
## 16001 0.000000000 0.016016016 1.983984
## 16002 0.001001001 0.016016016 1.982983
## 16003 0.002002002 0.016016016 1.981982
## 16004 0.003003003 0.016016016 1.980981
## 16005 0.004004004 0.016016016 1.979980
## 16006 0.005005005 0.016016016 1.978979
## 16007 0.006006006 0.016016016 1.977978
## 16008 0.007007007 0.016016016 1.976977
## 16009 0.008008008 0.016016016 1.975976
## 16010 0.009009009 0.016016016 1.974975
## 16011 0.010010010 0.016016016 1.973974
## 16012 0.011011011 0.016016016 1.972973
## 16013 0.012012012 0.016016016 1.971972
## 16014 0.013013013 0.016016016 1.970971
```

```
## 16015 0.014014014 0.016016016 1.969970
## 16016 0.015015015 0.016016016 1.968969
## 16017 0.016016016 0.016016016 1.967968
## 16018 0.017017017 0.016016016 1.966967
## 16019 0.018018018 0.016016016 1.965966
## 16020 0.019019019 0.016016016 1.964965
## 16021 0.020020020 0.016016016 1.963964
## 16022 0.021021021 0.016016016 1.962963
## 16023 0.022022022 0.016016016 1.961962
## 16024 0.023023023 0.016016016 1.960961
## 16025 0.024024024 0.016016016 1.959960
## 16026 0.025025025 0.016016016 1.958959
## 16027 0.026026026 0.016016016 1.957958
## 16028 0.027027027 0.016016016 1.956957
## 16029 0.028028028 0.016016016 1.955956
## 16030 0.029029029 0.016016016 1.954955
## 16031 0.030030030 0.016016016 1.953954
## 16032 0.031031031 0.016016016 1.952953
## 16033 0.032032032 0.016016016 1.951952
## 16034 0.033033033 0.016016016 1.950951
## 16035 0.034034034 0.016016016 1.949950
## 16036 0.035035035 0.016016016 1.948949
## 16037 0.036036036 0.016016016 1.947948
## 16038 0.037037037 0.016016016 1.946947
## 16039 0.038038038 0.016016016 1.945946
## 16040 0.039039039 0.016016016 1.944945
## 16041 0.040040040 0.016016016 1.943944
## 16042 0.041041041 0.016016016 1.942943
## 16043 0.042042042 0.016016016 1.941942
## 16044 0.043043043 0.016016016 1.940941
## 16045 0.044044044 0.016016016 1.939940
## 16046 0.045045045 0.016016016 1.938939
## 16047 0.046046046 0.016016016 1.937938
## 16048 0.047047047 0.016016016 1.936937
## 16049 0.048048048 0.016016016 1.935936
## 16050 0.049049049 0.016016016 1.934935
## 16051 0.050050050 0.016016016 1.933934
## 16052 0.051051051 0.016016016 1.932933
## 16053 0.052052052 0.016016016 1.931932
## 16054 0.053053053 0.016016016 1.930931
## 16055 0.054054054 0.016016016 1.929930
## 16056 0.055055055 0.016016016 1.928929
## 16057 0.056056056 0.016016016 1.927928
## 16058 0.057057057 0.016016016 1.926927
## 16059 0.058058058 0.016016016 1.925926
## 16060 0.059059059 0.016016016 1.924925
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 461

```
## 16061 0.060060060 0.016016016 1.923924
## 16062 0.061061061 0.016016016 1.922923
## 16063 0.062062062 0.016016016 1.921922
## 16064 0.063063063 0.016016016 1.920921
## 16065 0.064064064 0.016016016 1.919920
## 16066 0.065065065 0.016016016 1.918919
## 16067 0.066066066 0.016016016 1.917918
## 16068 0.067067067 0.016016016 1.916917
## 16069 0.068068068 0.016016016 1.915916
## 16070 0.069069069 0.016016016 1.914915
## 16071 0.070070070 0.016016016 1.913914
## 16072 0.071071071 0.016016016 1.912913
## 16073 0.072072072 0.016016016 1.911912
## 16074 0.073073073 0.016016016 1.910911
## 16075 0.074074074 0.016016016 1.909910
## 16076 0.075075075 0.016016016 1.908909
## 16077 0.076076076 0.016016016 1.907908
## 16078 0.077077077 0.016016016 1.906907
## 16079 0.078078078 0.016016016 1.905906
## 16080 0.079079079 0.016016016 1.904905
## 16081 0.080080080 0.016016016 1.903904
## 16082 0.081081081 0.016016016 1.902903
## 16083 0.082082082 0.016016016 1.901902
## 16084 0.083083083 0.016016016 1.900901
## 16085 0.084084084 0.016016016 1.899900
## 16086 0.085085085 0.016016016 1.898899
## 16087 0.086086086 0.016016016 1.897898
## 16088 0.087087087 0.016016016 1.896897
## 16089 0.088088088 0.016016016 1.895896
## 16090 0.089089089 0.016016016 1.894895
## 16091 0.090090090 0.016016016 1.893894
## 16092 0.091091091 0.016016016 1.892893
## 16093 0.092092092 0.016016016 1.891892
## 16094 0.093093093 0.016016016 1.890891
## 16095 0.094094094 0.016016016 1.889890
## 16096 0.095095095 0.016016016 1.888889
## 16097 0.096096096 0.016016016 1.887888
## 16098 0.097097097 0.016016016 1.886887
## 16099 0.098098098 0.016016016 1.885886
## 16100 0.099099099 0.016016016 1.884885
## 16101 0.100100100 0.016016016 1.883884
## 16102 0.101101101 0.016016016 1.882883
## 16103 0.102102102 0.016016016 1.881882
## 16104 0.103103103 0.016016016 1.880881
## 16105 0.104104104 0.016016016 1.879880
## 16106 0.105105105 0.016016016 1.878879
```

```
## 16107 0.106106106 0.016016016 1.877878
## 16108 0.107107107 0.016016016 1.876877
## 16109 0.108108108 0.016016016 1.875876
## 16110 0.109109109 0.016016016 1.874875
## 16111 0.110110110 0.016016016 1.873874
## 16112 0.111111111 0.016016016 1.872873
## 16113 0.112112112 0.016016016 1.871872
## 16114 0.113113113 0.016016016 1.870871
## 16115 0.114114114 0.016016016 1.869870
## 16116 0.115115115 0.016016016 1.868869
## 16117 0.116116116 0.016016016 1.867868
## 16118 0.117117117 0.016016016 1.866867
## 16119 0.118118118 0.016016016 1.865866
## 16120 0.119119119 0.016016016 1.864865
## 16121 0.120120120 0.016016016 1.863864
## 16122 0.121121121 0.016016016 1.862863
## 16123 0.122122122 0.016016016 1.861862
## 16124 0.123123123 0.016016016 1.860861
## 16125 0.124124124 0.016016016 1.859860
## 16126 0.125125125 0.016016016 1.858859
## 16127 0.126126126 0.016016016 1.857858
## 16128 0.127127127 0.016016016 1.856857
## 16129 0.128128128 0.016016016 1.855856
## 16130 0.129129129 0.016016016 1.854855
## 16131 0.130130130 0.016016016 1.853854
## 16132 0.131131131 0.016016016 1.852853
## 16133 0.132132132 0.016016016 1.851852
## 16134 0.133133133 0.016016016 1.850851
## 16135 0.134134134 0.016016016 1.849850
## 16136 0.135135135 0.016016016 1.848849
## 16137 0.136136136 0.016016016 1.847848
## 16138 0.137137137 0.016016016 1.846847
## 16139 0.138138138 0.016016016 1.845846
## 16140 0.139139139 0.016016016 1.844845
## 16141 0.140140140 0.016016016 1.843844
## 16142 0.141141141 0.016016016 1.842843
## 16143 0.142142142 0.016016016 1.841842
## 16144 0.143143143 0.016016016 1.840841
## 16145 0.144144144 0.016016016 1.839840
## 16146 0.145145145 0.016016016 1.838839
## 16147 0.146146146 0.016016016 1.837838
## 16148 0.147147147 0.016016016 1.836837
## 16149 0.148148148 0.016016016 1.835836
## 16150 0.149149149 0.016016016 1.834835
## 16151 0.150150150 0.016016016 1.833834
## 16152 0.151151151 0.016016016 1.832833
```

```

## 16153 0.152152152 0.016016016 1.831832
## 16154 0.153153153 0.016016016 1.830831
## 16155 0.154154154 0.016016016 1.829830
## 16156 0.155155155 0.016016016 1.828829
## 16157 0.156156156 0.016016016 1.827828
## 16158 0.157157157 0.016016016 1.826827
## 16159 0.158158158 0.016016016 1.825826
## 16160 0.159159159 0.016016016 1.824825
## 16161 0.160160160 0.016016016 1.823824
## 16162 0.161161161 0.016016016 1.822823
## 16163 0.162162162 0.016016016 1.821822
## 16164 0.163163163 0.016016016 1.820821
## 16165 0.164164164 0.016016016 1.819820
## 16166 0.165165165 0.016016016 1.818819
## 16167 0.166166166 0.016016016 1.817818
## 16168 0.167167167 0.016016016 1.816817
## 16169 0.168168168 0.016016016 1.815816
## 16170 0.169169169 0.016016016 1.814815
## 16171 0.170170170 0.016016016 1.813814
## 16172 0.171171171 0.016016016 1.812813
## 16173 0.172172172 0.016016016 1.811812
## 16174 0.173173173 0.016016016 1.810811
## 16175 0.174174174 0.016016016 1.809810
## 16176 0.175175175 0.016016016 1.808809
## 16177 0.176176176 0.016016016 1.807808
## 16178 0.177177177 0.016016016 1.806807
## 16179 0.178178178 0.016016016 1.805806
## 16180 0.179179179 0.016016016 1.804805
## 16181 0.180180180 0.016016016 1.803804
## 16182 0.181181181 0.016016016 1.802803
## 16183 0.182182182 0.016016016 1.801802
## 16184 0.183183183 0.016016016 1.800801
## 16185 0.184184184 0.016016016 1.799800
## 16186 0.185185185 0.016016016 1.798799
## 16187 0.186186186 0.016016016 1.797798
## 16188 0.187187187 0.016016016 1.796797
## 16189 0.188188188 0.016016016 1.795796
## 16190 0.189189189 0.016016016 1.794795
## 16191 0.190190190 0.016016016 1.793794
## 16192 0.191191191 0.016016016 1.792793
## 16193 0.192192192 0.016016016 1.791792
## 16194 0.193193193 0.016016016 1.790791
## 16195 0.194194194 0.016016016 1.789790
## 16196 0.195195195 0.016016016 1.788789
## 16197 0.196196196 0.016016016 1.787788
## 16198 0.197197197 0.016016016 1.786787

```

```
## 16199 0.198198198 0.016016016 1.785786
## 16200 0.199199199 0.016016016 1.784785
## 16201 0.200200200 0.016016016 1.783784
## 16202 0.201201201 0.016016016 1.782783
## 16203 0.202202202 0.016016016 1.781782
## 16204 0.203203203 0.016016016 1.780781
## 16205 0.204204204 0.016016016 1.779780
## 16206 0.205205205 0.016016016 1.778779
## 16207 0.206206206 0.016016016 1.777778
## 16208 0.207207207 0.016016016 1.776777
## 16209 0.208208208 0.016016016 1.775776
## 16210 0.209209209 0.016016016 1.774775
## 16211 0.210210210 0.016016016 1.773774
## 16212 0.211211211 0.016016016 1.772773
## 16213 0.212212212 0.016016016 1.771772
## 16214 0.213213213 0.016016016 1.770771
## 16215 0.214214214 0.016016016 1.769770
## 16216 0.215215215 0.016016016 1.768769
## 16217 0.216216216 0.016016016 1.767768
## 16218 0.217217217 0.016016016 1.766767
## 16219 0.218218218 0.016016016 1.765766
## 16220 0.219219219 0.016016016 1.764765
## 16221 0.220220220 0.016016016 1.763764
## 16222 0.221221221 0.016016016 1.762763
## 16223 0.222222222 0.016016016 1.761762
## 16224 0.223223223 0.016016016 1.760761
## 16225 0.224224224 0.016016016 1.759760
## 16226 0.225225225 0.016016016 1.758759
## 16227 0.226226226 0.016016016 1.757758
## 16228 0.227227227 0.016016016 1.756757
## 16229 0.228228228 0.016016016 1.755756
## 16230 0.229229229 0.016016016 1.754755
## 16231 0.230230230 0.016016016 1.753754
## 16232 0.231231231 0.016016016 1.752753
## 16233 0.232232232 0.016016016 1.751752
## 16234 0.233233233 0.016016016 1.750751
## 16235 0.234234234 0.016016016 1.749750
## 16236 0.235235235 0.016016016 1.748749
## 16237 0.236236236 0.016016016 1.747748
## 16238 0.237237237 0.016016016 1.746747
## 16239 0.238238238 0.016016016 1.745746
## 16240 0.239239239 0.016016016 1.744745
## 16241 0.240240240 0.016016016 1.743744
## 16242 0.241241241 0.016016016 1.742743
## 16243 0.242242242 0.016016016 1.741742
## 16244 0.243243243 0.016016016 1.740741
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 465

```
## 16245 0.244244244 0.016016016 1.739740
## 16246 0.245245245 0.016016016 1.738739
## 16247 0.246246246 0.016016016 1.737738
## 16248 0.247247247 0.016016016 1.736737
## 16249 0.248248248 0.016016016 1.735736
## 16250 0.249249249 0.016016016 1.734735
## 16251 0.250250250 0.016016016 1.733734
## 16252 0.251251251 0.016016016 1.732733
## 16253 0.252252252 0.016016016 1.731732
## 16254 0.253253253 0.016016016 1.730731
## 16255 0.254254254 0.016016016 1.729730
## 16256 0.255255255 0.016016016 1.728729
## 16257 0.256256256 0.016016016 1.727728
## 16258 0.257257257 0.016016016 1.726727
## 16259 0.258258258 0.016016016 1.725726
## 16260 0.259259259 0.016016016 1.724725
## 16261 0.260260260 0.016016016 1.723724
## 16262 0.261261261 0.016016016 1.722723
## 16263 0.262262262 0.016016016 1.721722
## 16264 0.263263263 0.016016016 1.720721
## 16265 0.264264264 0.016016016 1.719720
## 16266 0.265265265 0.016016016 1.718719
## 16267 0.266266266 0.016016016 1.717718
## 16268 0.267267267 0.016016016 1.716717
## 16269 0.268268268 0.016016016 1.715716
## 16270 0.269269269 0.016016016 1.714715
## 16271 0.270270270 0.016016016 1.713714
## 16272 0.271271271 0.016016016 1.712713
## 16273 0.272272272 0.016016016 1.711712
## 16274 0.273273273 0.016016016 1.710711
## 16275 0.274274274 0.016016016 1.709710
## 16276 0.275275275 0.016016016 1.708709
## 16277 0.276276276 0.016016016 1.707708
## 16278 0.277277277 0.016016016 1.706707
## 16279 0.278278278 0.016016016 1.705706
## 16280 0.279279279 0.016016016 1.704705
## 16281 0.280280280 0.016016016 1.703704
## 16282 0.281281281 0.016016016 1.702703
## 16283 0.282282282 0.016016016 1.701702
## 16284 0.283283283 0.016016016 1.700701
## 16285 0.284284284 0.016016016 1.699700
## 16286 0.285285285 0.016016016 1.698699
## 16287 0.286286286 0.016016016 1.697698
## 16288 0.287287287 0.016016016 1.696697
## 16289 0.288288288 0.016016016 1.695696
## 16290 0.289289289 0.016016016 1.694695
```

```
## 16291 0.290290290 0.016016016 1.693694
## 16292 0.291291291 0.016016016 1.692693
## 16293 0.292292292 0.016016016 1.691692
## 16294 0.293293293 0.016016016 1.690691
## 16295 0.294294294 0.016016016 1.689690
## 16296 0.295295295 0.016016016 1.688689
## 16297 0.296296296 0.016016016 1.687688
## 16298 0.297297297 0.016016016 1.686687
## 16299 0.298298298 0.016016016 1.685686
## 16300 0.299299299 0.016016016 1.684685
## 16301 0.300300300 0.016016016 1.683684
## 16302 0.301301301 0.016016016 1.682683
## 16303 0.302302302 0.016016016 1.681682
## 16304 0.303303303 0.016016016 1.680681
## 16305 0.304304304 0.016016016 1.679680
## 16306 0.305305305 0.016016016 1.678679
## 16307 0.306306306 0.016016016 1.677678
## 16308 0.307307307 0.016016016 1.676677
## 16309 0.308308308 0.016016016 1.675676
## 16310 0.309309309 0.016016016 1.674675
## 16311 0.310310310 0.016016016 1.673674
## 16312 0.311311311 0.016016016 1.672673
## 16313 0.312312312 0.016016016 1.671672
## 16314 0.313313313 0.016016016 1.670671
## 16315 0.314314314 0.016016016 1.669670
## 16316 0.315315315 0.016016016 1.668669
## 16317 0.316316316 0.016016016 1.667668
## 16318 0.317317317 0.016016016 1.666667
## 16319 0.318318318 0.016016016 1.665666
## 16320 0.319319319 0.016016016 1.664665
## 16321 0.320320320 0.016016016 1.663664
## 16322 0.321321321 0.016016016 1.662663
## 16323 0.322322322 0.016016016 1.661662
## 16324 0.323323323 0.016016016 1.660661
## 16325 0.324324324 0.016016016 1.659660
## 16326 0.325325325 0.016016016 1.658659
## 16327 0.326326326 0.016016016 1.657658
## 16328 0.327327327 0.016016016 1.656657
## 16329 0.328328328 0.016016016 1.655656
## 16330 0.329329329 0.016016016 1.654655
## 16331 0.330330330 0.016016016 1.653654
## 16332 0.331331331 0.016016016 1.652653
## 16333 0.332332332 0.016016016 1.651652
## 16334 0.333333333 0.016016016 1.650651
## 16335 0.334334334 0.016016016 1.649650
## 16336 0.335335335 0.016016016 1.648649
```

```

## 16337 0.336336336 0.016016016 1.647648
## 16338 0.337337337 0.016016016 1.646647
## 16339 0.338338338 0.016016016 1.645646
## 16340 0.339339339 0.016016016 1.644645
## 16341 0.340340340 0.016016016 1.643644
## 16342 0.341341341 0.016016016 1.642643
## 16343 0.342342342 0.016016016 1.641642
## 16344 0.343343343 0.016016016 1.640641
## 16345 0.344344344 0.016016016 1.639640
## 16346 0.345345345 0.016016016 1.638639
## 16347 0.346346346 0.016016016 1.637638
## 16348 0.347347347 0.016016016 1.636637
## 16349 0.348348348 0.016016016 1.635636
## 16350 0.349349349 0.016016016 1.634635
## 16351 0.350350350 0.016016016 1.633634
## 16352 0.351351351 0.016016016 1.632633
## 16353 0.352352352 0.016016016 1.631632
## 16354 0.353353353 0.016016016 1.630631
## 16355 0.354354354 0.016016016 1.629630
## 16356 0.355355355 0.016016016 1.628629
## 16357 0.356356356 0.016016016 1.627628
## 16358 0.357357357 0.016016016 1.626627
## 16359 0.358358358 0.016016016 1.625626
## 16360 0.359359359 0.016016016 1.624625
## 16361 0.360360360 0.016016016 1.623624
## 16362 0.361361361 0.016016016 1.622623
## 16363 0.362362362 0.016016016 1.621622
## 16364 0.363363363 0.016016016 1.620621
## 16365 0.364364364 0.016016016 1.619620
## 16366 0.365365365 0.016016016 1.618619
## 16367 0.366366366 0.016016016 1.617618
## 16368 0.367367367 0.016016016 1.616617
## 16369 0.368368368 0.016016016 1.615616
## 16370 0.369369369 0.016016016 1.614615
## 16371 0.370370370 0.016016016 1.613614
## 16372 0.371371371 0.016016016 1.612613
## 16373 0.372372372 0.016016016 1.611612
## 16374 0.373373373 0.016016016 1.610611
## 16375 0.374374374 0.016016016 1.609610
## 16376 0.375375375 0.016016016 1.608609
## 16377 0.376376376 0.016016016 1.607608
## 16378 0.377377377 0.016016016 1.606607
## 16379 0.378378378 0.016016016 1.605606
## 16380 0.379379379 0.016016016 1.604605
## 16381 0.380380380 0.016016016 1.603604
## 16382 0.381381381 0.016016016 1.602603

```

```
## 16383 0.382382382 0.016016016 1.601602
## 16384 0.383383383 0.016016016 1.600601
## 16385 0.384384384 0.016016016 1.599600
## 16386 0.385385385 0.016016016 1.598599
## 16387 0.386386386 0.016016016 1.597598
## 16388 0.387387387 0.016016016 1.596597
## 16389 0.388388388 0.016016016 1.595596
## 16390 0.389389389 0.016016016 1.594595
## 16391 0.390390390 0.016016016 1.593594
## 16392 0.391391391 0.016016016 1.592593
## 16393 0.392392392 0.016016016 1.591592
## 16394 0.393393393 0.016016016 1.590591
## 16395 0.394394394 0.016016016 1.589590
## 16396 0.395395395 0.016016016 1.588589
## 16397 0.396396396 0.016016016 1.587588
## 16398 0.397397397 0.016016016 1.586587
## 16399 0.398398398 0.016016016 1.585586
## 16400 0.399399399 0.016016016 1.584585
## 16401 0.400400400 0.016016016 1.583584
## 16402 0.401401401 0.016016016 1.582583
## 16403 0.402402402 0.016016016 1.581582
## 16404 0.403403403 0.016016016 1.580581
## 16405 0.404404404 0.016016016 1.579580
## 16406 0.405405405 0.016016016 1.578579
## 16407 0.406406406 0.016016016 1.577578
## 16408 0.407407407 0.016016016 1.576577
## 16409 0.408408408 0.016016016 1.575576
## 16410 0.409409409 0.016016016 1.574575
## 16411 0.410410410 0.016016016 1.573574
## 16412 0.411411411 0.016016016 1.572573
## 16413 0.412412412 0.016016016 1.571572
## 16414 0.413413413 0.016016016 1.570571
## 16415 0.414414414 0.016016016 1.569570
## 16416 0.415415415 0.016016016 1.568569
## 16417 0.416416416 0.016016016 1.567568
## 16418 0.417417417 0.016016016 1.566567
## 16419 0.418418418 0.016016016 1.565566
## 16420 0.419419419 0.016016016 1.564565
## 16421 0.420420420 0.016016016 1.563564
## 16422 0.421421421 0.016016016 1.562563
## 16423 0.422422422 0.016016016 1.561562
## 16424 0.423423423 0.016016016 1.560561
## 16425 0.424424424 0.016016016 1.559560
## 16426 0.425425425 0.016016016 1.558559
## 16427 0.426426426 0.016016016 1.557558
## 16428 0.427427427 0.016016016 1.556557
```

```

## 16429 0.428428428 0.016016016 1.555556
## 16430 0.429429429 0.016016016 1.554555
## 16431 0.430430430 0.016016016 1.553554
## 16432 0.431431431 0.016016016 1.552553
## 16433 0.432432432 0.016016016 1.551552
## 16434 0.433433433 0.016016016 1.550551
## 16435 0.434434434 0.016016016 1.549550
## 16436 0.435435435 0.016016016 1.548549
## 16437 0.436436436 0.016016016 1.547548
## 16438 0.437437437 0.016016016 1.546547
## 16439 0.438438438 0.016016016 1.545546
## 16440 0.439439439 0.016016016 1.544545
## 16441 0.440440440 0.016016016 1.543544
## 16442 0.441441441 0.016016016 1.542543
## 16443 0.442442442 0.016016016 1.541542
## 16444 0.443443443 0.016016016 1.540541
## 16445 0.444444444 0.016016016 1.539540
## 16446 0.445445445 0.016016016 1.538539
## 16447 0.446446446 0.016016016 1.537538
## 16448 0.447447447 0.016016016 1.536537
## 16449 0.448448448 0.016016016 1.535536
## 16450 0.449449449 0.016016016 1.534535
## 16451 0.450450450 0.016016016 1.533534
## 16452 0.451451451 0.016016016 1.532533
## 16453 0.452452452 0.016016016 1.531532
## 16454 0.453453453 0.016016016 1.530531
## 16455 0.454454454 0.016016016 1.529530
## 16456 0.455455455 0.016016016 1.528529
## 16457 0.456456456 0.016016016 1.527528
## 16458 0.457457457 0.016016016 1.526527
## 16459 0.458458458 0.016016016 1.525526
## 16460 0.459459459 0.016016016 1.524525
## 16461 0.460460460 0.016016016 1.523524
## 16462 0.461461461 0.016016016 1.522523
## 16463 0.462462462 0.016016016 1.521522
## 16464 0.463463463 0.016016016 1.520521
## 16465 0.464464464 0.016016016 1.519520
## 16466 0.465465465 0.016016016 1.518519
## 16467 0.466466466 0.016016016 1.517518
## 16468 0.467467467 0.016016016 1.516517
## 16469 0.468468468 0.016016016 1.515516
## 16470 0.469469469 0.016016016 1.514515
## 16471 0.470470470 0.016016016 1.513514
## 16472 0.471471471 0.016016016 1.512513
## 16473 0.472472472 0.016016016 1.511512
## 16474 0.473473473 0.016016016 1.510511

```

```
## 16475 0.474474474 0.016016016 1.509510
## 16476 0.475475475 0.016016016 1.508509
## 16477 0.476476476 0.016016016 1.507508
## 16478 0.477477477 0.016016016 1.506507
## 16479 0.478478478 0.016016016 1.505506
## 16480 0.479479479 0.016016016 1.504505
## 16481 0.480480480 0.016016016 1.503504
## 16482 0.481481481 0.016016016 1.502503
## 16483 0.482482482 0.016016016 1.501502
## 16484 0.483483483 0.016016016 1.500501
## 16485 0.484484484 0.016016016 1.499499
## 16486 0.485485485 0.016016016 1.498498
## 16487 0.486486486 0.016016016 1.497497
## 16488 0.487487487 0.016016016 1.496496
## 16489 0.488488488 0.016016016 1.495495
## 16490 0.489489489 0.016016016 1.494494
## 16491 0.490490490 0.016016016 1.493493
## 16492 0.491491491 0.016016016 1.492492
## 16493 0.492492492 0.016016016 1.491491
## 16494 0.493493493 0.016016016 1.490490
## 16495 0.494494494 0.016016016 1.489489
## 16496 0.495495495 0.016016016 1.488488
## 16497 0.496496496 0.016016016 1.487487
## 16498 0.497497497 0.016016016 1.486486
## 16499 0.498498498 0.016016016 1.485485
## 16500 0.499499499 0.016016016 1.484484
## 16501 0.500500501 0.016016016 1.483483
## 16502 0.501501502 0.016016016 1.482482
## 16503 0.502502503 0.016016016 1.481481
## 16504 0.503503504 0.016016016 1.480480
## 16505 0.504504505 0.016016016 1.479479
## 16506 0.505505506 0.016016016 1.478478
## 16507 0.506506507 0.016016016 1.477477
## 16508 0.507507508 0.016016016 1.476476
## 16509 0.508508509 0.016016016 1.475475
## 16510 0.509509510 0.016016016 1.474474
## 16511 0.510510511 0.016016016 1.473473
## 16512 0.511511512 0.016016016 1.472472
## 16513 0.512512513 0.016016016 1.471471
## 16514 0.513513514 0.016016016 1.470470
## 16515 0.514514515 0.016016016 1.469469
## 16516 0.515515516 0.016016016 1.468468
## 16517 0.516516517 0.016016016 1.467467
## 16518 0.517517518 0.016016016 1.466466
## 16519 0.518518519 0.016016016 1.465465
## 16520 0.519519520 0.016016016 1.464464
```

```

## 16521 0.520520521 0.016016016 1.463463
## 16522 0.521521522 0.016016016 1.462462
## 16523 0.522522523 0.016016016 1.461461
## 16524 0.523523524 0.016016016 1.460460
## 16525 0.524524525 0.016016016 1.459459
## 16526 0.525525526 0.016016016 1.458458
## 16527 0.526526527 0.016016016 1.457457
## 16528 0.527527528 0.016016016 1.456456
## 16529 0.528528529 0.016016016 1.455455
## 16530 0.529529530 0.016016016 1.454454
## 16531 0.530530531 0.016016016 1.453453
## 16532 0.531531532 0.016016016 1.452452
## 16533 0.532532533 0.016016016 1.451451
## 16534 0.533533534 0.016016016 1.450450
## 16535 0.534534535 0.016016016 1.449449
## 16536 0.535535536 0.016016016 1.448448
## 16537 0.536536537 0.016016016 1.447447
## 16538 0.537537538 0.016016016 1.446446
## 16539 0.538538539 0.016016016 1.445445
## 16540 0.539539540 0.016016016 1.444444
## 16541 0.540540541 0.016016016 1.443443
## 16542 0.541541542 0.016016016 1.442442
## 16543 0.542542543 0.016016016 1.441441
## 16544 0.543543544 0.016016016 1.440440
## 16545 0.544544545 0.016016016 1.439439
## 16546 0.545545546 0.016016016 1.438438
## 16547 0.546546547 0.016016016 1.437437
## 16548 0.547547548 0.016016016 1.436436
## 16549 0.548548549 0.016016016 1.435435
## 16550 0.549549550 0.016016016 1.434434
## 16551 0.550550551 0.016016016 1.433433
## 16552 0.551551552 0.016016016 1.432432
## 16553 0.552552553 0.016016016 1.431431
## 16554 0.553553554 0.016016016 1.430430
## 16555 0.554554555 0.016016016 1.429429
## 16556 0.555555556 0.016016016 1.428428
## 16557 0.556556557 0.016016016 1.427427
## 16558 0.557557558 0.016016016 1.426426
## 16559 0.558558559 0.016016016 1.425425
## 16560 0.559559560 0.016016016 1.424424
## 16561 0.560560561 0.016016016 1.423423
## 16562 0.561561562 0.016016016 1.422422
## 16563 0.562562563 0.016016016 1.421421
## 16564 0.563563564 0.016016016 1.420420
## 16565 0.564564565 0.016016016 1.419419
## 16566 0.565565566 0.016016016 1.418418

```

```
## 16567 0.566566567 0.016016016 1.417417
## 16568 0.567567568 0.016016016 1.416416
## 16569 0.568568569 0.016016016 1.415415
## 16570 0.569569570 0.016016016 1.414414
## 16571 0.570570571 0.016016016 1.413413
## 16572 0.571571572 0.016016016 1.412412
## 16573 0.572572573 0.016016016 1.411411
## 16574 0.573573574 0.016016016 1.410410
## 16575 0.574574575 0.016016016 1.409409
## 16576 0.575575576 0.016016016 1.408408
## 16577 0.576576577 0.016016016 1.407407
## 16578 0.577577578 0.016016016 1.406406
## 16579 0.578578579 0.016016016 1.405405
## 16580 0.579579580 0.016016016 1.404404
## 16581 0.580580581 0.016016016 1.403403
## 16582 0.581581582 0.016016016 1.402402
## 16583 0.582582583 0.016016016 1.401401
## 16584 0.583583584 0.016016016 1.400400
## 16585 0.584584585 0.016016016 1.399399
## 16586 0.585585586 0.016016016 1.398398
## 16587 0.586586587 0.016016016 1.397397
## 16588 0.587587588 0.016016016 1.396396
## 16589 0.588588589 0.016016016 1.395395
## 16590 0.589589590 0.016016016 1.394394
## 16591 0.590590591 0.016016016 1.393393
## 16592 0.591591592 0.016016016 1.392392
## 16593 0.592592593 0.016016016 1.391391
## 16594 0.593593594 0.016016016 1.390390
## 16595 0.594594595 0.016016016 1.389389
## 16596 0.595595596 0.016016016 1.388388
## 16597 0.596596597 0.016016016 1.387387
## 16598 0.597597598 0.016016016 1.386386
## 16599 0.598598599 0.016016016 1.385385
## 16600 0.599599600 0.016016016 1.384384
## 16601 0.600600601 0.016016016 1.383383
## 16602 0.601601602 0.016016016 1.382382
## 16603 0.602602603 0.016016016 1.381381
## 16604 0.603603604 0.016016016 1.380380
## 16605 0.604604605 0.016016016 1.379379
## 16606 0.605605606 0.016016016 1.378378
## 16607 0.606606607 0.016016016 1.377377
## 16608 0.607607608 0.016016016 1.376376
## 16609 0.608608609 0.016016016 1.375375
## 16610 0.609609610 0.016016016 1.374374
## 16611 0.610610611 0.016016016 1.373373
## 16612 0.611611612 0.016016016 1.372372
```

```

## 16613 0.612612613 0.016016016 1.371371
## 16614 0.613613614 0.016016016 1.370370
## 16615 0.614614615 0.016016016 1.369369
## 16616 0.615615616 0.016016016 1.368368
## 16617 0.616616617 0.016016016 1.367367
## 16618 0.617617618 0.016016016 1.366366
## 16619 0.618618619 0.016016016 1.365365
## 16620 0.619619620 0.016016016 1.364364
## 16621 0.620620621 0.016016016 1.363363
## 16622 0.621621622 0.016016016 1.362362
## 16623 0.622622623 0.016016016 1.361361
## 16624 0.623623624 0.016016016 1.360360
## 16625 0.624624625 0.016016016 1.359359
## 16626 0.625625626 0.016016016 1.358358
## 16627 0.626626627 0.016016016 1.357357
## 16628 0.627627628 0.016016016 1.356356
## 16629 0.628628629 0.016016016 1.355355
## 16630 0.629629630 0.016016016 1.354354
## 16631 0.630630631 0.016016016 1.353353
## 16632 0.631631632 0.016016016 1.352352
## 16633 0.632632633 0.016016016 1.351351
## 16634 0.633633634 0.016016016 1.350350
## 16635 0.634634635 0.016016016 1.349349
## 16636 0.635635636 0.016016016 1.348348
## 16637 0.636636637 0.016016016 1.347347
## 16638 0.637637638 0.016016016 1.346346
## 16639 0.638638639 0.016016016 1.345345
## 16640 0.639639640 0.016016016 1.344344
## 16641 0.640640641 0.016016016 1.343343
## 16642 0.641641642 0.016016016 1.342342
## 16643 0.642642643 0.016016016 1.341341
## 16644 0.643643644 0.016016016 1.340340
## 16645 0.644644645 0.016016016 1.339339
## 16646 0.645645646 0.016016016 1.338338
## 16647 0.646646647 0.016016016 1.337337
## 16648 0.647647648 0.016016016 1.336336
## 16649 0.648648649 0.016016016 1.335335
## 16650 0.649649650 0.016016016 1.334334
## 16651 0.650650651 0.016016016 1.333333
## 16652 0.651651652 0.016016016 1.332332
## 16653 0.652652653 0.016016016 1.331331
## 16654 0.653653654 0.016016016 1.330330
## 16655 0.654654655 0.016016016 1.329329
## 16656 0.655655656 0.016016016 1.328328
## 16657 0.656656657 0.016016016 1.327327
## 16658 0.657657658 0.016016016 1.326326

```

```
## 16659 0.658658659 0.016016016 1.325325
## 16660 0.659659660 0.016016016 1.324324
## 16661 0.660660661 0.016016016 1.323323
## 16662 0.661661662 0.016016016 1.322322
## 16663 0.662662663 0.016016016 1.321321
## 16664 0.663663664 0.016016016 1.320320
## 16665 0.664664665 0.016016016 1.319319
## 16666 0.665665666 0.016016016 1.318318
## 16667 0.666666667 0.016016016 1.317317
## 16668 0.667667668 0.016016016 1.316316
## 16669 0.668668669 0.016016016 1.315315
## 16670 0.669669670 0.016016016 1.314314
## 16671 0.670670671 0.016016016 1.313313
## 16672 0.671671672 0.016016016 1.312312
## 16673 0.672672673 0.016016016 1.311311
## 16674 0.673673674 0.016016016 1.310310
## 16675 0.674674675 0.016016016 1.309309
## 16676 0.675675676 0.016016016 1.308308
## 16677 0.676676677 0.016016016 1.307307
## 16678 0.677677678 0.016016016 1.306306
## 16679 0.678678679 0.016016016 1.305305
## 16680 0.679679680 0.016016016 1.304304
## 16681 0.680680681 0.016016016 1.303303
## 16682 0.681681682 0.016016016 1.302302
## 16683 0.682682683 0.016016016 1.301301
## 16684 0.683683684 0.016016016 1.300300
## 16685 0.684684685 0.016016016 1.299299
## 16686 0.685685686 0.016016016 1.298298
## 16687 0.686686687 0.016016016 1.297297
## 16688 0.687687688 0.016016016 1.296296
## 16689 0.688688689 0.016016016 1.295295
## 16690 0.689689690 0.016016016 1.294294
## 16691 0.690690691 0.016016016 1.293293
## 16692 0.691691692 0.016016016 1.292292
## 16693 0.692692693 0.016016016 1.291291
## 16694 0.693693694 0.016016016 1.290290
## 16695 0.694694695 0.016016016 1.289289
## 16696 0.695695696 0.016016016 1.288288
## 16697 0.696696697 0.016016016 1.287287
## 16698 0.697697698 0.016016016 1.286286
## 16699 0.698698699 0.016016016 1.285285
## 16700 0.699699700 0.016016016 1.284284
## 16701 0.700700701 0.016016016 1.283283
## 16702 0.701701702 0.016016016 1.282282
## 16703 0.702702703 0.016016016 1.281281
## 16704 0.703703704 0.016016016 1.280280
```

```

## 16705 0.704704705 0.016016016 1.279279
## 16706 0.705705706 0.016016016 1.278278
## 16707 0.706706707 0.016016016 1.277277
## 16708 0.707707708 0.016016016 1.276276
## 16709 0.708708709 0.016016016 1.275275
## 16710 0.709709710 0.016016016 1.274274
## 16711 0.710710711 0.016016016 1.273273
## 16712 0.711711712 0.016016016 1.272272
## 16713 0.712712713 0.016016016 1.271271
## 16714 0.713713714 0.016016016 1.270270
## 16715 0.714714715 0.016016016 1.269269
## 16716 0.715715716 0.016016016 1.268268
## 16717 0.716716717 0.016016016 1.267267
## 16718 0.717717718 0.016016016 1.266266
## 16719 0.718718719 0.016016016 1.265265
## 16720 0.719719720 0.016016016 1.264264
## 16721 0.720720721 0.016016016 1.263263
## 16722 0.721721722 0.016016016 1.262262
## 16723 0.722722723 0.016016016 1.261261
## 16724 0.723723724 0.016016016 1.260260
## 16725 0.724724725 0.016016016 1.259259
## 16726 0.725725726 0.016016016 1.258258
## 16727 0.726726727 0.016016016 1.257257
## 16728 0.727727728 0.016016016 1.256256
## 16729 0.728728729 0.016016016 1.255255
## 16730 0.729729730 0.016016016 1.254254
## 16731 0.730730731 0.016016016 1.253253
## 16732 0.731731732 0.016016016 1.252252
## 16733 0.732732733 0.016016016 1.251251
## 16734 0.733733734 0.016016016 1.250250
## 16735 0.734734735 0.016016016 1.249249
## 16736 0.735735736 0.016016016 1.248248
## 16737 0.736736737 0.016016016 1.247247
## 16738 0.737737738 0.016016016 1.246246
## 16739 0.738738739 0.016016016 1.245245
## 16740 0.739739740 0.016016016 1.244244
## 16741 0.740740741 0.016016016 1.243243
## 16742 0.741741742 0.016016016 1.242242
## 16743 0.742742743 0.016016016 1.241241
## 16744 0.743743744 0.016016016 1.240240
## 16745 0.744744745 0.016016016 1.239239
## 16746 0.745745746 0.016016016 1.238238
## 16747 0.746746747 0.016016016 1.237237
## 16748 0.747747748 0.016016016 1.236236
## 16749 0.748748749 0.016016016 1.235235
## 16750 0.749749750 0.016016016 1.234234

```

```
## 16751 0.750750751 0.016016016 1.233233
## 16752 0.751751752 0.016016016 1.232232
## 16753 0.752752753 0.016016016 1.231231
## 16754 0.753753754 0.016016016 1.230230
## 16755 0.754754755 0.016016016 1.229229
## 16756 0.755755756 0.016016016 1.228228
## 16757 0.756756757 0.016016016 1.227227
## 16758 0.757757758 0.016016016 1.226226
## 16759 0.758758759 0.016016016 1.225225
## 16760 0.759759760 0.016016016 1.224224
## 16761 0.760760761 0.016016016 1.223223
## 16762 0.761761762 0.016016016 1.222222
## 16763 0.762762763 0.016016016 1.221221
## 16764 0.763763764 0.016016016 1.220220
## 16765 0.764764765 0.016016016 1.219219
## 16766 0.765765766 0.016016016 1.218218
## 16767 0.766766767 0.016016016 1.217217
## 16768 0.767767768 0.016016016 1.216216
## 16769 0.768768769 0.016016016 1.215215
## 16770 0.769769770 0.016016016 1.214214
## 16771 0.770770771 0.016016016 1.213213
## 16772 0.771771772 0.016016016 1.212212
## 16773 0.772772773 0.016016016 1.211211
## 16774 0.773773774 0.016016016 1.210210
## 16775 0.774774775 0.016016016 1.209209
## 16776 0.775775776 0.016016016 1.208208
## 16777 0.776776777 0.016016016 1.207207
## 16778 0.777777778 0.016016016 1.206206
## 16779 0.778778779 0.016016016 1.205205
## 16780 0.779779780 0.016016016 1.204204
## 16781 0.780780781 0.016016016 1.203203
## 16782 0.781781782 0.016016016 1.202202
## 16783 0.782782783 0.016016016 1.201201
## 16784 0.783783784 0.016016016 1.200200
## 16785 0.784784785 0.016016016 1.199199
## 16786 0.785785786 0.016016016 1.198198
## 16787 0.786786787 0.016016016 1.197197
## 16788 0.787787788 0.016016016 1.196196
## 16789 0.788788789 0.016016016 1.195195
## 16790 0.789789790 0.016016016 1.194194
## 16791 0.790790791 0.016016016 1.193193
## 16792 0.791791792 0.016016016 1.192192
## 16793 0.792792793 0.016016016 1.191191
## 16794 0.793793794 0.016016016 1.190190
## 16795 0.794794795 0.016016016 1.189189
## 16796 0.795795796 0.016016016 1.188188
```

```

## 16797 0.796796797 0.016016016 1.187187
## 16798 0.797797798 0.016016016 1.186186
## 16799 0.798798799 0.016016016 1.185185
## 16800 0.799799800 0.016016016 1.184184
## 16801 0.800800801 0.016016016 1.183183
## 16802 0.801801802 0.016016016 1.182182
## 16803 0.802802803 0.016016016 1.181181
## 16804 0.803803804 0.016016016 1.180180
## 16805 0.804804805 0.016016016 1.179179
## 16806 0.805805806 0.016016016 1.178178
## 16807 0.806806807 0.016016016 1.177177
## 16808 0.807807808 0.016016016 1.176176
## 16809 0.808808809 0.016016016 1.175175
## 16810 0.809809810 0.016016016 1.174174
## 16811 0.810810811 0.016016016 1.173173
## 16812 0.811811812 0.016016016 1.172172
## 16813 0.812812813 0.016016016 1.171171
## 16814 0.813813814 0.016016016 1.170170
## 16815 0.814814815 0.016016016 1.169169
## 16816 0.815815816 0.016016016 1.168168
## 16817 0.816816817 0.016016016 1.167167
## 16818 0.817817818 0.016016016 1.166166
## 16819 0.818818819 0.016016016 1.165165
## 16820 0.819819820 0.016016016 1.164164
## 16821 0.820820821 0.016016016 1.163163
## 16822 0.821821822 0.016016016 1.162162
## 16823 0.822822823 0.016016016 1.161161
## 16824 0.823823824 0.016016016 1.160160
## 16825 0.824824825 0.016016016 1.159159
## 16826 0.825825826 0.016016016 1.158158
## 16827 0.826826827 0.016016016 1.157157
## 16828 0.827827828 0.016016016 1.156156
## 16829 0.828828829 0.016016016 1.155155
## 16830 0.829829830 0.016016016 1.154154
## 16831 0.830830831 0.016016016 1.153153
## 16832 0.831831832 0.016016016 1.152152
## 16833 0.832832833 0.016016016 1.151151
## 16834 0.833833834 0.016016016 1.150150
## 16835 0.834834835 0.016016016 1.149149
## 16836 0.835835836 0.016016016 1.148148
## 16837 0.836836837 0.016016016 1.147147
## 16838 0.837837838 0.016016016 1.146146
## 16839 0.838838839 0.016016016 1.145145
## 16840 0.839839840 0.016016016 1.144144
## 16841 0.840840841 0.016016016 1.143143
## 16842 0.841841842 0.016016016 1.142142

```

```
## 16843 0.842842843 0.016016016 1.141141
## 16844 0.843843844 0.016016016 1.140140
## 16845 0.844844845 0.016016016 1.139139
## 16846 0.845845846 0.016016016 1.138138
## 16847 0.846846847 0.016016016 1.137137
## 16848 0.847847848 0.016016016 1.136136
## 16849 0.848848849 0.016016016 1.135135
## 16850 0.849849850 0.016016016 1.134134
## 16851 0.850850851 0.016016016 1.133133
## 16852 0.851851852 0.016016016 1.132132
## 16853 0.852852853 0.016016016 1.131131
## 16854 0.853853854 0.016016016 1.130130
## 16855 0.854854855 0.016016016 1.129129
## 16856 0.855855856 0.016016016 1.128128
## 16857 0.856856857 0.016016016 1.127127
## 16858 0.857857858 0.016016016 1.126126
## 16859 0.858858859 0.016016016 1.125125
## 16860 0.859859860 0.016016016 1.124124
## 16861 0.860860861 0.016016016 1.123123
## 16862 0.861861862 0.016016016 1.122122
## 16863 0.862862863 0.016016016 1.121121
## 16864 0.863863864 0.016016016 1.120120
## 16865 0.864864865 0.016016016 1.119119
## 16866 0.865865866 0.016016016 1.118118
## 16867 0.866866867 0.016016016 1.117117
## 16868 0.867867868 0.016016016 1.116116
## 16869 0.868868869 0.016016016 1.115115
## 16870 0.869869870 0.016016016 1.114114
## 16871 0.870870871 0.016016016 1.113113
## 16872 0.871871872 0.016016016 1.112112
## 16873 0.872872873 0.016016016 1.111111
## 16874 0.873873874 0.016016016 1.110110
## 16875 0.874874875 0.016016016 1.109109
## 16876 0.875875876 0.016016016 1.108108
## 16877 0.876876877 0.016016016 1.107107
## 16878 0.877877878 0.016016016 1.106106
## 16879 0.878878879 0.016016016 1.105105
## 16880 0.879879880 0.016016016 1.104104
## 16881 0.880880881 0.016016016 1.103103
## 16882 0.881881882 0.016016016 1.102102
## 16883 0.882882883 0.016016016 1.101101
## 16884 0.883883884 0.016016016 1.100100
## 16885 0.884884885 0.016016016 1.099099
## 16886 0.885885886 0.016016016 1.098098
## 16887 0.886886887 0.016016016 1.097097
## 16888 0.887887888 0.016016016 1.096096
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 479

```
## 16889 0.888888889 0.016016016 1.095095
## 16890 0.889889890 0.016016016 1.094094
## 16891 0.890890891 0.016016016 1.093093
## 16892 0.891891892 0.016016016 1.092092
## 16893 0.892892893 0.016016016 1.091091
## 16894 0.893893894 0.016016016 1.090090
## 16895 0.894894895 0.016016016 1.089089
## 16896 0.895895896 0.016016016 1.088088
## 16897 0.896896897 0.016016016 1.087087
## 16898 0.897897898 0.016016016 1.086086
## 16899 0.898898899 0.016016016 1.085085
## 16900 0.899899900 0.016016016 1.084084
## 16901 0.900900901 0.016016016 1.083083
## 16902 0.901901902 0.016016016 1.082082
## 16903 0.902902903 0.016016016 1.081081
## 16904 0.903903904 0.016016016 1.080080
## 16905 0.904904905 0.016016016 1.079079
## 16906 0.905905906 0.016016016 1.078078
## 16907 0.906906907 0.016016016 1.077077
## 16908 0.907907908 0.016016016 1.076076
## 16909 0.908908909 0.016016016 1.075075
## 16910 0.909909910 0.016016016 1.074074
## 16911 0.910910911 0.016016016 1.073073
## 16912 0.911911912 0.016016016 1.072072
## 16913 0.912912913 0.016016016 1.071071
## 16914 0.913913914 0.016016016 1.070070
## 16915 0.914914915 0.016016016 1.069069
## 16916 0.915915916 0.016016016 1.068068
## 16917 0.916916917 0.016016016 1.067067
## 16918 0.917917918 0.016016016 1.066066
## 16919 0.918918919 0.016016016 1.065065
## 16920 0.919919920 0.016016016 1.064064
## 16921 0.920920921 0.016016016 1.063063
## 16922 0.921921922 0.016016016 1.062062
## 16923 0.922922923 0.016016016 1.061061
## 16924 0.923923924 0.016016016 1.060060
## 16925 0.924924925 0.016016016 1.059059
## 16926 0.925925926 0.016016016 1.058058
## 16927 0.926926927 0.016016016 1.057057
## 16928 0.927927928 0.016016016 1.056056
## 16929 0.928928929 0.016016016 1.055055
## 16930 0.929929930 0.016016016 1.054054
## 16931 0.930930931 0.016016016 1.053053
## 16932 0.931931932 0.016016016 1.052052
## 16933 0.932932933 0.016016016 1.051051
## 16934 0.933933934 0.016016016 1.050050
```

```
## 16935 0.934934935 0.016016016 1.049049
## 16936 0.935935936 0.016016016 1.048048
## 16937 0.936936937 0.016016016 1.047047
## 16938 0.937937938 0.016016016 1.046046
## 16939 0.938938939 0.016016016 1.045045
## 16940 0.939939940 0.016016016 1.044044
## 16941 0.940940941 0.016016016 1.043043
## 16942 0.941941942 0.016016016 1.042042
## 16943 0.942942943 0.016016016 1.041041
## 16944 0.943943944 0.016016016 1.040040
## 16945 0.9449444945 0.016016016 1.039039
## 16946 0.945945946 0.016016016 1.038038
## 16947 0.946946947 0.016016016 1.037037
## 16948 0.947947948 0.016016016 1.036036
## 16949 0.948948949 0.016016016 1.035035
## 16950 0.949949950 0.016016016 1.034034
## 16951 0.950950951 0.016016016 1.033033
## 16952 0.951951952 0.016016016 1.032032
## 16953 0.952952953 0.016016016 1.031031
## 16954 0.953953954 0.016016016 1.030030
## 16955 0.954954955 0.016016016 1.029029
## 16956 0.9559555956 0.016016016 1.028028
## 16957 0.956956957 0.016016016 1.027027
## 16958 0.957957958 0.016016016 1.026026
## 16959 0.958958959 0.016016016 1.025025
## 16960 0.959959960 0.016016016 1.024024
## 16961 0.960960961 0.016016016 1.023023
## 16962 0.961961962 0.016016016 1.022022
## 16963 0.962962963 0.016016016 1.021021
## 16964 0.963963964 0.016016016 1.020020
## 16965 0.964964965 0.016016016 1.019019
## 16966 0.965965966 0.016016016 1.018018
## 16967 0.966966967 0.016016016 1.017017
## 16968 0.967967968 0.016016016 1.016016
## 16969 0.968968969 0.016016016 1.015015
## 16970 0.969969970 0.016016016 1.014014
## 16971 0.970970971 0.016016016 1.013013
## 16972 0.971971972 0.016016016 1.012012
## 16973 0.972972973 0.016016016 1.011011
## 16974 0.973973974 0.016016016 1.010010
## 16975 0.974974975 0.016016016 1.009009
## 16976 0.975975976 0.016016016 1.008008
## 16977 0.976976977 0.016016016 1.007007
## 16978 0.977977978 0.016016016 1.006006
## 16979 0.978978979 0.016016016 1.005005
## 16980 0.979979980 0.016016016 1.004004
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 481

```
## 16981 0.980980981 0.016016016 1.003003
## 16982 0.981981982 0.016016016 1.002002
## 16983 0.982982983 0.016016016 1.001001
## 16984 0.983983984 0.016016016 1.000000
## 16985 0.984984985 0.016016016 0.998999
## 16986 0.985985986 0.016016016 0.997998
## 16987 0.986986987 0.016016016 0.996997
## 16988 0.987987988 0.016016016 0.995996
## 16989 0.988988989 0.016016016 0.994995
## 16990 0.989989990 0.016016016 0.993994
## 16991 0.990990991 0.016016016 0.992993
## 16992 0.991991992 0.016016016 0.991992
## 16993 0.992992993 0.016016016 0.990991
## 16994 0.993993994 0.016016016 0.989990
## 16995 0.994994995 0.016016016 0.988989
## 16996 0.995995996 0.016016016 0.987988
## 16997 0.996996997 0.016016016 0.986987
## 16998 0.997997998 0.016016016 0.985986
## 16999 0.998998999 0.016016016 0.984985
## 17000 1.000000000 0.016016016 0.983984
## 17001 0.000000000 0.017017017 1.982983
## 17002 0.001001001 0.017017017 1.981982
## 17003 0.002002002 0.017017017 1.980981
## 17004 0.003003003 0.017017017 1.979980
## 17005 0.004004004 0.017017017 1.978979
## 17006 0.005005005 0.017017017 1.977978
## 17007 0.006006006 0.017017017 1.976977
## 17008 0.007007007 0.017017017 1.975976
## 17009 0.008008008 0.017017017 1.974975
## 17010 0.009009009 0.017017017 1.973974
## 17011 0.010010010 0.017017017 1.972973
## 17012 0.011011011 0.017017017 1.971972
## 17013 0.012012012 0.017017017 1.970971
## 17014 0.013013013 0.017017017 1.969970
## 17015 0.014014014 0.017017017 1.968969
## 17016 0.015015015 0.017017017 1.967968
## 17017 0.016016016 0.017017017 1.966967
## 17018 0.017017017 0.017017017 1.965966
## 17019 0.018018018 0.017017017 1.964965
## 17020 0.019019019 0.017017017 1.963964
## 17021 0.020020020 0.017017017 1.962963
## 17022 0.021021021 0.017017017 1.961962
## 17023 0.022022022 0.017017017 1.960961
## 17024 0.023023023 0.017017017 1.959960
## 17025 0.024024024 0.017017017 1.958959
## 17026 0.025025025 0.017017017 1.957958
```

```
## 17027 0.026026026 0.017017017 1.956957
## 17028 0.027027027 0.017017017 1.955956
## 17029 0.028028028 0.017017017 1.954955
## 17030 0.029029029 0.017017017 1.953954
## 17031 0.030030030 0.017017017 1.952953
## 17032 0.031031031 0.017017017 1.951952
## 17033 0.032032032 0.017017017 1.950951
## 17034 0.033033033 0.017017017 1.949950
## 17035 0.034034034 0.017017017 1.948949
## 17036 0.035035035 0.017017017 1.947948
## 17037 0.036036036 0.017017017 1.946947
## 17038 0.037037037 0.017017017 1.945946
## 17039 0.038038038 0.017017017 1.944945
## 17040 0.039039039 0.017017017 1.943944
## 17041 0.040040040 0.017017017 1.942943
## 17042 0.041041041 0.017017017 1.941942
## 17043 0.042042042 0.017017017 1.940941
## 17044 0.043043043 0.017017017 1.939940
## 17045 0.044044044 0.017017017 1.938939
## 17046 0.045045045 0.017017017 1.937938
## 17047 0.046046046 0.017017017 1.936937
## 17048 0.047047047 0.017017017 1.935936
## 17049 0.048048048 0.017017017 1.934935
## 17050 0.049049049 0.017017017 1.933934
## 17051 0.050050050 0.017017017 1.932933
## 17052 0.051051051 0.017017017 1.931932
## 17053 0.052052052 0.017017017 1.930931
## 17054 0.053053053 0.017017017 1.929930
## 17055 0.054054054 0.017017017 1.928929
## 17056 0.055055055 0.017017017 1.927928
## 17057 0.056056056 0.017017017 1.926927
## 17058 0.057057057 0.017017017 1.925926
## 17059 0.058058058 0.017017017 1.924925
## 17060 0.059059059 0.017017017 1.923924
## 17061 0.060060060 0.017017017 1.922923
## 17062 0.061061061 0.017017017 1.921922
## 17063 0.062062062 0.017017017 1.920921
## 17064 0.063063063 0.017017017 1.919920
## 17065 0.064064064 0.017017017 1.918919
## 17066 0.065065065 0.017017017 1.917918
## 17067 0.066066066 0.017017017 1.916917
## 17068 0.067067067 0.017017017 1.915916
## 17069 0.068068068 0.017017017 1.914915
## 17070 0.069069069 0.017017017 1.913914
## 17071 0.070070070 0.017017017 1.912913
## 17072 0.071071071 0.017017017 1.911912
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 483

```
## 17073 0.072072072 0.017017017 1.910911
## 17074 0.073073073 0.017017017 1.909910
## 17075 0.074074074 0.017017017 1.908909
## 17076 0.075075075 0.017017017 1.907908
## 17077 0.076076076 0.017017017 1.906907
## 17078 0.077077077 0.017017017 1.905906
## 17079 0.078078078 0.017017017 1.904905
## 17080 0.079079079 0.017017017 1.903904
## 17081 0.080080080 0.017017017 1.902903
## 17082 0.081081081 0.017017017 1.901902
## 17083 0.082082082 0.017017017 1.900901
## 17084 0.083083083 0.017017017 1.899900
## 17085 0.084084084 0.017017017 1.898899
## 17086 0.085085085 0.017017017 1.897898
## 17087 0.086086086 0.017017017 1.896897
## 17088 0.087087087 0.017017017 1.895896
## 17089 0.088088088 0.017017017 1.894895
## 17090 0.089089089 0.017017017 1.893894
## 17091 0.090090090 0.017017017 1.892893
## 17092 0.091091091 0.017017017 1.891892
## 17093 0.092092092 0.017017017 1.890891
## 17094 0.093093093 0.017017017 1.889890
## 17095 0.094094094 0.017017017 1.888889
## 17096 0.095095095 0.017017017 1.887888
## 17097 0.096096096 0.017017017 1.886887
## 17098 0.097097097 0.017017017 1.885886
## 17099 0.098098098 0.017017017 1.884885
## 17100 0.099099099 0.017017017 1.883884
## 17101 0.100100100 0.017017017 1.882883
## 17102 0.101101101 0.017017017 1.881882
## 17103 0.102102102 0.017017017 1.880881
## 17104 0.103103103 0.017017017 1.879880
## 17105 0.104104104 0.017017017 1.878879
## 17106 0.105105105 0.017017017 1.877878
## 17107 0.106106106 0.017017017 1.876877
## 17108 0.107107107 0.017017017 1.875876
## 17109 0.108108108 0.017017017 1.874875
## 17110 0.109109109 0.017017017 1.873874
## 17111 0.110110110 0.017017017 1.872873
## 17112 0.111111111 0.017017017 1.871872
## 17113 0.112112112 0.017017017 1.870871
## 17114 0.113113113 0.017017017 1.869870
## 17115 0.114114114 0.017017017 1.868869
## 17116 0.115115115 0.017017017 1.867868
## 17117 0.116116116 0.017017017 1.866867
## 17118 0.117117117 0.017017017 1.865866
```

```
## 17119 0.118118118 0.017017017 1.864865
## 17120 0.119119119 0.017017017 1.863864
## 17121 0.120120120 0.017017017 1.862863
## 17122 0.121121121 0.017017017 1.861862
## 17123 0.122122122 0.017017017 1.860861
## 17124 0.123123123 0.017017017 1.859860
## 17125 0.124124124 0.017017017 1.858859
## 17126 0.125125125 0.017017017 1.857858
## 17127 0.126126126 0.017017017 1.856857
## 17128 0.127127127 0.017017017 1.855856
## 17129 0.128128128 0.017017017 1.854855
## 17130 0.129129129 0.017017017 1.853854
## 17131 0.130130130 0.017017017 1.852853
## 17132 0.131131131 0.017017017 1.851852
## 17133 0.132132132 0.017017017 1.850851
## 17134 0.133133133 0.017017017 1.849850
## 17135 0.134134134 0.017017017 1.848849
## 17136 0.135135135 0.017017017 1.847848
## 17137 0.136136136 0.017017017 1.846847
## 17138 0.137137137 0.017017017 1.845846
## 17139 0.138138138 0.017017017 1.844845
## 17140 0.139139139 0.017017017 1.843844
## 17141 0.140140140 0.017017017 1.842843
## 17142 0.141141141 0.017017017 1.841842
## 17143 0.142142142 0.017017017 1.840841
## 17144 0.143143143 0.017017017 1.839840
## 17145 0.144144144 0.017017017 1.838839
## 17146 0.145145145 0.017017017 1.837838
## 17147 0.146146146 0.017017017 1.836837
## 17148 0.147147147 0.017017017 1.835836
## 17149 0.148148148 0.017017017 1.834835
## 17150 0.149149149 0.017017017 1.833834
## 17151 0.150150150 0.017017017 1.832833
## 17152 0.151151151 0.017017017 1.831832
## 17153 0.152152152 0.017017017 1.830831
## 17154 0.153153153 0.017017017 1.829830
## 17155 0.154154154 0.017017017 1.828829
## 17156 0.155155155 0.017017017 1.827828
## 17157 0.156156156 0.017017017 1.826827
## 17158 0.157157157 0.017017017 1.825826
## 17159 0.158158158 0.017017017 1.824825
## 17160 0.159159159 0.017017017 1.823824
## 17161 0.160160160 0.017017017 1.822823
## 17162 0.161161161 0.017017017 1.821822
## 17163 0.162162162 0.017017017 1.820821
## 17164 0.163163163 0.017017017 1.819820
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 485

```
## 17165 0.164164164 0.017017017 1.818819
## 17166 0.165165165 0.017017017 1.817818
## 17167 0.166166166 0.017017017 1.816817
## 17168 0.167167167 0.017017017 1.815816
## 17169 0.168168168 0.017017017 1.814815
## 17170 0.169169169 0.017017017 1.813814
## 17171 0.170170170 0.017017017 1.812813
## 17172 0.171171171 0.017017017 1.811812
## 17173 0.172172172 0.017017017 1.810811
## 17174 0.173173173 0.017017017 1.809810
## 17175 0.174174174 0.017017017 1.808809
## 17176 0.175175175 0.017017017 1.807808
## 17177 0.176176176 0.017017017 1.806807
## 17178 0.177177177 0.017017017 1.805806
## 17179 0.178178178 0.017017017 1.804805
## 17180 0.179179179 0.017017017 1.803804
## 17181 0.180180180 0.017017017 1.802803
## 17182 0.181181181 0.017017017 1.801802
## 17183 0.182182182 0.017017017 1.800801
## 17184 0.183183183 0.017017017 1.799800
## 17185 0.184184184 0.017017017 1.798799
## 17186 0.185185185 0.017017017 1.797798
## 17187 0.186186186 0.017017017 1.796797
## 17188 0.187187187 0.017017017 1.795796
## 17189 0.188188188 0.017017017 1.794795
## 17190 0.189189189 0.017017017 1.793794
## 17191 0.190190190 0.017017017 1.792793
## 17192 0.191191191 0.017017017 1.791792
## 17193 0.192192192 0.017017017 1.790791
## 17194 0.193193193 0.017017017 1.789790
## 17195 0.194194194 0.017017017 1.788789
## 17196 0.195195195 0.017017017 1.787788
## 17197 0.196196196 0.017017017 1.786787
## 17198 0.197197197 0.017017017 1.785786
## 17199 0.198198198 0.017017017 1.784785
## 17200 0.199199199 0.017017017 1.783784
## 17201 0.200200200 0.017017017 1.782783
## 17202 0.201201201 0.017017017 1.781782
## 17203 0.202202202 0.017017017 1.780781
## 17204 0.203203203 0.017017017 1.779780
## 17205 0.204204204 0.017017017 1.778779
## 17206 0.205205205 0.017017017 1.777778
## 17207 0.206206206 0.017017017 1.776777
## 17208 0.207207207 0.017017017 1.775776
## 17209 0.208208208 0.017017017 1.774775
## 17210 0.209209209 0.017017017 1.773774
```

```
## 17211 0.210210210 0.017017017 1.772773
## 17212 0.211211211 0.017017017 1.771772
## 17213 0.212212212 0.017017017 1.770771
## 17214 0.213213213 0.017017017 1.769770
## 17215 0.214214214 0.017017017 1.768769
## 17216 0.215215215 0.017017017 1.767768
## 17217 0.216216216 0.017017017 1.766767
## 17218 0.217217217 0.017017017 1.765766
## 17219 0.218218218 0.017017017 1.764765
## 17220 0.219219219 0.017017017 1.763764
## 17221 0.220220220 0.017017017 1.762763
## 17222 0.221221221 0.017017017 1.761762
## 17223 0.222222222 0.017017017 1.760761
## 17224 0.223223223 0.017017017 1.759760
## 17225 0.224224224 0.017017017 1.758759
## 17226 0.225225225 0.017017017 1.757758
## 17227 0.226226226 0.017017017 1.756757
## 17228 0.227227227 0.017017017 1.755756
## 17229 0.228228228 0.017017017 1.754755
## 17230 0.229229229 0.017017017 1.753754
## 17231 0.230230230 0.017017017 1.752753
## 17232 0.231231231 0.017017017 1.751752
## 17233 0.232232232 0.017017017 1.750751
## 17234 0.233233233 0.017017017 1.749750
## 17235 0.234234234 0.017017017 1.748749
## 17236 0.235235235 0.017017017 1.747748
## 17237 0.236236236 0.017017017 1.746747
## 17238 0.237237237 0.017017017 1.745746
## 17239 0.238238238 0.017017017 1.744745
## 17240 0.239239239 0.017017017 1.743744
## 17241 0.240240240 0.017017017 1.742743
## 17242 0.241241241 0.017017017 1.741742
## 17243 0.242242242 0.017017017 1.740741
## 17244 0.243243243 0.017017017 1.739740
## 17245 0.244244244 0.017017017 1.738739
## 17246 0.245245245 0.017017017 1.737738
## 17247 0.246246246 0.017017017 1.736737
## 17248 0.247247247 0.017017017 1.735736
## 17249 0.248248248 0.017017017 1.734735
## 17250 0.249249249 0.017017017 1.733734
## 17251 0.250250250 0.017017017 1.732733
## 17252 0.251251251 0.017017017 1.731732
## 17253 0.252252252 0.017017017 1.730731
## 17254 0.253253253 0.017017017 1.729730
## 17255 0.254254254 0.017017017 1.728729
## 17256 0.255255255 0.017017017 1.727728
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 487

```
## 17257 0.256256256 0.017017017 1.726727
## 17258 0.257257257 0.017017017 1.725726
## 17259 0.258258258 0.017017017 1.724725
## 17260 0.259259259 0.017017017 1.723724
## 17261 0.260260260 0.017017017 1.722723
## 17262 0.261261261 0.017017017 1.721722
## 17263 0.262262262 0.017017017 1.720721
## 17264 0.263263263 0.017017017 1.719720
## 17265 0.264264264 0.017017017 1.718719
## 17266 0.265265265 0.017017017 1.717718
## 17267 0.266266266 0.017017017 1.716717
## 17268 0.267267267 0.017017017 1.715716
## 17269 0.268268268 0.017017017 1.714715
## 17270 0.269269269 0.017017017 1.713714
## 17271 0.270270270 0.017017017 1.712713
## 17272 0.271271271 0.017017017 1.711712
## 17273 0.272272272 0.017017017 1.710711
## 17274 0.273273273 0.017017017 1.709710
## 17275 0.274274274 0.017017017 1.708709
## 17276 0.275275275 0.017017017 1.707708
## 17277 0.276276276 0.017017017 1.706707
## 17278 0.277277277 0.017017017 1.705706
## 17279 0.278278278 0.017017017 1.704705
## 17280 0.279279279 0.017017017 1.703704
## 17281 0.280280280 0.017017017 1.702703
## 17282 0.281281281 0.017017017 1.701702
## 17283 0.282282282 0.017017017 1.700701
## 17284 0.283283283 0.017017017 1.699700
## 17285 0.284284284 0.017017017 1.698699
## 17286 0.285285285 0.017017017 1.697698
## 17287 0.286286286 0.017017017 1.696697
## 17288 0.287287287 0.017017017 1.695696
## 17289 0.288288288 0.017017017 1.694695
## 17290 0.289289289 0.017017017 1.693694
## 17291 0.290290290 0.017017017 1.692693
## 17292 0.291291291 0.017017017 1.691692
## 17293 0.292292292 0.017017017 1.690691
## 17294 0.293293293 0.017017017 1.689690
## 17295 0.294294294 0.017017017 1.688689
## 17296 0.295295295 0.017017017 1.687688
## 17297 0.296296296 0.017017017 1.686687
## 17298 0.297297297 0.017017017 1.685686
## 17299 0.298298298 0.017017017 1.684685
## 17300 0.299299299 0.017017017 1.683684
## 17301 0.300300300 0.017017017 1.682683
## 17302 0.301301301 0.017017017 1.681682
```

```
## 17303 0.302302302 0.017017017 1.680681
## 17304 0.303303303 0.017017017 1.679680
## 17305 0.304304304 0.017017017 1.678679
## 17306 0.305305305 0.017017017 1.677678
## 17307 0.306306306 0.017017017 1.676677
## 17308 0.307307307 0.017017017 1.675676
## 17309 0.308308308 0.017017017 1.674675
## 17310 0.309309309 0.017017017 1.673674
## 17311 0.310310310 0.017017017 1.672673
## 17312 0.311311311 0.017017017 1.671672
## 17313 0.312312312 0.017017017 1.670671
## 17314 0.313313313 0.017017017 1.669670
## 17315 0.314314314 0.017017017 1.668669
## 17316 0.315315315 0.017017017 1.667668
## 17317 0.316316316 0.017017017 1.666667
## 17318 0.317317317 0.017017017 1.665666
## 17319 0.318318318 0.017017017 1.664665
## 17320 0.319319319 0.017017017 1.663664
## 17321 0.320320320 0.017017017 1.662663
## 17322 0.321321321 0.017017017 1.661662
## 17323 0.322322322 0.017017017 1.660661
## 17324 0.323323323 0.017017017 1.659660
## 17325 0.324324324 0.017017017 1.658659
## 17326 0.325325325 0.017017017 1.657658
## 17327 0.326326326 0.017017017 1.656657
## 17328 0.327327327 0.017017017 1.655656
## 17329 0.328328328 0.017017017 1.654655
## 17330 0.329329329 0.017017017 1.653654
## 17331 0.330330330 0.017017017 1.652653
## 17332 0.331331331 0.017017017 1.651652
## 17333 0.332332332 0.017017017 1.650651
## 17334 0.333333333 0.017017017 1.649650
## 17335 0.334334334 0.017017017 1.648649
## 17336 0.335335335 0.017017017 1.647648
## 17337 0.336336336 0.017017017 1.646647
## 17338 0.337337337 0.017017017 1.645646
## 17339 0.338338338 0.017017017 1.644645
## 17340 0.339339339 0.017017017 1.643644
## 17341 0.340340340 0.017017017 1.642643
## 17342 0.341341341 0.017017017 1.641642
## 17343 0.342342342 0.017017017 1.640641
## 17344 0.343343343 0.017017017 1.639640
## 17345 0.344344344 0.017017017 1.638639
## 17346 0.345345345 0.017017017 1.637638
## 17347 0.346346346 0.017017017 1.636637
## 17348 0.347347347 0.017017017 1.635636
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 489

```
## 17349 0.348348348 0.017017017 1.634635
## 17350 0.349349349 0.017017017 1.633634
## 17351 0.350350350 0.017017017 1.632633
## 17352 0.351351351 0.017017017 1.631632
## 17353 0.352352352 0.017017017 1.630631
## 17354 0.353353353 0.017017017 1.629630
## 17355 0.354354354 0.017017017 1.628629
## 17356 0.355355355 0.017017017 1.627628
## 17357 0.356356356 0.017017017 1.626627
## 17358 0.357357357 0.017017017 1.625626
## 17359 0.358358358 0.017017017 1.624625
## 17360 0.359359359 0.017017017 1.623624
## 17361 0.360360360 0.017017017 1.622623
## 17362 0.361361361 0.017017017 1.621622
## 17363 0.362362362 0.017017017 1.620621
## 17364 0.363363363 0.017017017 1.619620
## 17365 0.364364364 0.017017017 1.618619
## 17366 0.365365365 0.017017017 1.617618
## 17367 0.366366366 0.017017017 1.616617
## 17368 0.367367367 0.017017017 1.615616
## 17369 0.368368368 0.017017017 1.614615
## 17370 0.369369369 0.017017017 1.613614
## 17371 0.370370370 0.017017017 1.612613
## 17372 0.371371371 0.017017017 1.611612
## 17373 0.372372372 0.017017017 1.610611
## 17374 0.373373373 0.017017017 1.609610
## 17375 0.374374374 0.017017017 1.608609
## 17376 0.375375375 0.017017017 1.607608
## 17377 0.376376376 0.017017017 1.606607
## 17378 0.377377377 0.017017017 1.605606
## 17379 0.378378378 0.017017017 1.604605
## 17380 0.379379379 0.017017017 1.603604
## 17381 0.380380380 0.017017017 1.602603
## 17382 0.381381381 0.017017017 1.601602
## 17383 0.382382382 0.017017017 1.600601
## 17384 0.383383383 0.017017017 1.599600
## 17385 0.384384384 0.017017017 1.598599
## 17386 0.385385385 0.017017017 1.597598
## 17387 0.386386386 0.017017017 1.596597
## 17388 0.387387387 0.017017017 1.595596
## 17389 0.388388388 0.017017017 1.594595
## 17390 0.389389389 0.017017017 1.593594
## 17391 0.390390390 0.017017017 1.592593
## 17392 0.391391391 0.017017017 1.591592
## 17393 0.392392392 0.017017017 1.590591
## 17394 0.393393393 0.017017017 1.589590
```

```
## 17395 0.394394394 0.017017017 1.588589
## 17396 0.395395395 0.017017017 1.587588
## 17397 0.396396396 0.017017017 1.586587
## 17398 0.397397397 0.017017017 1.585586
## 17399 0.398398398 0.017017017 1.584585
## 17400 0.399399399 0.017017017 1.583584
## 17401 0.400400400 0.017017017 1.582583
## 17402 0.401401401 0.017017017 1.581582
## 17403 0.402402402 0.017017017 1.580581
## 17404 0.403403403 0.017017017 1.579580
## 17405 0.404404404 0.017017017 1.578579
## 17406 0.405405405 0.017017017 1.577578
## 17407 0.406406406 0.017017017 1.576577
## 17408 0.407407407 0.017017017 1.575576
## 17409 0.408408408 0.017017017 1.574575
## 17410 0.409409409 0.017017017 1.573574
## 17411 0.410410410 0.017017017 1.572573
## 17412 0.411411411 0.017017017 1.571572
## 17413 0.412412412 0.017017017 1.570571
## 17414 0.413413413 0.017017017 1.569570
## 17415 0.414414414 0.017017017 1.568569
## 17416 0.415415415 0.017017017 1.567568
## 17417 0.416416416 0.017017017 1.566567
## 17418 0.417417417 0.017017017 1.565566
## 17419 0.418418418 0.017017017 1.564565
## 17420 0.419419419 0.017017017 1.563564
## 17421 0.420420420 0.017017017 1.562563
## 17422 0.421421421 0.017017017 1.561562
## 17423 0.422422422 0.017017017 1.560561
## 17424 0.423423423 0.017017017 1.559560
## 17425 0.424424424 0.017017017 1.558559
## 17426 0.425425425 0.017017017 1.557558
## 17427 0.426426426 0.017017017 1.556557
## 17428 0.427427427 0.017017017 1.555556
## 17429 0.428428428 0.017017017 1.554555
## 17430 0.429429429 0.017017017 1.553554
## 17431 0.430430430 0.017017017 1.552553
## 17432 0.431431431 0.017017017 1.551552
## 17433 0.432432432 0.017017017 1.550551
## 17434 0.433433433 0.017017017 1.549550
## 17435 0.434434434 0.017017017 1.548549
## 17436 0.435435435 0.017017017 1.547548
## 17437 0.436436436 0.017017017 1.546547
## 17438 0.437437437 0.017017017 1.545546
## 17439 0.438438438 0.017017017 1.544545
## 17440 0.439439439 0.017017017 1.543544
```

```

## 17441 0.440440440 0.017017017 1.542543
## 17442 0.441441441 0.017017017 1.541542
## 17443 0.442442442 0.017017017 1.540541
## 17444 0.443443443 0.017017017 1.539540
## 17445 0.444444444 0.017017017 1.538539
## 17446 0.445445445 0.017017017 1.537538
## 17447 0.446446446 0.017017017 1.536537
## 17448 0.447447447 0.017017017 1.535536
## 17449 0.448448448 0.017017017 1.534535
## 17450 0.449449449 0.017017017 1.533534
## 17451 0.450450450 0.017017017 1.532533
## 17452 0.451451451 0.017017017 1.531532
## 17453 0.452452452 0.017017017 1.530531
## 17454 0.453453453 0.017017017 1.529530
## 17455 0.454454454 0.017017017 1.528529
## 17456 0.455455455 0.017017017 1.527528
## 17457 0.456456456 0.017017017 1.526527
## 17458 0.457457457 0.017017017 1.525526
## 17459 0.458458458 0.017017017 1.524525
## 17460 0.459459459 0.017017017 1.523524
## 17461 0.460460460 0.017017017 1.522523
## 17462 0.461461461 0.017017017 1.521522
## 17463 0.462462462 0.017017017 1.520521
## 17464 0.463463463 0.017017017 1.519520
## 17465 0.464464464 0.017017017 1.518519
## 17466 0.465465465 0.017017017 1.517518
## 17467 0.466466466 0.017017017 1.516517
## 17468 0.467467467 0.017017017 1.515516
## 17469 0.468468468 0.017017017 1.514515
## 17470 0.469469469 0.017017017 1.513514
## 17471 0.470470470 0.017017017 1.512513
## 17472 0.471471471 0.017017017 1.511512
## 17473 0.472472472 0.017017017 1.510511
## 17474 0.473473473 0.017017017 1.509510
## 17475 0.474474474 0.017017017 1.508509
## 17476 0.475475475 0.017017017 1.507508
## 17477 0.476476476 0.017017017 1.506507
## 17478 0.477477477 0.017017017 1.505506
## 17479 0.478478478 0.017017017 1.504505
## 17480 0.479479479 0.017017017 1.503504
## 17481 0.480480480 0.017017017 1.502503
## 17482 0.481481481 0.017017017 1.501502
## 17483 0.482482482 0.017017017 1.500501
## 17484 0.483483483 0.017017017 1.499499
## 17485 0.484484484 0.017017017 1.498498
## 17486 0.485485485 0.017017017 1.497497

```

```
## 17487 0.486486486 0.017017017 1.496496
## 17488 0.487487487 0.017017017 1.495495
## 17489 0.488488488 0.017017017 1.494494
## 17490 0.489489489 0.017017017 1.493493
## 17491 0.490490490 0.017017017 1.492492
## 17492 0.491491491 0.017017017 1.491491
## 17493 0.492492492 0.017017017 1.490490
## 17494 0.493493493 0.017017017 1.489489
## 17495 0.494494494 0.017017017 1.488488
## 17496 0.495495495 0.017017017 1.487487
## 17497 0.496496496 0.017017017 1.486486
## 17498 0.497497497 0.017017017 1.485485
## 17499 0.498498498 0.017017017 1.484484
## 17500 0.499499499 0.017017017 1.483483
## 17501 0.500500501 0.017017017 1.482482
## 17502 0.501501502 0.017017017 1.481481
## 17503 0.502502503 0.017017017 1.480480
## 17504 0.503503504 0.017017017 1.479479
## 17505 0.504504505 0.017017017 1.478478
## 17506 0.505505506 0.017017017 1.477477
## 17507 0.506506507 0.017017017 1.476476
## 17508 0.507507508 0.017017017 1.475475
## 17509 0.508508509 0.017017017 1.474474
## 17510 0.509509510 0.017017017 1.473473
## 17511 0.510510511 0.017017017 1.472472
## 17512 0.511511512 0.017017017 1.471471
## 17513 0.512512513 0.017017017 1.470470
## 17514 0.513513514 0.017017017 1.469469
## 17515 0.514514515 0.017017017 1.468468
## 17516 0.515515516 0.017017017 1.467467
## 17517 0.516516517 0.017017017 1.466466
## 17518 0.517517518 0.017017017 1.465465
## 17519 0.518518519 0.017017017 1.464464
## 17520 0.519519520 0.017017017 1.463463
## 17521 0.520520521 0.017017017 1.462462
## 17522 0.521521522 0.017017017 1.461461
## 17523 0.522522523 0.017017017 1.460460
## 17524 0.523523524 0.017017017 1.459459
## 17525 0.524524525 0.017017017 1.458458
## 17526 0.525525526 0.017017017 1.457457
## 17527 0.526526527 0.017017017 1.456456
## 17528 0.527527528 0.017017017 1.455455
## 17529 0.528528529 0.017017017 1.454454
## 17530 0.529529530 0.017017017 1.453453
## 17531 0.530530531 0.017017017 1.452452
## 17532 0.531531532 0.017017017 1.451451
```

```
## 17533 0.532532533 0.017017017 1.450450
## 17534 0.533533534 0.017017017 1.449449
## 17535 0.534534535 0.017017017 1.448448
## 17536 0.535535536 0.017017017 1.447447
## 17537 0.536536537 0.017017017 1.446446
## 17538 0.537537538 0.017017017 1.445445
## 17539 0.538538539 0.017017017 1.444444
## 17540 0.539539540 0.017017017 1.443443
## 17541 0.540540541 0.017017017 1.442442
## 17542 0.541541542 0.017017017 1.441441
## 17543 0.542542543 0.017017017 1.440440
## 17544 0.543543544 0.017017017 1.439439
## 17545 0.544544545 0.017017017 1.438438
## 17546 0.545545546 0.017017017 1.437437
## 17547 0.546546547 0.017017017 1.436436
## 17548 0.547547548 0.017017017 1.435435
## 17549 0.548548549 0.017017017 1.434434
## 17550 0.549549550 0.017017017 1.433433
## 17551 0.550550551 0.017017017 1.432432
## 17552 0.551551552 0.017017017 1.431431
## 17553 0.552552553 0.017017017 1.430430
## 17554 0.553553554 0.017017017 1.429429
## 17555 0.554554555 0.017017017 1.428428
## 17556 0.555555556 0.017017017 1.427427
## 17557 0.556556557 0.017017017 1.426426
## 17558 0.557557558 0.017017017 1.425425
## 17559 0.558558559 0.017017017 1.424424
## 17560 0.559559560 0.017017017 1.423423
## 17561 0.560560561 0.017017017 1.422422
## 17562 0.561561562 0.017017017 1.421421
## 17563 0.562562563 0.017017017 1.420420
## 17564 0.563563564 0.017017017 1.419419
## 17565 0.564564565 0.017017017 1.418418
## 17566 0.565565566 0.017017017 1.417417
## 17567 0.566566567 0.017017017 1.416416
## 17568 0.567567568 0.017017017 1.415415
## 17569 0.568568569 0.017017017 1.414414
## 17570 0.569569570 0.017017017 1.413413
## 17571 0.570570571 0.017017017 1.412412
## 17572 0.571571572 0.017017017 1.411411
## 17573 0.572572573 0.017017017 1.410410
## 17574 0.573573574 0.017017017 1.409409
## 17575 0.574574575 0.017017017 1.408408
## 17576 0.575575576 0.017017017 1.407407
## 17577 0.576576577 0.017017017 1.406406
## 17578 0.577577578 0.017017017 1.405405
```

```
## 17579 0.578578579 0.017017017 1.404404
## 17580 0.579579580 0.017017017 1.403403
## 17581 0.580580581 0.017017017 1.402402
## 17582 0.581581582 0.017017017 1.401401
## 17583 0.582582583 0.017017017 1.400400
## 17584 0.583583584 0.017017017 1.399399
## 17585 0.584584585 0.017017017 1.398398
## 17586 0.585585586 0.017017017 1.397397
## 17587 0.586586587 0.017017017 1.396396
## 17588 0.587587588 0.017017017 1.395395
## 17589 0.588588589 0.017017017 1.394394
## 17590 0.589589590 0.017017017 1.393393
## 17591 0.590590591 0.017017017 1.392392
## 17592 0.591591592 0.017017017 1.391391
## 17593 0.592592593 0.017017017 1.390390
## 17594 0.593593594 0.017017017 1.389389
## 17595 0.594594595 0.017017017 1.388388
## 17596 0.595595596 0.017017017 1.387387
## 17597 0.596596597 0.017017017 1.386386
## 17598 0.597597598 0.017017017 1.385385
## 17599 0.598598599 0.017017017 1.384384
## 17600 0.599599600 0.017017017 1.383383
## 17601 0.600600601 0.017017017 1.382382
## 17602 0.601601602 0.017017017 1.381381
## 17603 0.602602603 0.017017017 1.380380
## 17604 0.603603604 0.017017017 1.379379
## 17605 0.604604605 0.017017017 1.378378
## 17606 0.605605606 0.017017017 1.377377
## 17607 0.606606607 0.017017017 1.376376
## 17608 0.607607608 0.017017017 1.375375
## 17609 0.608608609 0.017017017 1.374374
## 17610 0.609609610 0.017017017 1.373373
## 17611 0.610610611 0.017017017 1.372372
## 17612 0.611611612 0.017017017 1.371371
## 17613 0.612612613 0.017017017 1.370370
## 17614 0.613613614 0.017017017 1.369369
## 17615 0.614614615 0.017017017 1.368368
## 17616 0.615615616 0.017017017 1.367367
## 17617 0.616616617 0.017017017 1.366366
## 17618 0.617617618 0.017017017 1.365365
## 17619 0.618618619 0.017017017 1.364364
## 17620 0.619619620 0.017017017 1.363363
## 17621 0.620620621 0.017017017 1.362362
## 17622 0.621621622 0.017017017 1.361361
## 17623 0.622622623 0.017017017 1.360360
## 17624 0.623623624 0.017017017 1.359359
```

```

## 17625 0.624624625 0.017017017 1.358358
## 17626 0.625625626 0.017017017 1.357357
## 17627 0.626626627 0.017017017 1.356356
## 17628 0.627627628 0.017017017 1.355355
## 17629 0.628628629 0.017017017 1.354354
## 17630 0.629629630 0.017017017 1.353353
## 17631 0.630630631 0.017017017 1.352352
## 17632 0.631631632 0.017017017 1.351351
## 17633 0.632632633 0.017017017 1.350350
## 17634 0.633633634 0.017017017 1.349349
## 17635 0.634634635 0.017017017 1.348348
## 17636 0.635635636 0.017017017 1.347347
## 17637 0.636636637 0.017017017 1.346346
## 17638 0.637637638 0.017017017 1.345345
## 17639 0.638638639 0.017017017 1.344344
## 17640 0.639639640 0.017017017 1.343343
## 17641 0.640640641 0.017017017 1.342342
## 17642 0.641641642 0.017017017 1.341341
## 17643 0.642642643 0.017017017 1.340340
## 17644 0.643643644 0.017017017 1.339339
## 17645 0.644644645 0.017017017 1.338338
## 17646 0.645645646 0.017017017 1.337337
## 17647 0.646646647 0.017017017 1.336336
## 17648 0.647647648 0.017017017 1.335335
## 17649 0.648648649 0.017017017 1.334334
## 17650 0.649649650 0.017017017 1.333333
## 17651 0.650650651 0.017017017 1.332332
## 17652 0.651651652 0.017017017 1.331331
## 17653 0.652652653 0.017017017 1.330330
## 17654 0.653653654 0.017017017 1.329329
## 17655 0.654654655 0.017017017 1.328328
## 17656 0.6556555656 0.017017017 1.327327
## 17657 0.656656657 0.017017017 1.326326
## 17658 0.657657658 0.017017017 1.325325
## 17659 0.658658659 0.017017017 1.324324
## 17660 0.659659660 0.017017017 1.323323
## 17661 0.660660661 0.017017017 1.322322
## 17662 0.661661662 0.017017017 1.321321
## 17663 0.662662663 0.017017017 1.320320
## 17664 0.663663664 0.017017017 1.319319
## 17665 0.664664665 0.017017017 1.318318
## 17666 0.665665666 0.017017017 1.317317
## 17667 0.666666667 0.017017017 1.316316
## 17668 0.667667668 0.017017017 1.315315
## 17669 0.668668669 0.017017017 1.314314
## 17670 0.669669670 0.017017017 1.313313

```

```
## 17671 0.670670671 0.017017017 1.312312
## 17672 0.671671672 0.017017017 1.311311
## 17673 0.672672673 0.017017017 1.310310
## 17674 0.673673674 0.017017017 1.309309
## 17675 0.674674675 0.017017017 1.308308
## 17676 0.675675676 0.017017017 1.307307
## 17677 0.676676677 0.017017017 1.306306
## 17678 0.677677678 0.017017017 1.305305
## 17679 0.678678679 0.017017017 1.304304
## 17680 0.679679680 0.017017017 1.303303
## 17681 0.680680681 0.017017017 1.302302
## 17682 0.681681682 0.017017017 1.301301
## 17683 0.682682683 0.017017017 1.300300
## 17684 0.683683684 0.017017017 1.299299
## 17685 0.684684685 0.017017017 1.298298
## 17686 0.685685686 0.017017017 1.297297
## 17687 0.686686687 0.017017017 1.296296
## 17688 0.687687688 0.017017017 1.295295
## 17689 0.688688689 0.017017017 1.294294
## 17690 0.689689690 0.017017017 1.293293
## 17691 0.690690691 0.017017017 1.292292
## 17692 0.691691692 0.017017017 1.291291
## 17693 0.692692693 0.017017017 1.290290
## 17694 0.693693694 0.017017017 1.289289
## 17695 0.694694695 0.017017017 1.288288
## 17696 0.695695696 0.017017017 1.287287
## 17697 0.696696697 0.017017017 1.286286
## 17698 0.697697698 0.017017017 1.285285
## 17699 0.698698699 0.017017017 1.284284
## 17700 0.699699700 0.017017017 1.283283
## 17701 0.700700701 0.017017017 1.282282
## 17702 0.701701702 0.017017017 1.281281
## 17703 0.702702703 0.017017017 1.280280
## 17704 0.703703704 0.017017017 1.279279
## 17705 0.704704705 0.017017017 1.278278
## 17706 0.705705706 0.017017017 1.277277
## 17707 0.706706707 0.017017017 1.276276
## 17708 0.707707708 0.017017017 1.275275
## 17709 0.708708709 0.017017017 1.274274
## 17710 0.709709710 0.017017017 1.273273
## 17711 0.710710711 0.017017017 1.272272
## 17712 0.711711712 0.017017017 1.271271
## 17713 0.712712713 0.017017017 1.270270
## 17714 0.713713714 0.017017017 1.269269
## 17715 0.714714715 0.017017017 1.268268
## 17716 0.715715716 0.017017017 1.267267
```

```

## 17717 0.716716717 0.017017017 1.266266
## 17718 0.717717718 0.017017017 1.265265
## 17719 0.718718719 0.017017017 1.264264
## 17720 0.719719720 0.017017017 1.263263
## 17721 0.720720721 0.017017017 1.262262
## 17722 0.721721722 0.017017017 1.261261
## 17723 0.722722723 0.017017017 1.260260
## 17724 0.723723724 0.017017017 1.259259
## 17725 0.724724725 0.017017017 1.258258
## 17726 0.725725726 0.017017017 1.257257
## 17727 0.726726727 0.017017017 1.256256
## 17728 0.727727728 0.017017017 1.255255
## 17729 0.728728729 0.017017017 1.254254
## 17730 0.729729730 0.017017017 1.253253
## 17731 0.730730731 0.017017017 1.252252
## 17732 0.731731732 0.017017017 1.251251
## 17733 0.732732733 0.017017017 1.250250
## 17734 0.733733734 0.017017017 1.249249
## 17735 0.734734735 0.017017017 1.248248
## 17736 0.735735736 0.017017017 1.247247
## 17737 0.736736737 0.017017017 1.246246
## 17738 0.737737738 0.017017017 1.245245
## 17739 0.738738739 0.017017017 1.244244
## 17740 0.739739740 0.017017017 1.243243
## 17741 0.740740741 0.017017017 1.242242
## 17742 0.741741742 0.017017017 1.241241
## 17743 0.742742743 0.017017017 1.240240
## 17744 0.743743744 0.017017017 1.239239
## 17745 0.744744745 0.017017017 1.238238
## 17746 0.745745746 0.017017017 1.237237
## 17747 0.746746747 0.017017017 1.236236
## 17748 0.747747748 0.017017017 1.235235
## 17749 0.748748749 0.017017017 1.234234
## 17750 0.749749750 0.017017017 1.233233
## 17751 0.750750751 0.017017017 1.232232
## 17752 0.751751752 0.017017017 1.231231
## 17753 0.752752753 0.017017017 1.230230
## 17754 0.753753754 0.017017017 1.229229
## 17755 0.754754755 0.017017017 1.228228
## 17756 0.755755756 0.017017017 1.227227
## 17757 0.756756757 0.017017017 1.226226
## 17758 0.757757758 0.017017017 1.225225
## 17759 0.758758759 0.017017017 1.224224
## 17760 0.759759760 0.017017017 1.223223
## 17761 0.760760761 0.017017017 1.222222
## 17762 0.761761762 0.017017017 1.221221

```

```
## 17763 0.762762763 0.017017017 1.220220
## 17764 0.763763764 0.017017017 1.219219
## 17765 0.764764765 0.017017017 1.218218
## 17766 0.765765766 0.017017017 1.217217
## 17767 0.766766767 0.017017017 1.216216
## 17768 0.767767768 0.017017017 1.215215
## 17769 0.768768769 0.017017017 1.214214
## 17770 0.769769770 0.017017017 1.213213
## 17771 0.770770771 0.017017017 1.212212
## 17772 0.771771772 0.017017017 1.211211
## 17773 0.772772773 0.017017017 1.210210
## 17774 0.773773774 0.017017017 1.209209
## 17775 0.774774775 0.017017017 1.208208
## 17776 0.775775776 0.017017017 1.207207
## 17777 0.776776777 0.017017017 1.206206
## 17778 0.777777778 0.017017017 1.205205
## 17779 0.778778779 0.017017017 1.204204
## 17780 0.779779780 0.017017017 1.203203
## 17781 0.780780781 0.017017017 1.202202
## 17782 0.781781782 0.017017017 1.201201
## 17783 0.782782783 0.017017017 1.200200
## 17784 0.783783784 0.017017017 1.199199
## 17785 0.784784785 0.017017017 1.198198
## 17786 0.785785786 0.017017017 1.197197
## 17787 0.786786787 0.017017017 1.196196
## 17788 0.787787788 0.017017017 1.195195
## 17789 0.788788789 0.017017017 1.194194
## 17790 0.789789790 0.017017017 1.193193
## 17791 0.790790791 0.017017017 1.192192
## 17792 0.791791792 0.017017017 1.191191
## 17793 0.792792793 0.017017017 1.190190
## 17794 0.793793794 0.017017017 1.189189
## 17795 0.794794795 0.017017017 1.188188
## 17796 0.795795796 0.017017017 1.187187
## 17797 0.796796797 0.017017017 1.186186
## 17798 0.797797798 0.017017017 1.185185
## 17799 0.798798799 0.017017017 1.184184
## 17800 0.799799800 0.017017017 1.183183
## 17801 0.800800801 0.017017017 1.182182
## 17802 0.801801802 0.017017017 1.181181
## 17803 0.802802803 0.017017017 1.180180
## 17804 0.803803804 0.017017017 1.179179
## 17805 0.804804805 0.017017017 1.178178
## 17806 0.805805806 0.017017017 1.177177
## 17807 0.806806807 0.017017017 1.176176
## 17808 0.807807808 0.017017017 1.175175
```

```
## 17809 0.808808809 0.017017017 1.174174
## 17810 0.809809810 0.017017017 1.173173
## 17811 0.810810811 0.017017017 1.172172
## 17812 0.811811812 0.017017017 1.171171
## 17813 0.812812813 0.017017017 1.170170
## 17814 0.813813814 0.017017017 1.169169
## 17815 0.814814815 0.017017017 1.168168
## 17816 0.815815816 0.017017017 1.167167
## 17817 0.816816817 0.017017017 1.166166
## 17818 0.817817818 0.017017017 1.165165
## 17819 0.818818819 0.017017017 1.164164
## 17820 0.819819820 0.017017017 1.163163
## 17821 0.820820821 0.017017017 1.162162
## 17822 0.821821822 0.017017017 1.161161
## 17823 0.822822823 0.017017017 1.160160
## 17824 0.823823824 0.017017017 1.159159
## 17825 0.824824825 0.017017017 1.158158
## 17826 0.825825826 0.017017017 1.157157
## 17827 0.826826827 0.017017017 1.156156
## 17828 0.827827828 0.017017017 1.155155
## 17829 0.828828829 0.017017017 1.154154
## 17830 0.829829830 0.017017017 1.153153
## 17831 0.830830831 0.017017017 1.152152
## 17832 0.831831832 0.017017017 1.151151
## 17833 0.832832833 0.017017017 1.150150
## 17834 0.833833834 0.017017017 1.149149
## 17835 0.834834835 0.017017017 1.148148
## 17836 0.835835836 0.017017017 1.147147
## 17837 0.836836837 0.017017017 1.146146
## 17838 0.837837838 0.017017017 1.145145
## 17839 0.838838839 0.017017017 1.144144
## 17840 0.839839840 0.017017017 1.143143
## 17841 0.840840841 0.017017017 1.142142
## 17842 0.841841842 0.017017017 1.141141
## 17843 0.842842843 0.017017017 1.140140
## 17844 0.843843844 0.017017017 1.139139
## 17845 0.844844845 0.017017017 1.138138
## 17846 0.845845846 0.017017017 1.137137
## 17847 0.846846847 0.017017017 1.136136
## 17848 0.847847848 0.017017017 1.135135
## 17849 0.848848849 0.017017017 1.134134
## 17850 0.849849850 0.017017017 1.133133
## 17851 0.850850851 0.017017017 1.132132
## 17852 0.851851852 0.017017017 1.131131
## 17853 0.852852853 0.017017017 1.130130
## 17854 0.853853854 0.017017017 1.129129
```

```
## 17855 0.854854855 0.017017017 1.128128
## 17856 0.855855856 0.017017017 1.127127
## 17857 0.856856857 0.017017017 1.126126
## 17858 0.857857858 0.017017017 1.125125
## 17859 0.858858859 0.017017017 1.124124
## 17860 0.859859860 0.017017017 1.123123
## 17861 0.860860861 0.017017017 1.122122
## 17862 0.861861862 0.017017017 1.121121
## 17863 0.862862863 0.017017017 1.120120
## 17864 0.863863864 0.017017017 1.119119
## 17865 0.864864865 0.017017017 1.118118
## 17866 0.865865866 0.017017017 1.117117
## 17867 0.866866867 0.017017017 1.116116
## 17868 0.867867868 0.017017017 1.115115
## 17869 0.868868869 0.017017017 1.114114
## 17870 0.869869870 0.017017017 1.113113
## 17871 0.870870871 0.017017017 1.112112
## 17872 0.871871872 0.017017017 1.111111
## 17873 0.872872873 0.017017017 1.110110
## 17874 0.873873874 0.017017017 1.109109
## 17875 0.874874875 0.017017017 1.108108
## 17876 0.875875876 0.017017017 1.107107
## 17877 0.876876877 0.017017017 1.106106
## 17878 0.877877878 0.017017017 1.105105
## 17879 0.878878879 0.017017017 1.104104
## 17880 0.879879880 0.017017017 1.103103
## 17881 0.880880881 0.017017017 1.102102
## 17882 0.881881882 0.017017017 1.101101
## 17883 0.882882883 0.017017017 1.100100
## 17884 0.883883884 0.017017017 1.099099
## 17885 0.884884885 0.017017017 1.098098
## 17886 0.885885886 0.017017017 1.097097
## 17887 0.886886887 0.017017017 1.096096
## 17888 0.887887888 0.017017017 1.095095
## 17889 0.888888889 0.017017017 1.094094
## 17890 0.889889890 0.017017017 1.093093
## 17891 0.890890891 0.017017017 1.092092
## 17892 0.891891892 0.017017017 1.091091
## 17893 0.892892893 0.017017017 1.090090
## 17894 0.893893894 0.017017017 1.089089
## 17895 0.894894895 0.017017017 1.088088
## 17896 0.895895896 0.017017017 1.087087
## 17897 0.896896897 0.017017017 1.086086
## 17898 0.897897898 0.017017017 1.085085
## 17899 0.898898899 0.017017017 1.084084
## 17900 0.899899900 0.017017017 1.083083
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR501

```
## 17901 0.900900901 0.017017017 1.082082
## 17902 0.901901902 0.017017017 1.081081
## 17903 0.902902903 0.017017017 1.080080
## 17904 0.903903904 0.017017017 1.079079
## 17905 0.904904905 0.017017017 1.078078
## 17906 0.905905906 0.017017017 1.077077
## 17907 0.906906907 0.017017017 1.076076
## 17908 0.907907908 0.017017017 1.075075
## 17909 0.908908909 0.017017017 1.074074
## 17910 0.909909910 0.017017017 1.073073
## 17911 0.910910911 0.017017017 1.072072
## 17912 0.911911912 0.017017017 1.071071
## 17913 0.912912913 0.017017017 1.070070
## 17914 0.913913914 0.017017017 1.069069
## 17915 0.914914915 0.017017017 1.068068
## 17916 0.915915916 0.017017017 1.067067
## 17917 0.916916917 0.017017017 1.066066
## 17918 0.917917918 0.017017017 1.065065
## 17919 0.918918919 0.017017017 1.064064
## 17920 0.919919920 0.017017017 1.063063
## 17921 0.920920921 0.017017017 1.062062
## 17922 0.921921922 0.017017017 1.061061
## 17923 0.922922923 0.017017017 1.060060
## 17924 0.923923924 0.017017017 1.059059
## 17925 0.924924925 0.017017017 1.058058
## 17926 0.925925926 0.017017017 1.057057
## 17927 0.926926927 0.017017017 1.056056
## 17928 0.927927928 0.017017017 1.055055
## 17929 0.928928929 0.017017017 1.054054
## 17930 0.929929930 0.017017017 1.053053
## 17931 0.930930931 0.017017017 1.052052
## 17932 0.931931932 0.017017017 1.051051
## 17933 0.932932933 0.017017017 1.050050
## 17934 0.933933934 0.017017017 1.049049
## 17935 0.934934935 0.017017017 1.048048
## 17936 0.935935936 0.017017017 1.047047
## 17937 0.936936937 0.017017017 1.046046
## 17938 0.937937938 0.017017017 1.045045
## 17939 0.938938939 0.017017017 1.044044
## 17940 0.939939940 0.017017017 1.043043
## 17941 0.940940941 0.017017017 1.042042
## 17942 0.941941942 0.017017017 1.041041
## 17943 0.942942943 0.017017017 1.040040
## 17944 0.943943944 0.017017017 1.039039
## 17945 0.944944945 0.017017017 1.038038
## 17946 0.945945946 0.017017017 1.037037
```

```
## 17947 0.946946947 0.017017017 1.036036
## 17948 0.947947948 0.017017017 1.035035
## 17949 0.948948949 0.017017017 1.034034
## 17950 0.949949950 0.017017017 1.033033
## 17951 0.950950951 0.017017017 1.032032
## 17952 0.951951952 0.017017017 1.031031
## 17953 0.952952953 0.017017017 1.030030
## 17954 0.953953954 0.017017017 1.029029
## 17955 0.954954955 0.017017017 1.028028
## 17956 0.955955956 0.017017017 1.027027
## 17957 0.956956957 0.017017017 1.026026
## 17958 0.957957958 0.017017017 1.025025
## 17959 0.958958959 0.017017017 1.024024
## 17960 0.959959960 0.017017017 1.023023
## 17961 0.960960961 0.017017017 1.022022
## 17962 0.961961962 0.017017017 1.021021
## 17963 0.962962963 0.017017017 1.020020
## 17964 0.963963964 0.017017017 1.019019
## 17965 0.964964965 0.017017017 1.018018
## 17966 0.965965966 0.017017017 1.017017
## 17967 0.966966967 0.017017017 1.016016
## 17968 0.967967968 0.017017017 1.015015
## 17969 0.968968969 0.017017017 1.014014
## 17970 0.969969970 0.017017017 1.013013
## 17971 0.970970971 0.017017017 1.012012
## 17972 0.971971972 0.017017017 1.011011
## 17973 0.972972973 0.017017017 1.010010
## 17974 0.973973974 0.017017017 1.009009
## 17975 0.974974975 0.017017017 1.008008
## 17976 0.975975976 0.017017017 1.007007
## 17977 0.976976977 0.017017017 1.006006
## 17978 0.977977978 0.017017017 1.005005
## 17979 0.978978979 0.017017017 1.004004
## 17980 0.979979980 0.017017017 1.003003
## 17981 0.980980981 0.017017017 1.002002
## 17982 0.981981982 0.017017017 1.001001
## 17983 0.982982983 0.017017017 1.000000
## 17984 0.983983984 0.017017017 0.998999
## 17985 0.984984985 0.017017017 0.997998
## 17986 0.985985986 0.017017017 0.996997
## 17987 0.986986987 0.017017017 0.995996
## 17988 0.987987988 0.017017017 0.994995
## 17989 0.988988989 0.017017017 0.993994
## 17990 0.989989990 0.017017017 0.992993
## 17991 0.990990991 0.017017017 0.991992
## 17992 0.991991992 0.017017017 0.990991
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR503

```
## 17993 0.992992993 0.017017017 0.989990
## 17994 0.993993994 0.017017017 0.988989
## 17995 0.994994995 0.017017017 0.987988
## 17996 0.995995996 0.017017017 0.986987
## 17997 0.996996997 0.017017017 0.985986
## 17998 0.997997998 0.017017017 0.984985
## 17999 0.998998999 0.017017017 0.983984
## 18000 1.000000000 0.017017017 0.982983
## 18001 0.000000000 0.018018018 1.981982
## 18002 0.001001001 0.018018018 1.980981
## 18003 0.002002002 0.018018018 1.979980
## 18004 0.003003003 0.018018018 1.978979
## 18005 0.004004004 0.018018018 1.977978
## 18006 0.005005005 0.018018018 1.976977
## 18007 0.006006006 0.018018018 1.975976
## 18008 0.007007007 0.018018018 1.974975
## 18009 0.008008008 0.018018018 1.973974
## 18010 0.009009009 0.018018018 1.972973
## 18011 0.010010010 0.018018018 1.971972
## 18012 0.011011011 0.018018018 1.970971
## 18013 0.012012012 0.018018018 1.969970
## 18014 0.013013013 0.018018018 1.968969
## 18015 0.014014014 0.018018018 1.967968
## 18016 0.015015015 0.018018018 1.966967
## 18017 0.016016016 0.018018018 1.965966
## 18018 0.017017017 0.018018018 1.964965
## 18019 0.018018018 0.018018018 1.963964
## 18020 0.019019019 0.018018018 1.962963
## 18021 0.020020020 0.018018018 1.961962
## 18022 0.021021021 0.018018018 1.960961
## 18023 0.022022022 0.018018018 1.959960
## 18024 0.023023023 0.018018018 1.958959
## 18025 0.024024024 0.018018018 1.957958
## 18026 0.025025025 0.018018018 1.956957
## 18027 0.026026026 0.018018018 1.955956
## 18028 0.027027027 0.018018018 1.954955
## 18029 0.028028028 0.018018018 1.953954
## 18030 0.029029029 0.018018018 1.952953
## 18031 0.030030030 0.018018018 1.951952
## 18032 0.031031031 0.018018018 1.950951
## 18033 0.032032032 0.018018018 1.949950
## 18034 0.033033033 0.018018018 1.948949
## 18035 0.034034034 0.018018018 1.947948
## 18036 0.035035035 0.018018018 1.946947
## 18037 0.036036036 0.018018018 1.945946
## 18038 0.037037037 0.018018018 1.944945
```

```
## 18039 0.038038038 0.018018018 1.943944
## 18040 0.039039039 0.018018018 1.942943
## 18041 0.040040040 0.018018018 1.941942
## 18042 0.041041041 0.018018018 1.940941
## 18043 0.042042042 0.018018018 1.939940
## 18044 0.043043043 0.018018018 1.938939
## 18045 0.044044044 0.018018018 1.937938
## 18046 0.045045045 0.018018018 1.936937
## 18047 0.046046046 0.018018018 1.935936
## 18048 0.047047047 0.018018018 1.934935
## 18049 0.048048048 0.018018018 1.933934
## 18050 0.049049049 0.018018018 1.932933
## 18051 0.050050050 0.018018018 1.931932
## 18052 0.051051051 0.018018018 1.930931
## 18053 0.052052052 0.018018018 1.929930
## 18054 0.053053053 0.018018018 1.928929
## 18055 0.054054054 0.018018018 1.927928
## 18056 0.055055055 0.018018018 1.926927
## 18057 0.056056056 0.018018018 1.925926
## 18058 0.057057057 0.018018018 1.924925
## 18059 0.058058058 0.018018018 1.923924
## 18060 0.059059059 0.018018018 1.922923
## 18061 0.060060060 0.018018018 1.921922
## 18062 0.061061061 0.018018018 1.920921
## 18063 0.062062062 0.018018018 1.919920
## 18064 0.063063063 0.018018018 1.918919
## 18065 0.064064064 0.018018018 1.917918
## 18066 0.065065065 0.018018018 1.916917
## 18067 0.066066066 0.018018018 1.915916
## 18068 0.067067067 0.018018018 1.914915
## 18069 0.068068068 0.018018018 1.913914
## 18070 0.069069069 0.018018018 1.912913
## 18071 0.070070070 0.018018018 1.911912
## 18072 0.071071071 0.018018018 1.910911
## 18073 0.072072072 0.018018018 1.909910
## 18074 0.073073073 0.018018018 1.908909
## 18075 0.074074074 0.018018018 1.907908
## 18076 0.075075075 0.018018018 1.906907
## 18077 0.076076076 0.018018018 1.905906
## 18078 0.077077077 0.018018018 1.904905
## 18079 0.078078078 0.018018018 1.903904
## 18080 0.079079079 0.018018018 1.902903
## 18081 0.080080080 0.018018018 1.901902
## 18082 0.081081081 0.018018018 1.900901
## 18083 0.082082082 0.018018018 1.899900
## 18084 0.083083083 0.018018018 1.898899
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR505

```
## 18085 0.084084084 0.018018018 1.897898
## 18086 0.085085085 0.018018018 1.896897
## 18087 0.086086086 0.018018018 1.895896
## 18088 0.087087087 0.018018018 1.894895
## 18089 0.088088088 0.018018018 1.893894
## 18090 0.089089089 0.018018018 1.892893
## 18091 0.090090090 0.018018018 1.891892
## 18092 0.091091091 0.018018018 1.890891
## 18093 0.092092092 0.018018018 1.889890
## 18094 0.093093093 0.018018018 1.888889
## 18095 0.094094094 0.018018018 1.887888
## 18096 0.095095095 0.018018018 1.886887
## 18097 0.096096096 0.018018018 1.885886
## 18098 0.097097097 0.018018018 1.884885
## 18099 0.098098098 0.018018018 1.883884
## 18100 0.099099099 0.018018018 1.882883
## 18101 0.100100100 0.018018018 1.881882
## 18102 0.101101101 0.018018018 1.880881
## 18103 0.102102102 0.018018018 1.879880
## 18104 0.103103103 0.018018018 1.878879
## 18105 0.104104104 0.018018018 1.877878
## 18106 0.105105105 0.018018018 1.876877
## 18107 0.106106106 0.018018018 1.875876
## 18108 0.107107107 0.018018018 1.874875
## 18109 0.108108108 0.018018018 1.873874
## 18110 0.109109109 0.018018018 1.872873
## 18111 0.110110110 0.018018018 1.871872
## 18112 0.111111111 0.018018018 1.870871
## 18113 0.112112112 0.018018018 1.869870
## 18114 0.113113113 0.018018018 1.868869
## 18115 0.114114114 0.018018018 1.867868
## 18116 0.115115115 0.018018018 1.866867
## 18117 0.116116116 0.018018018 1.865866
## 18118 0.117117117 0.018018018 1.864865
## 18119 0.118118118 0.018018018 1.863864
## 18120 0.119119119 0.018018018 1.862863
## 18121 0.120120120 0.018018018 1.861862
## 18122 0.121121121 0.018018018 1.860861
## 18123 0.122122122 0.018018018 1.859860
## 18124 0.123123123 0.018018018 1.858859
## 18125 0.124124124 0.018018018 1.857858
## 18126 0.125125125 0.018018018 1.856857
## 18127 0.126126126 0.018018018 1.855856
## 18128 0.127127127 0.018018018 1.854855
## 18129 0.128128128 0.018018018 1.853854
## 18130 0.129129129 0.018018018 1.852853
```

```
## 18131 0.130130130 0.018018018 1.851852
## 18132 0.131131131 0.018018018 1.850851
## 18133 0.132132132 0.018018018 1.849850
## 18134 0.133133133 0.018018018 1.848849
## 18135 0.134134134 0.018018018 1.847848
## 18136 0.135135135 0.018018018 1.846847
## 18137 0.136136136 0.018018018 1.845846
## 18138 0.137137137 0.018018018 1.844845
## 18139 0.138138138 0.018018018 1.843844
## 18140 0.139139139 0.018018018 1.842843
## 18141 0.140140140 0.018018018 1.841842
## 18142 0.141141141 0.018018018 1.840841
## 18143 0.142142142 0.018018018 1.839840
## 18144 0.143143143 0.018018018 1.838839
## 18145 0.144144144 0.018018018 1.837838
## 18146 0.145145145 0.018018018 1.836837
## 18147 0.146146146 0.018018018 1.835836
## 18148 0.147147147 0.018018018 1.834835
## 18149 0.148148148 0.018018018 1.833834
## 18150 0.149149149 0.018018018 1.832833
## 18151 0.150150150 0.018018018 1.831832
## 18152 0.151151151 0.018018018 1.830831
## 18153 0.152152152 0.018018018 1.829830
## 18154 0.153153153 0.018018018 1.828829
## 18155 0.154154154 0.018018018 1.827828
## 18156 0.155155155 0.018018018 1.826827
## 18157 0.156156156 0.018018018 1.825826
## 18158 0.157157157 0.018018018 1.824825
## 18159 0.158158158 0.018018018 1.823824
## 18160 0.159159159 0.018018018 1.822823
## 18161 0.160160160 0.018018018 1.821822
## 18162 0.161161161 0.018018018 1.820821
## 18163 0.162162162 0.018018018 1.819820
## 18164 0.163163163 0.018018018 1.818819
## 18165 0.164164164 0.018018018 1.817818
## 18166 0.165165165 0.018018018 1.816817
## 18167 0.166166166 0.018018018 1.815816
## 18168 0.167167167 0.018018018 1.814815
## 18169 0.168168168 0.018018018 1.813814
## 18170 0.169169169 0.018018018 1.812813
## 18171 0.170170170 0.018018018 1.811812
## 18172 0.171171171 0.018018018 1.810811
## 18173 0.172172172 0.018018018 1.809810
## 18174 0.173173173 0.018018018 1.808809
## 18175 0.174174174 0.018018018 1.807808
## 18176 0.175175175 0.018018018 1.806807
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR507

```
## 18177 0.176176176 0.018018018 1.805806
## 18178 0.177177177 0.018018018 1.804805
## 18179 0.178178178 0.018018018 1.803804
## 18180 0.179179179 0.018018018 1.802803
## 18181 0.180180180 0.018018018 1.801802
## 18182 0.181181181 0.018018018 1.800801
## 18183 0.182182182 0.018018018 1.799800
## 18184 0.183183183 0.018018018 1.798799
## 18185 0.184184184 0.018018018 1.797798
## 18186 0.185185185 0.018018018 1.796797
## 18187 0.186186186 0.018018018 1.795796
## 18188 0.187187187 0.018018018 1.794795
## 18189 0.188188188 0.018018018 1.793794
## 18190 0.189189189 0.018018018 1.792793
## 18191 0.190190190 0.018018018 1.791792
## 18192 0.191191191 0.018018018 1.790791
## 18193 0.192192192 0.018018018 1.789790
## 18194 0.193193193 0.018018018 1.788789
## 18195 0.194194194 0.018018018 1.787788
## 18196 0.195195195 0.018018018 1.786787
## 18197 0.196196196 0.018018018 1.785786
## 18198 0.197197197 0.018018018 1.784785
## 18199 0.198198198 0.018018018 1.783784
## 18200 0.199199199 0.018018018 1.782783
## 18201 0.200200200 0.018018018 1.781782
## 18202 0.201201201 0.018018018 1.780781
## 18203 0.202202202 0.018018018 1.779780
## 18204 0.203203203 0.018018018 1.778779
## 18205 0.204204204 0.018018018 1.777778
## 18206 0.205205205 0.018018018 1.776777
## 18207 0.206206206 0.018018018 1.775776
## 18208 0.207207207 0.018018018 1.774775
## 18209 0.208208208 0.018018018 1.773774
## 18210 0.209209209 0.018018018 1.772773
## 18211 0.210210210 0.018018018 1.771772
## 18212 0.211211211 0.018018018 1.770771
## 18213 0.212212212 0.018018018 1.769770
## 18214 0.213213213 0.018018018 1.768769
## 18215 0.214214214 0.018018018 1.767768
## 18216 0.215215215 0.018018018 1.766767
## 18217 0.216216216 0.018018018 1.765766
## 18218 0.217217217 0.018018018 1.764765
## 18219 0.218218218 0.018018018 1.763764
## 18220 0.219219219 0.018018018 1.762763
## 18221 0.220220220 0.018018018 1.761762
## 18222 0.221221221 0.018018018 1.760761
```

```
## 18223 0.222222222 0.018018018 1.759760
## 18224 0.223223223 0.018018018 1.758759
## 18225 0.224224224 0.018018018 1.757758
## 18226 0.225225225 0.018018018 1.756757
## 18227 0.226226226 0.018018018 1.755756
## 18228 0.227227227 0.018018018 1.754755
## 18229 0.228228228 0.018018018 1.753754
## 18230 0.229229229 0.018018018 1.752753
## 18231 0.230230230 0.018018018 1.751752
## 18232 0.231231231 0.018018018 1.750751
## 18233 0.232232232 0.018018018 1.749750
## 18234 0.233233233 0.018018018 1.748749
## 18235 0.234234234 0.018018018 1.747748
## 18236 0.235235235 0.018018018 1.746747
## 18237 0.236236236 0.018018018 1.745746
## 18238 0.237237237 0.018018018 1.744745
## 18239 0.238238238 0.018018018 1.743744
## 18240 0.239239239 0.018018018 1.742743
## 18241 0.240240240 0.018018018 1.741742
## 18242 0.241241241 0.018018018 1.740741
## 18243 0.242242242 0.018018018 1.739740
## 18244 0.243243243 0.018018018 1.738739
## 18245 0.244244244 0.018018018 1.737738
## 18246 0.245245245 0.018018018 1.736737
## 18247 0.246246246 0.018018018 1.735736
## 18248 0.247247247 0.018018018 1.734735
## 18249 0.248248248 0.018018018 1.733734
## 18250 0.249249249 0.018018018 1.732733
## 18251 0.250250250 0.018018018 1.731732
## 18252 0.251251251 0.018018018 1.730731
## 18253 0.252252252 0.018018018 1.729730
## 18254 0.253253253 0.018018018 1.728729
## 18255 0.254254254 0.018018018 1.727728
## 18256 0.255255255 0.018018018 1.726727
## 18257 0.256256256 0.018018018 1.725726
## 18258 0.257257257 0.018018018 1.724725
## 18259 0.258258258 0.018018018 1.723724
## 18260 0.259259259 0.018018018 1.722723
## 18261 0.260260260 0.018018018 1.721722
## 18262 0.261261261 0.018018018 1.720721
## 18263 0.262262262 0.018018018 1.719720
## 18264 0.263263263 0.018018018 1.718719
## 18265 0.264264264 0.018018018 1.717718
## 18266 0.265265265 0.018018018 1.716717
## 18267 0.266266266 0.018018018 1.715716
## 18268 0.267267267 0.018018018 1.714715
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR509

```
## 18269 0.268268268 0.018018018 1.713714
## 18270 0.269269269 0.018018018 1.712713
## 18271 0.270270270 0.018018018 1.711712
## 18272 0.271271271 0.018018018 1.710711
## 18273 0.272272272 0.018018018 1.709710
## 18274 0.273273273 0.018018018 1.708709
## 18275 0.274274274 0.018018018 1.707708
## 18276 0.275275275 0.018018018 1.706707
## 18277 0.276276276 0.018018018 1.705706
## 18278 0.277277277 0.018018018 1.704705
## 18279 0.278278278 0.018018018 1.703704
## 18280 0.279279279 0.018018018 1.702703
## 18281 0.280280280 0.018018018 1.701702
## 18282 0.281281281 0.018018018 1.700701
## 18283 0.282282282 0.018018018 1.699700
## 18284 0.283283283 0.018018018 1.698699
## 18285 0.284284284 0.018018018 1.697698
## 18286 0.285285285 0.018018018 1.696697
## 18287 0.286286286 0.018018018 1.695696
## 18288 0.287287287 0.018018018 1.694695
## 18289 0.288288288 0.018018018 1.693694
## 18290 0.289289289 0.018018018 1.692693
## 18291 0.290290290 0.018018018 1.691692
## 18292 0.291291291 0.018018018 1.690691
## 18293 0.292292292 0.018018018 1.689690
## 18294 0.293293293 0.018018018 1.688689
## 18295 0.294294294 0.018018018 1.687688
## 18296 0.295295295 0.018018018 1.686687
## 18297 0.296296296 0.018018018 1.685686
## 18298 0.297297297 0.018018018 1.684685
## 18299 0.298298298 0.018018018 1.683684
## 18300 0.299299299 0.018018018 1.682683
## 18301 0.300300300 0.018018018 1.681682
## 18302 0.301301301 0.018018018 1.680681
## 18303 0.302302302 0.018018018 1.679680
## 18304 0.303303303 0.018018018 1.678679
## 18305 0.304304304 0.018018018 1.677678
## 18306 0.305305305 0.018018018 1.676677
## 18307 0.306306306 0.018018018 1.675676
## 18308 0.307307307 0.018018018 1.674675
## 18309 0.308308308 0.018018018 1.673674
## 18310 0.309309309 0.018018018 1.672673
## 18311 0.310310310 0.018018018 1.671672
## 18312 0.311311311 0.018018018 1.670671
## 18313 0.312312312 0.018018018 1.669670
## 18314 0.313313313 0.018018018 1.668669
```

```
## 18315 0.314314314 0.018018018 1.667668
## 18316 0.315315315 0.018018018 1.666667
## 18317 0.316316316 0.018018018 1.665666
## 18318 0.317317317 0.018018018 1.664665
## 18319 0.318318318 0.018018018 1.663664
## 18320 0.319319319 0.018018018 1.662663
## 18321 0.320320320 0.018018018 1.661662
## 18322 0.321321321 0.018018018 1.660661
## 18323 0.322322322 0.018018018 1.659660
## 18324 0.323323323 0.018018018 1.658659
## 18325 0.324324324 0.018018018 1.657658
## 18326 0.325325325 0.018018018 1.656657
## 18327 0.326326326 0.018018018 1.655656
## 18328 0.327327327 0.018018018 1.654655
## 18329 0.328328328 0.018018018 1.653654
## 18330 0.329329329 0.018018018 1.652653
## 18331 0.330330330 0.018018018 1.651652
## 18332 0.331331331 0.018018018 1.650651
## 18333 0.332332332 0.018018018 1.649650
## 18334 0.333333333 0.018018018 1.648649
## 18335 0.334334334 0.018018018 1.647648
## 18336 0.335335335 0.018018018 1.646647
## 18337 0.336336336 0.018018018 1.645646
## 18338 0.337337337 0.018018018 1.644645
## 18339 0.338338338 0.018018018 1.643644
## 18340 0.339339339 0.018018018 1.642643
## 18341 0.340340340 0.018018018 1.641642
## 18342 0.341341341 0.018018018 1.640641
## 18343 0.342342342 0.018018018 1.639640
## 18344 0.343343343 0.018018018 1.638639
## 18345 0.344344344 0.018018018 1.637638
## 18346 0.345345345 0.018018018 1.636637
## 18347 0.346346346 0.018018018 1.635636
## 18348 0.347347347 0.018018018 1.634635
## 18349 0.348348348 0.018018018 1.633634
## 18350 0.349349349 0.018018018 1.632633
## 18351 0.350350350 0.018018018 1.631632
## 18352 0.351351351 0.018018018 1.630631
## 18353 0.352352352 0.018018018 1.629630
## 18354 0.353353353 0.018018018 1.628629
## 18355 0.354354354 0.018018018 1.627628
## 18356 0.355355355 0.018018018 1.626627
## 18357 0.356356356 0.018018018 1.625626
## 18358 0.357357357 0.018018018 1.624625
## 18359 0.358358358 0.018018018 1.623624
## 18360 0.359359359 0.018018018 1.622623
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 511

```

## 18361 0.360360360 0.018018018 1.621622
## 18362 0.361361361 0.018018018 1.620621
## 18363 0.362362362 0.018018018 1.619620
## 18364 0.363363363 0.018018018 1.618619
## 18365 0.364364364 0.018018018 1.617618
## 18366 0.365365365 0.018018018 1.616617
## 18367 0.366366366 0.018018018 1.615616
## 18368 0.367367367 0.018018018 1.614615
## 18369 0.368368368 0.018018018 1.613614
## 18370 0.369369369 0.018018018 1.612613
## 18371 0.370370370 0.018018018 1.611612
## 18372 0.371371371 0.018018018 1.610611
## 18373 0.372372372 0.018018018 1.609610
## 18374 0.373373373 0.018018018 1.608609
## 18375 0.374374374 0.018018018 1.607608
## 18376 0.375375375 0.018018018 1.606607
## 18377 0.376376376 0.018018018 1.605606
## 18378 0.377377377 0.018018018 1.604605
## 18379 0.378378378 0.018018018 1.603604
## 18380 0.379379379 0.018018018 1.602603
## 18381 0.380380380 0.018018018 1.601602
## 18382 0.381381381 0.018018018 1.600601
## 18383 0.382382382 0.018018018 1.599600
## 18384 0.383383383 0.018018018 1.598599
## 18385 0.384384384 0.018018018 1.597598
## 18386 0.385385385 0.018018018 1.596597
## 18387 0.386386386 0.018018018 1.595596
## 18388 0.387387387 0.018018018 1.594595
## 18389 0.388388388 0.018018018 1.593594
## 18390 0.389389389 0.018018018 1.592593
## 18391 0.390390390 0.018018018 1.591592
## 18392 0.391391391 0.018018018 1.590591
## 18393 0.392392392 0.018018018 1.589590
## 18394 0.393393393 0.018018018 1.588589
## 18395 0.394394394 0.018018018 1.587588
## 18396 0.395395395 0.018018018 1.586587
## 18397 0.396396396 0.018018018 1.585586
## 18398 0.397397397 0.018018018 1.584585
## 18399 0.398398398 0.018018018 1.583584
## 18400 0.399399399 0.018018018 1.582583
## 18401 0.400400400 0.018018018 1.581582
## 18402 0.401401401 0.018018018 1.580581
## 18403 0.402402402 0.018018018 1.579580
## 18404 0.403403403 0.018018018 1.578579
## 18405 0.404404404 0.018018018 1.577578
## 18406 0.405405405 0.018018018 1.576577

```

```
## 18407 0.406406406 0.018018018 1.575576
## 18408 0.407407407 0.018018018 1.574575
## 18409 0.408408408 0.018018018 1.573574
## 18410 0.409409409 0.018018018 1.572573
## 18411 0.410410410 0.018018018 1.571572
## 18412 0.411411411 0.018018018 1.570571
## 18413 0.412412412 0.018018018 1.569570
## 18414 0.413413413 0.018018018 1.568569
## 18415 0.414414414 0.018018018 1.567568
## 18416 0.415415415 0.018018018 1.566567
## 18417 0.416416416 0.018018018 1.565566
## 18418 0.417417417 0.018018018 1.564565
## 18419 0.418418418 0.018018018 1.563564
## 18420 0.419419419 0.018018018 1.562563
## 18421 0.420420420 0.018018018 1.561562
## 18422 0.421421421 0.018018018 1.560561
## 18423 0.422422422 0.018018018 1.559560
## 18424 0.423423423 0.018018018 1.558559
## 18425 0.424424424 0.018018018 1.557558
## 18426 0.425425425 0.018018018 1.556557
## 18427 0.426426426 0.018018018 1.555556
## 18428 0.427427427 0.018018018 1.554555
## 18429 0.428428428 0.018018018 1.553554
## 18430 0.429429429 0.018018018 1.552553
## 18431 0.430430430 0.018018018 1.551552
## 18432 0.431431431 0.018018018 1.550551
## 18433 0.432432432 0.018018018 1.549550
## 18434 0.433433433 0.018018018 1.548549
## 18435 0.434434434 0.018018018 1.547548
## 18436 0.435435435 0.018018018 1.546547
## 18437 0.436436436 0.018018018 1.545546
## 18438 0.437437437 0.018018018 1.544545
## 18439 0.438438438 0.018018018 1.543544
## 18440 0.439439439 0.018018018 1.542543
## 18441 0.440440440 0.018018018 1.541542
## 18442 0.441441441 0.018018018 1.540541
## 18443 0.442442442 0.018018018 1.539540
## 18444 0.443443443 0.018018018 1.538539
## 18445 0.444444444 0.018018018 1.537538
## 18446 0.445445445 0.018018018 1.536537
## 18447 0.446446446 0.018018018 1.535536
## 18448 0.447447447 0.018018018 1.534535
## 18449 0.448448448 0.018018018 1.533534
## 18450 0.449449449 0.018018018 1.532533
## 18451 0.450450450 0.018018018 1.531532
## 18452 0.451451451 0.018018018 1.530531
```

```

## 18453 0.452452452 0.018018018 1.529530
## 18454 0.453453453 0.018018018 1.528529
## 18455 0.454454454 0.018018018 1.527528
## 18456 0.455455455 0.018018018 1.526527
## 18457 0.456456456 0.018018018 1.525526
## 18458 0.457457457 0.018018018 1.524525
## 18459 0.458458458 0.018018018 1.523524
## 18460 0.459459459 0.018018018 1.522523
## 18461 0.460460460 0.018018018 1.521522
## 18462 0.461461461 0.018018018 1.520521
## 18463 0.462462462 0.018018018 1.519520
## 18464 0.463463463 0.018018018 1.518519
## 18465 0.464464464 0.018018018 1.517518
## 18466 0.465465465 0.018018018 1.516517
## 18467 0.466466466 0.018018018 1.515516
## 18468 0.467467467 0.018018018 1.514515
## 18469 0.468468468 0.018018018 1.513514
## 18470 0.469469469 0.018018018 1.512513
## 18471 0.470470470 0.018018018 1.511512
## 18472 0.471471471 0.018018018 1.510511
## 18473 0.472472472 0.018018018 1.509510
## 18474 0.473473473 0.018018018 1.508509
## 18475 0.474474474 0.018018018 1.507508
## 18476 0.475475475 0.018018018 1.506507
## 18477 0.476476476 0.018018018 1.505506
## 18478 0.477477477 0.018018018 1.504505
## 18479 0.478478478 0.018018018 1.503504
## 18480 0.479479479 0.018018018 1.502503
## 18481 0.480480480 0.018018018 1.501502
## 18482 0.481481481 0.018018018 1.500501
## 18483 0.482482482 0.018018018 1.499499
## 18484 0.483483483 0.018018018 1.498498
## 18485 0.484484484 0.018018018 1.497497
## 18486 0.485485485 0.018018018 1.496496
## 18487 0.486486486 0.018018018 1.495495
## 18488 0.487487487 0.018018018 1.494494
## 18489 0.488488488 0.018018018 1.493493
## 18490 0.489489489 0.018018018 1.492492
## 18491 0.490490490 0.018018018 1.491491
## 18492 0.491491491 0.018018018 1.490490
## 18493 0.492492492 0.018018018 1.489489
## 18494 0.493493493 0.018018018 1.488488
## 18495 0.494494494 0.018018018 1.487487
## 18496 0.495495495 0.018018018 1.486486
## 18497 0.496496496 0.018018018 1.485485
## 18498 0.497497497 0.018018018 1.484484

```

```
## 18499 0.498498498 0.018018018 1.483483
## 18500 0.499499499 0.018018018 1.482482
## 18501 0.500500501 0.018018018 1.481481
## 18502 0.501501502 0.018018018 1.480480
## 18503 0.502502503 0.018018018 1.479479
## 18504 0.503503504 0.018018018 1.478478
## 18505 0.504504505 0.018018018 1.477477
## 18506 0.505505506 0.018018018 1.476476
## 18507 0.506506507 0.018018018 1.475475
## 18508 0.507507508 0.018018018 1.474474
## 18509 0.508508509 0.018018018 1.473473
## 18510 0.509509510 0.018018018 1.472472
## 18511 0.510510511 0.018018018 1.471471
## 18512 0.511511512 0.018018018 1.470470
## 18513 0.512512513 0.018018018 1.469469
## 18514 0.513513514 0.018018018 1.468468
## 18515 0.514514515 0.018018018 1.467467
## 18516 0.515515516 0.018018018 1.466466
## 18517 0.516516517 0.018018018 1.465465
## 18518 0.517517518 0.018018018 1.464464
## 18519 0.518518519 0.018018018 1.463463
## 18520 0.519519520 0.018018018 1.462462
## 18521 0.520520521 0.018018018 1.461461
## 18522 0.521521522 0.018018018 1.460460
## 18523 0.522522523 0.018018018 1.459459
## 18524 0.523523524 0.018018018 1.458458
## 18525 0.524524525 0.018018018 1.457457
## 18526 0.525525526 0.018018018 1.456456
## 18527 0.526526527 0.018018018 1.455455
## 18528 0.527527528 0.018018018 1.454454
## 18529 0.528528529 0.018018018 1.453453
## 18530 0.529529530 0.018018018 1.452452
## 18531 0.530530531 0.018018018 1.451451
## 18532 0.531531532 0.018018018 1.450450
## 18533 0.532532533 0.018018018 1.449449
## 18534 0.533533534 0.018018018 1.448448
## 18535 0.534534535 0.018018018 1.447447
## 18536 0.535535536 0.018018018 1.446446
## 18537 0.536536537 0.018018018 1.445445
## 18538 0.537537538 0.018018018 1.444444
## 18539 0.538538539 0.018018018 1.443443
## 18540 0.539539540 0.018018018 1.442442
## 18541 0.540540541 0.018018018 1.441441
## 18542 0.541541542 0.018018018 1.440440
## 18543 0.542542543 0.018018018 1.439439
## 18544 0.543543544 0.018018018 1.438438
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 515

```
## 18545 0.544544545 0.018018018 1.437437
## 18546 0.545545546 0.018018018 1.436436
## 18547 0.546546547 0.018018018 1.435435
## 18548 0.547547548 0.018018018 1.434434
## 18549 0.548548549 0.018018018 1.433433
## 18550 0.549549550 0.018018018 1.432432
## 18551 0.550550551 0.018018018 1.431431
## 18552 0.551551552 0.018018018 1.430430
## 18553 0.552552553 0.018018018 1.429429
## 18554 0.553553554 0.018018018 1.428428
## 18555 0.554554555 0.018018018 1.427427
## 18556 0.555555556 0.018018018 1.426426
## 18557 0.556556557 0.018018018 1.425425
## 18558 0.557557558 0.018018018 1.424424
## 18559 0.558558559 0.018018018 1.423423
## 18560 0.559559560 0.018018018 1.422422
## 18561 0.560560561 0.018018018 1.421421
## 18562 0.561561562 0.018018018 1.420420
## 18563 0.562562563 0.018018018 1.419419
## 18564 0.563563564 0.018018018 1.418418
## 18565 0.564564565 0.018018018 1.417417
## 18566 0.565565566 0.018018018 1.416416
## 18567 0.566566567 0.018018018 1.415415
## 18568 0.567567568 0.018018018 1.414414
## 18569 0.568568569 0.018018018 1.413413
## 18570 0.569569570 0.018018018 1.412412
## 18571 0.570570571 0.018018018 1.411411
## 18572 0.571571572 0.018018018 1.410410
## 18573 0.572572573 0.018018018 1.409409
## 18574 0.573573574 0.018018018 1.408408
## 18575 0.574574575 0.018018018 1.407407
## 18576 0.575575576 0.018018018 1.406406
## 18577 0.576576577 0.018018018 1.405405
## 18578 0.577577578 0.018018018 1.404404
## 18579 0.578578579 0.018018018 1.403403
## 18580 0.579579580 0.018018018 1.402402
## 18581 0.580580581 0.018018018 1.401401
## 18582 0.581581582 0.018018018 1.400400
## 18583 0.582582583 0.018018018 1.399399
## 18584 0.583583584 0.018018018 1.398398
## 18585 0.584584585 0.018018018 1.397397
## 18586 0.585585586 0.018018018 1.396396
## 18587 0.586586587 0.018018018 1.395395
## 18588 0.587587588 0.018018018 1.394394
## 18589 0.588588589 0.018018018 1.393393
## 18590 0.589589590 0.018018018 1.392392
```

```
## 18591 0.590590591 0.018018018 1.391391
## 18592 0.591591592 0.018018018 1.390390
## 18593 0.592592593 0.018018018 1.389389
## 18594 0.593593594 0.018018018 1.388388
## 18595 0.594594595 0.018018018 1.387387
## 18596 0.595595596 0.018018018 1.386386
## 18597 0.596596597 0.018018018 1.385385
## 18598 0.597597598 0.018018018 1.384384
## 18599 0.598598599 0.018018018 1.383383
## 18600 0.599599600 0.018018018 1.382382
## 18601 0.600600601 0.018018018 1.381381
## 18602 0.601601602 0.018018018 1.380380
## 18603 0.602602603 0.018018018 1.379379
## 18604 0.603603604 0.018018018 1.378378
## 18605 0.604604605 0.018018018 1.377377
## 18606 0.605605606 0.018018018 1.376376
## 18607 0.606606607 0.018018018 1.375375
## 18608 0.607607608 0.018018018 1.374374
## 18609 0.608608609 0.018018018 1.373373
## 18610 0.609609610 0.018018018 1.372372
## 18611 0.610610611 0.018018018 1.371371
## 18612 0.611611612 0.018018018 1.370370
## 18613 0.612612613 0.018018018 1.369369
## 18614 0.613613614 0.018018018 1.368368
## 18615 0.614614615 0.018018018 1.367367
## 18616 0.615615616 0.018018018 1.366366
## 18617 0.616616617 0.018018018 1.365365
## 18618 0.617617618 0.018018018 1.364364
## 18619 0.618618619 0.018018018 1.363363
## 18620 0.619619620 0.018018018 1.362362
## 18621 0.620620621 0.018018018 1.361361
## 18622 0.621621622 0.018018018 1.360360
## 18623 0.622622623 0.018018018 1.359359
## 18624 0.623623624 0.018018018 1.358358
## 18625 0.624624625 0.018018018 1.357357
## 18626 0.625625626 0.018018018 1.356356
## 18627 0.626626627 0.018018018 1.355355
## 18628 0.627627628 0.018018018 1.354354
## 18629 0.628628629 0.018018018 1.353353
## 18630 0.629629630 0.018018018 1.352352
## 18631 0.630630631 0.018018018 1.351351
## 18632 0.631631632 0.018018018 1.350350
## 18633 0.632632633 0.018018018 1.349349
## 18634 0.633633634 0.018018018 1.348348
## 18635 0.634634635 0.018018018 1.347347
## 18636 0.635635636 0.018018018 1.346346
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 517

```
## 18637 0.636636637 0.018018018 1.345345
## 18638 0.637637638 0.018018018 1.344344
## 18639 0.638638639 0.018018018 1.343343
## 18640 0.639639640 0.018018018 1.342342
## 18641 0.640640641 0.018018018 1.341341
## 18642 0.641641642 0.018018018 1.340340
## 18643 0.642642643 0.018018018 1.339339
## 18644 0.643643644 0.018018018 1.338338
## 18645 0.644644645 0.018018018 1.337337
## 18646 0.645645646 0.018018018 1.336336
## 18647 0.646646647 0.018018018 1.335335
## 18648 0.647647648 0.018018018 1.334334
## 18649 0.648648649 0.018018018 1.333333
## 18650 0.649649650 0.018018018 1.332332
## 18651 0.650650651 0.018018018 1.331331
## 18652 0.651651652 0.018018018 1.330330
## 18653 0.652652653 0.018018018 1.329329
## 18654 0.653653654 0.018018018 1.328328
## 18655 0.654654655 0.018018018 1.327327
## 18656 0.655655656 0.018018018 1.326326
## 18657 0.656656657 0.018018018 1.325325
## 18658 0.657657658 0.018018018 1.324324
## 18659 0.658658659 0.018018018 1.323323
## 18660 0.659659660 0.018018018 1.322322
## 18661 0.660660661 0.018018018 1.321321
## 18662 0.661661662 0.018018018 1.320320
## 18663 0.662662663 0.018018018 1.319319
## 18664 0.663663664 0.018018018 1.318318
## 18665 0.664664665 0.018018018 1.317317
## 18666 0.665665666 0.018018018 1.316316
## 18667 0.666666667 0.018018018 1.315315
## 18668 0.667667668 0.018018018 1.314314
## 18669 0.668668669 0.018018018 1.313313
## 18670 0.669669670 0.018018018 1.312312
## 18671 0.670670671 0.018018018 1.311311
## 18672 0.671671672 0.018018018 1.310310
## 18673 0.672672673 0.018018018 1.309309
## 18674 0.673673674 0.018018018 1.308308
## 18675 0.674674675 0.018018018 1.307307
## 18676 0.675675676 0.018018018 1.306306
## 18677 0.676676677 0.018018018 1.305305
## 18678 0.677677678 0.018018018 1.304304
## 18679 0.678678679 0.018018018 1.303303
## 18680 0.679679680 0.018018018 1.302302
## 18681 0.680680681 0.018018018 1.301301
## 18682 0.681681682 0.018018018 1.300300
```

```
## 18683 0.682682683 0.018018018 1.299299
## 18684 0.683683684 0.018018018 1.298298
## 18685 0.684684685 0.018018018 1.297297
## 18686 0.685685686 0.018018018 1.296296
## 18687 0.686686687 0.018018018 1.295295
## 18688 0.687687688 0.018018018 1.294294
## 18689 0.688688689 0.018018018 1.293293
## 18690 0.689689690 0.018018018 1.292292
## 18691 0.690690691 0.018018018 1.291291
## 18692 0.691691692 0.018018018 1.290290
## 18693 0.692692693 0.018018018 1.289289
## 18694 0.693693694 0.018018018 1.288288
## 18695 0.694694695 0.018018018 1.287287
## 18696 0.695695696 0.018018018 1.286286
## 18697 0.696696697 0.018018018 1.285285
## 18698 0.697697698 0.018018018 1.284284
## 18699 0.698698699 0.018018018 1.283283
## 18700 0.699699700 0.018018018 1.282282
## 18701 0.700700701 0.018018018 1.281281
## 18702 0.701701702 0.018018018 1.280280
## 18703 0.702702703 0.018018018 1.279279
## 18704 0.703703704 0.018018018 1.278278
## 18705 0.704704705 0.018018018 1.277277
## 18706 0.705705706 0.018018018 1.276276
## 18707 0.706706707 0.018018018 1.275275
## 18708 0.707707708 0.018018018 1.274274
## 18709 0.708708709 0.018018018 1.273273
## 18710 0.709709710 0.018018018 1.272272
## 18711 0.710710711 0.018018018 1.271271
## 18712 0.711711712 0.018018018 1.270270
## 18713 0.712712713 0.018018018 1.269269
## 18714 0.713713714 0.018018018 1.268268
## 18715 0.714714715 0.018018018 1.267267
## 18716 0.715715716 0.018018018 1.266266
## 18717 0.716716717 0.018018018 1.265265
## 18718 0.717717718 0.018018018 1.264264
## 18719 0.718718719 0.018018018 1.263263
## 18720 0.719719720 0.018018018 1.262262
## 18721 0.720720721 0.018018018 1.261261
## 18722 0.721721722 0.018018018 1.260260
## 18723 0.722722723 0.018018018 1.259259
## 18724 0.723723724 0.018018018 1.258258
## 18725 0.724724725 0.018018018 1.257257
## 18726 0.725725726 0.018018018 1.256256
## 18727 0.726726727 0.018018018 1.255255
## 18728 0.727727728 0.018018018 1.254254
```

```

## 18729 0.728728729 0.018018018 1.253253
## 18730 0.729729730 0.018018018 1.252252
## 18731 0.730730731 0.018018018 1.251251
## 18732 0.731731732 0.018018018 1.250250
## 18733 0.732732733 0.018018018 1.249249
## 18734 0.733733734 0.018018018 1.248248
## 18735 0.734734735 0.018018018 1.247247
## 18736 0.735735736 0.018018018 1.246246
## 18737 0.736736737 0.018018018 1.245245
## 18738 0.737737738 0.018018018 1.244244
## 18739 0.738738739 0.018018018 1.243243
## 18740 0.739739740 0.018018018 1.242242
## 18741 0.740740741 0.018018018 1.241241
## 18742 0.741741742 0.018018018 1.240240
## 18743 0.742742743 0.018018018 1.239239
## 18744 0.743743744 0.018018018 1.238238
## 18745 0.744744745 0.018018018 1.237237
## 18746 0.745745746 0.018018018 1.236236
## 18747 0.746746747 0.018018018 1.235235
## 18748 0.747747748 0.018018018 1.234234
## 18749 0.748748749 0.018018018 1.233233
## 18750 0.749749750 0.018018018 1.232232
## 18751 0.750750751 0.018018018 1.231231
## 18752 0.751751752 0.018018018 1.230230
## 18753 0.752752753 0.018018018 1.229229
## 18754 0.753753754 0.018018018 1.228228
## 18755 0.754754755 0.018018018 1.227227
## 18756 0.755755756 0.018018018 1.226226
## 18757 0.756756757 0.018018018 1.225225
## 18758 0.757757758 0.018018018 1.224224
## 18759 0.758758759 0.018018018 1.223223
## 18760 0.759759760 0.018018018 1.222222
## 18761 0.760760761 0.018018018 1.221221
## 18762 0.761761762 0.018018018 1.220220
## 18763 0.762762763 0.018018018 1.219219
## 18764 0.763763764 0.018018018 1.218218
## 18765 0.764764765 0.018018018 1.217217
## 18766 0.765765766 0.018018018 1.216216
## 18767 0.766766767 0.018018018 1.215215
## 18768 0.767767768 0.018018018 1.214214
## 18769 0.768768769 0.018018018 1.213213
## 18770 0.769769770 0.018018018 1.212212
## 18771 0.770770771 0.018018018 1.211211
## 18772 0.771771772 0.018018018 1.210210
## 18773 0.772772773 0.018018018 1.209209
## 18774 0.773773774 0.018018018 1.208208

```

```
## 18775 0.774774775 0.018018018 1.207207
## 18776 0.775775776 0.018018018 1.206206
## 18777 0.776776777 0.018018018 1.205205
## 18778 0.777777778 0.018018018 1.204204
## 18779 0.778778779 0.018018018 1.203203
## 18780 0.779779780 0.018018018 1.202202
## 18781 0.780780781 0.018018018 1.201201
## 18782 0.781781782 0.018018018 1.200200
## 18783 0.782782783 0.018018018 1.199199
## 18784 0.783783784 0.018018018 1.198198
## 18785 0.784784785 0.018018018 1.197197
## 18786 0.785785786 0.018018018 1.196196
## 18787 0.786786787 0.018018018 1.195195
## 18788 0.787787788 0.018018018 1.194194
## 18789 0.788788789 0.018018018 1.193193
## 18790 0.789789790 0.018018018 1.192192
## 18791 0.790790791 0.018018018 1.191191
## 18792 0.791791792 0.018018018 1.190190
## 18793 0.792792793 0.018018018 1.189189
## 18794 0.793793794 0.018018018 1.188188
## 18795 0.794794795 0.018018018 1.187187
## 18796 0.795795796 0.018018018 1.186186
## 18797 0.796796797 0.018018018 1.185185
## 18798 0.797797798 0.018018018 1.184184
## 18799 0.798798799 0.018018018 1.183183
## 18800 0.799799800 0.018018018 1.182182
## 18801 0.800800801 0.018018018 1.181181
## 18802 0.801801802 0.018018018 1.180180
## 18803 0.802802803 0.018018018 1.179179
## 18804 0.803803804 0.018018018 1.178178
## 18805 0.804804805 0.018018018 1.177177
## 18806 0.805805806 0.018018018 1.176176
## 18807 0.806806807 0.018018018 1.175175
## 18808 0.807807808 0.018018018 1.174174
## 18809 0.808808809 0.018018018 1.173173
## 18810 0.809809810 0.018018018 1.172172
## 18811 0.810810811 0.018018018 1.171171
## 18812 0.811811812 0.018018018 1.170170
## 18813 0.812812813 0.018018018 1.169169
## 18814 0.813813814 0.018018018 1.168168
## 18815 0.814814815 0.018018018 1.167167
## 18816 0.815815816 0.018018018 1.166166
## 18817 0.816816817 0.018018018 1.165165
## 18818 0.817817818 0.018018018 1.164164
## 18819 0.818818819 0.018018018 1.163163
## 18820 0.819819820 0.018018018 1.162162
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 521

```

## 18821 0.820820821 0.018018018 1.161161
## 18822 0.821821822 0.018018018 1.160160
## 18823 0.822822823 0.018018018 1.159159
## 18824 0.823823824 0.018018018 1.158158
## 18825 0.824824825 0.018018018 1.157157
## 18826 0.825825826 0.018018018 1.156156
## 18827 0.826826827 0.018018018 1.155155
## 18828 0.827827828 0.018018018 1.154154
## 18829 0.828828829 0.018018018 1.153153
## 18830 0.829829830 0.018018018 1.152152
## 18831 0.830830831 0.018018018 1.151151
## 18832 0.831831832 0.018018018 1.150150
## 18833 0.832832833 0.018018018 1.149149
## 18834 0.833833834 0.018018018 1.148148
## 18835 0.834834835 0.018018018 1.147147
## 18836 0.835835836 0.018018018 1.146146
## 18837 0.836836837 0.018018018 1.145145
## 18838 0.837837838 0.018018018 1.144144
## 18839 0.838838839 0.018018018 1.143143
## 18840 0.839839840 0.018018018 1.142142
## 18841 0.840840841 0.018018018 1.141141
## 18842 0.841841842 0.018018018 1.140140
## 18843 0.842842843 0.018018018 1.139139
## 18844 0.843843844 0.018018018 1.138138
## 18845 0.844844845 0.018018018 1.137137
## 18846 0.845845846 0.018018018 1.136136
## 18847 0.846846847 0.018018018 1.135135
## 18848 0.847847848 0.018018018 1.134134
## 18849 0.848848849 0.018018018 1.133133
## 18850 0.849849850 0.018018018 1.132132
## 18851 0.850850851 0.018018018 1.131131
## 18852 0.851851852 0.018018018 1.130130
## 18853 0.852852853 0.018018018 1.129129
## 18854 0.853853854 0.018018018 1.128128
## 18855 0.854854855 0.018018018 1.127127
## 18856 0.855855856 0.018018018 1.126126
## 18857 0.856856857 0.018018018 1.125125
## 18858 0.857857858 0.018018018 1.124124
## 18859 0.858858859 0.018018018 1.123123
## 18860 0.859859860 0.018018018 1.122122
## 18861 0.860860861 0.018018018 1.121121
## 18862 0.861861862 0.018018018 1.120120
## 18863 0.862862863 0.018018018 1.119119
## 18864 0.863863864 0.018018018 1.118118
## 18865 0.864864865 0.018018018 1.117117
## 18866 0.865865866 0.018018018 1.116116

```

```
## 18867 0.866866867 0.018018018 1.115115
## 18868 0.867867868 0.018018018 1.114114
## 18869 0.868868869 0.018018018 1.113113
## 18870 0.869869870 0.018018018 1.112112
## 18871 0.870870871 0.018018018 1.111111
## 18872 0.871871872 0.018018018 1.110110
## 18873 0.872872873 0.018018018 1.109109
## 18874 0.873873874 0.018018018 1.108108
## 18875 0.874874875 0.018018018 1.107107
## 18876 0.875875876 0.018018018 1.106106
## 18877 0.876876877 0.018018018 1.105105
## 18878 0.877877878 0.018018018 1.104104
## 18879 0.878878879 0.018018018 1.103103
## 18880 0.879879880 0.018018018 1.102102
## 18881 0.880880881 0.018018018 1.101101
## 18882 0.881881882 0.018018018 1.100100
## 18883 0.882882883 0.018018018 1.099099
## 18884 0.883883884 0.018018018 1.098098
## 18885 0.884884885 0.018018018 1.097097
## 18886 0.885885886 0.018018018 1.096096
## 18887 0.886886887 0.018018018 1.095095
## 18888 0.887887888 0.018018018 1.094094
## 18889 0.888888889 0.018018018 1.093093
## 18890 0.889889890 0.018018018 1.092092
## 18891 0.890890891 0.018018018 1.091091
## 18892 0.891891892 0.018018018 1.090090
## 18893 0.892892893 0.018018018 1.089089
## 18894 0.893893894 0.018018018 1.088088
## 18895 0.894894895 0.018018018 1.087087
## 18896 0.895895896 0.018018018 1.086086
## 18897 0.896896897 0.018018018 1.085085
## 18898 0.897897898 0.018018018 1.084084
## 18899 0.898898899 0.018018018 1.083083
## 18900 0.899899900 0.018018018 1.082082
## 18901 0.900900901 0.018018018 1.081081
## 18902 0.901901902 0.018018018 1.080080
## 18903 0.902902903 0.018018018 1.079079
## 18904 0.903903904 0.018018018 1.078078
## 18905 0.904904905 0.018018018 1.077077
## 18906 0.905905906 0.018018018 1.076076
## 18907 0.906906907 0.018018018 1.075075
## 18908 0.907907908 0.018018018 1.074074
## 18909 0.908908909 0.018018018 1.073073
## 18910 0.909909910 0.018018018 1.072072
## 18911 0.910910911 0.018018018 1.071071
## 18912 0.911911912 0.018018018 1.070070
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 523

```
## 18913 0.912912913 0.018018018 1.069069
## 18914 0.913913914 0.018018018 1.068068
## 18915 0.914914915 0.018018018 1.067067
## 18916 0.915915916 0.018018018 1.066066
## 18917 0.916916917 0.018018018 1.065065
## 18918 0.917917918 0.018018018 1.064064
## 18919 0.918918919 0.018018018 1.063063
## 18920 0.919919920 0.018018018 1.062062
## 18921 0.920920921 0.018018018 1.061061
## 18922 0.921921922 0.018018018 1.060060
## 18923 0.922922923 0.018018018 1.059059
## 18924 0.923923924 0.018018018 1.058058
## 18925 0.924924925 0.018018018 1.057057
## 18926 0.925925926 0.018018018 1.056056
## 18927 0.926926927 0.018018018 1.055055
## 18928 0.927927928 0.018018018 1.054054
## 18929 0.928928929 0.018018018 1.053053
## 18930 0.929929930 0.018018018 1.052052
## 18931 0.930930931 0.018018018 1.051051
## 18932 0.931931932 0.018018018 1.050050
## 18933 0.932932933 0.018018018 1.049049
## 18934 0.933933934 0.018018018 1.048048
## 18935 0.934934935 0.018018018 1.047047
## 18936 0.935935936 0.018018018 1.046046
## 18937 0.936936937 0.018018018 1.045045
## 18938 0.937937938 0.018018018 1.044044
## 18939 0.938938939 0.018018018 1.043043
## 18940 0.939939940 0.018018018 1.042042
## 18941 0.940940941 0.018018018 1.041041
## 18942 0.941941942 0.018018018 1.040040
## 18943 0.942942943 0.018018018 1.039039
## 18944 0.943943944 0.018018018 1.038038
## 18945 0.944944945 0.018018018 1.037037
## 18946 0.945945946 0.018018018 1.036036
## 18947 0.946946947 0.018018018 1.035035
## 18948 0.947947948 0.018018018 1.034034
## 18949 0.948948949 0.018018018 1.033033
## 18950 0.949949950 0.018018018 1.032032
## 18951 0.950950951 0.018018018 1.031031
## 18952 0.951951952 0.018018018 1.030030
## 18953 0.952952953 0.018018018 1.029029
## 18954 0.953953954 0.018018018 1.028028
## 18955 0.954954955 0.018018018 1.027027
## 18956 0.955955956 0.018018018 1.026026
## 18957 0.956956957 0.018018018 1.025025
## 18958 0.957957958 0.018018018 1.024024
```

```
## 18959 0.958958959 0.018018018 1.023023
## 18960 0.959959960 0.018018018 1.022022
## 18961 0.960960961 0.018018018 1.021021
## 18962 0.961961962 0.018018018 1.020020
## 18963 0.962962963 0.018018018 1.019019
## 18964 0.963963964 0.018018018 1.018018
## 18965 0.964964965 0.018018018 1.017017
## 18966 0.965965966 0.018018018 1.016016
## 18967 0.966966967 0.018018018 1.015015
## 18968 0.967967968 0.018018018 1.014014
## 18969 0.968968969 0.018018018 1.013013
## 18970 0.969969970 0.018018018 1.012012
## 18971 0.970970971 0.018018018 1.011011
## 18972 0.971971972 0.018018018 1.010010
## 18973 0.972972973 0.018018018 1.009009
## 18974 0.973973974 0.018018018 1.008008
## 18975 0.974974975 0.018018018 1.007007
## 18976 0.975975976 0.018018018 1.006006
## 18977 0.976976977 0.018018018 1.005005
## 18978 0.977977978 0.018018018 1.004004
## 18979 0.978978979 0.018018018 1.003003
## 18980 0.979979980 0.018018018 1.002002
## 18981 0.980980981 0.018018018 1.001001
## 18982 0.981981982 0.018018018 1.000000
## 18983 0.982982983 0.018018018 0.998999
## 18984 0.983983984 0.018018018 0.997998
## 18985 0.984984985 0.018018018 0.996997
## 18986 0.985985986 0.018018018 0.995996
## 18987 0.986986987 0.018018018 0.994995
## 18988 0.987987988 0.018018018 0.993994
## 18989 0.988988989 0.018018018 0.992993
## 18990 0.989989990 0.018018018 0.991992
## 18991 0.990990991 0.018018018 0.990991
## 18992 0.991991992 0.018018018 0.989990
## 18993 0.992992993 0.018018018 0.988989
## 18994 0.993993994 0.018018018 0.987988
## 18995 0.994994995 0.018018018 0.986987
## 18996 0.995995996 0.018018018 0.985986
## 18997 0.996996997 0.018018018 0.984985
## 18998 0.997997998 0.018018018 0.983984
## 18999 0.998998999 0.018018018 0.982983
## 19000 1.000000000 0.018018018 0.981982
## 19001 0.000000000 0.019019019 1.980981
## 19002 0.001001001 0.019019019 1.979980
## 19003 0.002002002 0.019019019 1.978979
## 19004 0.003003003 0.019019019 1.977978
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 525

```

## 19005 0.004004004 0.019019019 1.976977
## 19006 0.005005005 0.019019019 1.975976
## 19007 0.006006006 0.019019019 1.974975
## 19008 0.007007007 0.019019019 1.973974
## 19009 0.008008008 0.019019019 1.972973
## 19010 0.009009009 0.019019019 1.971972
## 19011 0.010010010 0.019019019 1.970971
## 19012 0.011011011 0.019019019 1.969970
## 19013 0.012012012 0.019019019 1.968969
## 19014 0.013013013 0.019019019 1.967968
## 19015 0.014014014 0.019019019 1.966967
## 19016 0.015015015 0.019019019 1.965966
## 19017 0.016016016 0.019019019 1.964965
## 19018 0.017017017 0.019019019 1.963964
## 19019 0.018018018 0.019019019 1.962963
## 19020 0.019019019 0.019019019 1.961962
## 19021 0.020020020 0.019019019 1.960961
## 19022 0.021021021 0.019019019 1.959960
## 19023 0.022022022 0.019019019 1.958959
## 19024 0.023023023 0.019019019 1.957958
## 19025 0.024024024 0.019019019 1.956957
## 19026 0.025025025 0.019019019 1.955956
## 19027 0.026026026 0.019019019 1.954955
## 19028 0.027027027 0.019019019 1.953954
## 19029 0.028028028 0.019019019 1.952953
## 19030 0.029029029 0.019019019 1.951952
## 19031 0.030030030 0.019019019 1.950951
## 19032 0.031031031 0.019019019 1.949950
## 19033 0.032032032 0.019019019 1.948949
## 19034 0.033033033 0.019019019 1.947948
## 19035 0.034034034 0.019019019 1.946947
## 19036 0.035035035 0.019019019 1.945946
## 19037 0.036036036 0.019019019 1.944945
## 19038 0.037037037 0.019019019 1.943944
## 19039 0.038038038 0.019019019 1.942943
## 19040 0.039039039 0.019019019 1.941942
## 19041 0.040040040 0.019019019 1.940941
## 19042 0.041041041 0.019019019 1.939940
## 19043 0.042042042 0.019019019 1.938939
## 19044 0.043043043 0.019019019 1.937938
## 19045 0.044044044 0.019019019 1.936937
## 19046 0.045045045 0.019019019 1.935936
## 19047 0.046046046 0.019019019 1.934935
## 19048 0.047047047 0.019019019 1.933934
## 19049 0.048048048 0.019019019 1.932933
## 19050 0.049049049 0.019019019 1.931932

```

```
## 19051 0.050050050 0.019019019 1.930931
## 19052 0.051051051 0.019019019 1.929930
## 19053 0.052052052 0.019019019 1.928929
## 19054 0.053053053 0.019019019 1.927928
## 19055 0.054054054 0.019019019 1.926927
## 19056 0.055055055 0.019019019 1.925926
## 19057 0.056056056 0.019019019 1.924925
## 19058 0.057057057 0.019019019 1.923924
## 19059 0.058058058 0.019019019 1.922923
## 19060 0.059059059 0.019019019 1.921922
## 19061 0.060060060 0.019019019 1.920921
## 19062 0.061061061 0.019019019 1.919920
## 19063 0.062062062 0.019019019 1.918919
## 19064 0.063063063 0.019019019 1.917918
## 19065 0.064064064 0.019019019 1.916917
## 19066 0.065065065 0.019019019 1.915916
## 19067 0.066066066 0.019019019 1.914915
## 19068 0.067067067 0.019019019 1.913914
## 19069 0.068068068 0.019019019 1.912913
## 19070 0.069069069 0.019019019 1.911912
## 19071 0.070070070 0.019019019 1.910911
## 19072 0.071071071 0.019019019 1.909910
## 19073 0.072072072 0.019019019 1.908909
## 19074 0.073073073 0.019019019 1.907908
## 19075 0.074074074 0.019019019 1.906907
## 19076 0.075075075 0.019019019 1.905906
## 19077 0.076076076 0.019019019 1.904905
## 19078 0.077077077 0.019019019 1.903904
## 19079 0.078078078 0.019019019 1.902903
## 19080 0.079079079 0.019019019 1.901902
## 19081 0.080080080 0.019019019 1.900901
## 19082 0.081081081 0.019019019 1.899900
## 19083 0.082082082 0.019019019 1.898899
## 19084 0.083083083 0.019019019 1.897898
## 19085 0.084084084 0.019019019 1.896897
## 19086 0.085085085 0.019019019 1.895896
## 19087 0.086086086 0.019019019 1.894895
## 19088 0.087087087 0.019019019 1.893894
## 19089 0.088088088 0.019019019 1.892893
## 19090 0.089089089 0.019019019 1.891892
## 19091 0.090090090 0.019019019 1.890891
## 19092 0.091091091 0.019019019 1.889890
## 19093 0.092092092 0.019019019 1.888889
## 19094 0.093093093 0.019019019 1.887888
## 19095 0.094094094 0.019019019 1.886887
## 19096 0.095095095 0.019019019 1.885886
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 527

```

## 19097 0.096096096 0.019019019 1.884885
## 19098 0.097097097 0.019019019 1.883884
## 19099 0.098098098 0.019019019 1.882883
## 19100 0.099099099 0.019019019 1.881882
## 19101 0.100100100 0.019019019 1.880881
## 19102 0.101101101 0.019019019 1.879880
## 19103 0.102102102 0.019019019 1.878879
## 19104 0.103103103 0.019019019 1.877878
## 19105 0.104104104 0.019019019 1.876877
## 19106 0.105105105 0.019019019 1.875876
## 19107 0.106106106 0.019019019 1.874875
## 19108 0.107107107 0.019019019 1.873874
## 19109 0.108108108 0.019019019 1.872873
## 19110 0.109109109 0.019019019 1.871872
## 19111 0.110110110 0.019019019 1.870871
## 19112 0.111111111 0.019019019 1.869870
## 19113 0.112112112 0.019019019 1.868869
## 19114 0.113113113 0.019019019 1.867868
## 19115 0.114114114 0.019019019 1.866867
## 19116 0.115115115 0.019019019 1.865866
## 19117 0.116116116 0.019019019 1.864865
## 19118 0.117117117 0.019019019 1.863864
## 19119 0.118118118 0.019019019 1.862863
## 19120 0.119119119 0.019019019 1.861862
## 19121 0.120120120 0.019019019 1.860861
## 19122 0.121121121 0.019019019 1.859860
## 19123 0.122122122 0.019019019 1.858859
## 19124 0.123123123 0.019019019 1.857858
## 19125 0.124124124 0.019019019 1.856857
## 19126 0.125125125 0.019019019 1.855856
## 19127 0.126126126 0.019019019 1.854855
## 19128 0.127127127 0.019019019 1.853854
## 19129 0.128128128 0.019019019 1.852853
## 19130 0.129129129 0.019019019 1.851852
## 19131 0.130130130 0.019019019 1.850851
## 19132 0.131131131 0.019019019 1.849850
## 19133 0.132132132 0.019019019 1.848849
## 19134 0.133133133 0.019019019 1.847848
## 19135 0.134134134 0.019019019 1.846847
## 19136 0.135135135 0.019019019 1.845846
## 19137 0.136136136 0.019019019 1.844845
## 19138 0.137137137 0.019019019 1.843844
## 19139 0.138138138 0.019019019 1.842843
## 19140 0.139139139 0.019019019 1.841842
## 19141 0.140140140 0.019019019 1.840841
## 19142 0.141141141 0.019019019 1.839840

```

```
## 19143 0.142142142 0.019019019 1.838839
## 19144 0.143143143 0.019019019 1.837838
## 19145 0.144144144 0.019019019 1.836837
## 19146 0.145145145 0.019019019 1.835836
## 19147 0.146146146 0.019019019 1.834835
## 19148 0.147147147 0.019019019 1.833834
## 19149 0.148148148 0.019019019 1.832833
## 19150 0.149149149 0.019019019 1.831832
## 19151 0.150150150 0.019019019 1.830831
## 19152 0.151151151 0.019019019 1.829830
## 19153 0.152152152 0.019019019 1.828829
## 19154 0.153153153 0.019019019 1.827828
## 19155 0.154154154 0.019019019 1.826827
## 19156 0.155155155 0.019019019 1.825826
## 19157 0.156156156 0.019019019 1.824825
## 19158 0.157157157 0.019019019 1.823824
## 19159 0.158158158 0.019019019 1.822823
## 19160 0.159159159 0.019019019 1.821822
## 19161 0.160160160 0.019019019 1.820821
## 19162 0.161161161 0.019019019 1.819820
## 19163 0.162162162 0.019019019 1.818819
## 19164 0.163163163 0.019019019 1.817818
## 19165 0.164164164 0.019019019 1.816817
## 19166 0.165165165 0.019019019 1.815816
## 19167 0.166166166 0.019019019 1.814815
## 19168 0.167167167 0.019019019 1.813814
## 19169 0.168168168 0.019019019 1.812813
## 19170 0.169169169 0.019019019 1.811812
## 19171 0.170170170 0.019019019 1.810811
## 19172 0.171171171 0.019019019 1.809810
## 19173 0.172172172 0.019019019 1.808809
## 19174 0.173173173 0.019019019 1.807808
## 19175 0.174174174 0.019019019 1.806807
## 19176 0.175175175 0.019019019 1.805806
## 19177 0.176176176 0.019019019 1.804805
## 19178 0.177177177 0.019019019 1.803804
## 19179 0.178178178 0.019019019 1.802803
## 19180 0.179179179 0.019019019 1.801802
## 19181 0.180180180 0.019019019 1.800801
## 19182 0.181181181 0.019019019 1.799800
## 19183 0.182182182 0.019019019 1.798799
## 19184 0.183183183 0.019019019 1.797798
## 19185 0.184184184 0.019019019 1.796797
## 19186 0.185185185 0.019019019 1.795796
## 19187 0.186186186 0.019019019 1.794795
## 19188 0.187187187 0.019019019 1.793794
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 529

```

## 19189 0.188188188 0.019019019 1.792793
## 19190 0.189189189 0.019019019 1.791792
## 19191 0.190190190 0.019019019 1.790791
## 19192 0.191191191 0.019019019 1.789790
## 19193 0.192192192 0.019019019 1.788789
## 19194 0.193193193 0.019019019 1.787788
## 19195 0.194194194 0.019019019 1.786787
## 19196 0.195195195 0.019019019 1.785786
## 19197 0.196196196 0.019019019 1.784785
## 19198 0.197197197 0.019019019 1.783784
## 19199 0.198198198 0.019019019 1.782783
## 19200 0.199199199 0.019019019 1.781782
## 19201 0.200200200 0.019019019 1.780781
## 19202 0.201201201 0.019019019 1.779780
## 19203 0.202202202 0.019019019 1.778779
## 19204 0.203203203 0.019019019 1.777778
## 19205 0.204204204 0.019019019 1.776777
## 19206 0.205205205 0.019019019 1.775776
## 19207 0.206206206 0.019019019 1.774775
## 19208 0.207207207 0.019019019 1.773774
## 19209 0.208208208 0.019019019 1.772773
## 19210 0.209209209 0.019019019 1.771772
## 19211 0.210210210 0.019019019 1.770771
## 19212 0.211211211 0.019019019 1.769770
## 19213 0.212212212 0.019019019 1.768769
## 19214 0.213213213 0.019019019 1.767768
## 19215 0.214214214 0.019019019 1.766767
## 19216 0.215215215 0.019019019 1.765766
## 19217 0.216216216 0.019019019 1.764765
## 19218 0.217217217 0.019019019 1.763764
## 19219 0.218218218 0.019019019 1.762763
## 19220 0.219219219 0.019019019 1.761762
## 19221 0.220220220 0.019019019 1.760761
## 19222 0.221221221 0.019019019 1.759760
## 19223 0.222222222 0.019019019 1.758759
## 19224 0.223223223 0.019019019 1.757758
## 19225 0.224224224 0.019019019 1.756757
## 19226 0.225225225 0.019019019 1.755756
## 19227 0.226226226 0.019019019 1.754755
## 19228 0.227227227 0.019019019 1.753754
## 19229 0.228228228 0.019019019 1.752753
## 19230 0.229229229 0.019019019 1.751752
## 19231 0.230230230 0.019019019 1.750751
## 19232 0.231231231 0.019019019 1.749750
## 19233 0.232232232 0.019019019 1.748749
## 19234 0.233233233 0.019019019 1.747748

```

```
## 19235 0.234234234 0.019019019 1.746747
## 19236 0.235235235 0.019019019 1.745746
## 19237 0.236236236 0.019019019 1.744745
## 19238 0.237237237 0.019019019 1.743744
## 19239 0.238238238 0.019019019 1.742743
## 19240 0.239239239 0.019019019 1.741742
## 19241 0.240240240 0.019019019 1.740741
## 19242 0.241241241 0.019019019 1.739740
## 19243 0.242242242 0.019019019 1.738739
## 19244 0.243243243 0.019019019 1.737738
## 19245 0.244244244 0.019019019 1.736737
## 19246 0.245245245 0.019019019 1.735736
## 19247 0.246246246 0.019019019 1.734735
## 19248 0.247247247 0.019019019 1.733734
## 19249 0.248248248 0.019019019 1.732733
## 19250 0.249249249 0.019019019 1.731732
## 19251 0.250250250 0.019019019 1.730731
## 19252 0.251251251 0.019019019 1.729730
## 19253 0.252252252 0.019019019 1.728729
## 19254 0.253253253 0.019019019 1.727728
## 19255 0.254254254 0.019019019 1.726727
## 19256 0.255255255 0.019019019 1.725726
## 19257 0.256256256 0.019019019 1.724725
## 19258 0.257257257 0.019019019 1.723724
## 19259 0.258258258 0.019019019 1.722723
## 19260 0.259259259 0.019019019 1.721722
## 19261 0.260260260 0.019019019 1.720721
## 19262 0.261261261 0.019019019 1.719720
## 19263 0.262262262 0.019019019 1.718719
## 19264 0.263263263 0.019019019 1.717718
## 19265 0.264264264 0.019019019 1.716717
## 19266 0.265265265 0.019019019 1.715716
## 19267 0.266266266 0.019019019 1.714715
## 19268 0.267267267 0.019019019 1.713714
## 19269 0.268268268 0.019019019 1.712713
## 19270 0.269269269 0.019019019 1.711712
## 19271 0.270270270 0.019019019 1.710711
## 19272 0.271271271 0.019019019 1.709710
## 19273 0.272272272 0.019019019 1.708709
## 19274 0.273273273 0.019019019 1.707708
## 19275 0.274274274 0.019019019 1.706707
## 19276 0.275275275 0.019019019 1.705706
## 19277 0.276276276 0.019019019 1.704705
## 19278 0.277277277 0.019019019 1.703704
## 19279 0.278278278 0.019019019 1.702703
## 19280 0.279279279 0.019019019 1.701702
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 531

```
## 19281 0.280280280 0.019019019 1.700701
## 19282 0.281281281 0.019019019 1.699700
## 19283 0.282282282 0.019019019 1.698699
## 19284 0.283283283 0.019019019 1.697698
## 19285 0.284284284 0.019019019 1.696697
## 19286 0.285285285 0.019019019 1.695696
## 19287 0.286286286 0.019019019 1.694695
## 19288 0.287287287 0.019019019 1.693694
## 19289 0.288288288 0.019019019 1.692693
## 19290 0.289289289 0.019019019 1.691692
## 19291 0.290290290 0.019019019 1.690691
## 19292 0.291291291 0.019019019 1.689690
## 19293 0.292292292 0.019019019 1.688689
## 19294 0.293293293 0.019019019 1.687688
## 19295 0.294294294 0.019019019 1.686687
## 19296 0.295295295 0.019019019 1.685686
## 19297 0.296296296 0.019019019 1.684685
## 19298 0.297297297 0.019019019 1.683684
## 19299 0.298298298 0.019019019 1.682683
## 19300 0.299299299 0.019019019 1.681682
## 19301 0.300300300 0.019019019 1.680681
## 19302 0.301301301 0.019019019 1.679680
## 19303 0.302302302 0.019019019 1.678679
## 19304 0.303303303 0.019019019 1.677678
## 19305 0.304304304 0.019019019 1.676677
## 19306 0.305305305 0.019019019 1.675676
## 19307 0.306306306 0.019019019 1.674675
## 19308 0.307307307 0.019019019 1.673674
## 19309 0.308308308 0.019019019 1.672673
## 19310 0.309309309 0.019019019 1.671672
## 19311 0.310310310 0.019019019 1.670671
## 19312 0.311311311 0.019019019 1.669670
## 19313 0.312312312 0.019019019 1.668669
## 19314 0.313313313 0.019019019 1.667668
## 19315 0.314314314 0.019019019 1.666667
## 19316 0.315315315 0.019019019 1.665666
## 19317 0.316316316 0.019019019 1.664665
## 19318 0.317317317 0.019019019 1.663664
## 19319 0.318318318 0.019019019 1.662663
## 19320 0.319319319 0.019019019 1.661662
## 19321 0.320320320 0.019019019 1.660661
## 19322 0.321321321 0.019019019 1.659660
## 19323 0.322322322 0.019019019 1.658659
## 19324 0.323323323 0.019019019 1.657658
## 19325 0.324324324 0.019019019 1.656657
## 19326 0.325325325 0.019019019 1.655656
```

```
## 19327 0.326326326 0.019019019 1.654655
## 19328 0.327327327 0.019019019 1.653654
## 19329 0.328328328 0.019019019 1.652653
## 19330 0.329329329 0.019019019 1.651652
## 19331 0.330330330 0.019019019 1.650651
## 19332 0.331331331 0.019019019 1.649650
## 19333 0.332332332 0.019019019 1.648649
## 19334 0.333333333 0.019019019 1.647648
## 19335 0.334334334 0.019019019 1.646647
## 19336 0.335335335 0.019019019 1.645646
## 19337 0.336336336 0.019019019 1.644645
## 19338 0.337337337 0.019019019 1.643644
## 19339 0.338338338 0.019019019 1.642643
## 19340 0.339339339 0.019019019 1.641642
## 19341 0.340340340 0.019019019 1.640641
## 19342 0.341341341 0.019019019 1.639640
## 19343 0.342342342 0.019019019 1.638639
## 19344 0.343343343 0.019019019 1.637638
## 19345 0.344344344 0.019019019 1.636637
## 19346 0.345345345 0.019019019 1.635636
## 19347 0.346346346 0.019019019 1.634635
## 19348 0.347347347 0.019019019 1.633634
## 19349 0.348348348 0.019019019 1.632633
## 19350 0.349349349 0.019019019 1.631632
## 19351 0.350350350 0.019019019 1.630631
## 19352 0.351351351 0.019019019 1.629630
## 19353 0.352352352 0.019019019 1.628629
## 19354 0.353353353 0.019019019 1.627628
## 19355 0.354354354 0.019019019 1.626627
## 19356 0.355355355 0.019019019 1.625626
## 19357 0.356356356 0.019019019 1.624625
## 19358 0.357357357 0.019019019 1.623624
## 19359 0.358358358 0.019019019 1.622623
## 19360 0.359359359 0.019019019 1.621622
## 19361 0.360360360 0.019019019 1.620621
## 19362 0.361361361 0.019019019 1.619620
## 19363 0.362362362 0.019019019 1.618619
## 19364 0.363363363 0.019019019 1.617618
## 19365 0.364364364 0.019019019 1.616617
## 19366 0.365365365 0.019019019 1.615616
## 19367 0.366366366 0.019019019 1.614615
## 19368 0.367367367 0.019019019 1.613614
## 19369 0.368368368 0.019019019 1.612613
## 19370 0.369369369 0.019019019 1.611612
## 19371 0.370370370 0.019019019 1.610611
## 19372 0.371371371 0.019019019 1.609610
```

```

## 19373 0.372372372 0.019019019 1.608609
## 19374 0.373373373 0.019019019 1.607608
## 19375 0.374374374 0.019019019 1.606607
## 19376 0.375375375 0.019019019 1.605606
## 19377 0.376376376 0.019019019 1.604605
## 19378 0.377377377 0.019019019 1.603604
## 19379 0.378378378 0.019019019 1.602603
## 19380 0.379379379 0.019019019 1.601602
## 19381 0.380380380 0.019019019 1.600601
## 19382 0.381381381 0.019019019 1.599600
## 19383 0.382382382 0.019019019 1.598599
## 19384 0.383383383 0.019019019 1.597598
## 19385 0.384384384 0.019019019 1.596597
## 19386 0.385385385 0.019019019 1.595596
## 19387 0.386386386 0.019019019 1.594595
## 19388 0.387387387 0.019019019 1.593594
## 19389 0.388388388 0.019019019 1.592593
## 19390 0.389389389 0.019019019 1.591592
## 19391 0.390390390 0.019019019 1.590591
## 19392 0.391391391 0.019019019 1.589590
## 19393 0.392392392 0.019019019 1.588589
## 19394 0.393393393 0.019019019 1.587588
## 19395 0.394394394 0.019019019 1.586587
## 19396 0.395395395 0.019019019 1.585586
## 19397 0.396396396 0.019019019 1.584585
## 19398 0.397397397 0.019019019 1.583584
## 19399 0.398398398 0.019019019 1.582583
## 19400 0.399399399 0.019019019 1.581582
## 19401 0.400400400 0.019019019 1.580581
## 19402 0.401401401 0.019019019 1.579580
## 19403 0.402402402 0.019019019 1.578579
## 19404 0.403403403 0.019019019 1.577578
## 19405 0.404404404 0.019019019 1.576577
## 19406 0.405405405 0.019019019 1.575576
## 19407 0.406406406 0.019019019 1.574575
## 19408 0.407407407 0.019019019 1.573574
## 19409 0.408408408 0.019019019 1.572573
## 19410 0.409409409 0.019019019 1.571572
## 19411 0.410410410 0.019019019 1.570571
## 19412 0.411411411 0.019019019 1.569570
## 19413 0.412412412 0.019019019 1.568569
## 19414 0.413413413 0.019019019 1.567568
## 19415 0.414414414 0.019019019 1.566567
## 19416 0.415415415 0.019019019 1.565566
## 19417 0.416416416 0.019019019 1.564565
## 19418 0.417417417 0.019019019 1.563564

```

```
## 19419 0.418418418 0.019019019 1.562563
## 19420 0.419419419 0.019019019 1.561562
## 19421 0.420420420 0.019019019 1.560561
## 19422 0.421421421 0.019019019 1.559560
## 19423 0.422422422 0.019019019 1.558559
## 19424 0.423423423 0.019019019 1.557558
## 19425 0.424424424 0.019019019 1.556557
## 19426 0.425425425 0.019019019 1.555556
## 19427 0.426426426 0.019019019 1.554555
## 19428 0.427427427 0.019019019 1.553554
## 19429 0.428428428 0.019019019 1.552553
## 19430 0.429429429 0.019019019 1.551552
## 19431 0.430430430 0.019019019 1.550551
## 19432 0.431431431 0.019019019 1.549550
## 19433 0.432432432 0.019019019 1.548549
## 19434 0.433433433 0.019019019 1.547548
## 19435 0.434434434 0.019019019 1.546547
## 19436 0.435435435 0.019019019 1.545546
## 19437 0.436436436 0.019019019 1.544545
## 19438 0.437437437 0.019019019 1.543544
## 19439 0.438438438 0.019019019 1.542543
## 19440 0.439439439 0.019019019 1.541542
## 19441 0.440440440 0.019019019 1.540541
## 19442 0.441441441 0.019019019 1.539540
## 19443 0.442442442 0.019019019 1.538539
## 19444 0.443443443 0.019019019 1.537538
## 19445 0.444444444 0.019019019 1.536537
## 19446 0.445445445 0.019019019 1.535536
## 19447 0.446446446 0.019019019 1.534535
## 19448 0.447447447 0.019019019 1.533534
## 19449 0.448448448 0.019019019 1.532533
## 19450 0.449449449 0.019019019 1.531532
## 19451 0.450450450 0.019019019 1.530531
## 19452 0.451451451 0.019019019 1.529530
## 19453 0.452452452 0.019019019 1.528529
## 19454 0.453453453 0.019019019 1.527528
## 19455 0.454454454 0.019019019 1.526527
## 19456 0.455455455 0.019019019 1.525526
## 19457 0.456456456 0.019019019 1.524525
## 19458 0.457457457 0.019019019 1.523524
## 19459 0.458458458 0.019019019 1.522523
## 19460 0.459459459 0.019019019 1.521522
## 19461 0.460460460 0.019019019 1.520521
## 19462 0.461461461 0.019019019 1.519520
## 19463 0.462462462 0.019019019 1.518519
## 19464 0.463463463 0.019019019 1.517518
```

```
## 19465 0.464464464 0.019019019 1.516517
## 19466 0.465465465 0.019019019 1.515516
## 19467 0.466466466 0.019019019 1.514515
## 19468 0.467467467 0.019019019 1.513514
## 19469 0.468468468 0.019019019 1.512513
## 19470 0.469469469 0.019019019 1.511512
## 19471 0.470470470 0.019019019 1.510511
## 19472 0.471471471 0.019019019 1.509510
## 19473 0.472472472 0.019019019 1.508509
## 19474 0.473473473 0.019019019 1.507508
## 19475 0.474474474 0.019019019 1.506507
## 19476 0.475475475 0.019019019 1.505506
## 19477 0.476476476 0.019019019 1.504505
## 19478 0.477477477 0.019019019 1.503504
## 19479 0.478478478 0.019019019 1.502503
## 19480 0.479479479 0.019019019 1.501502
## 19481 0.480480480 0.019019019 1.500501
## 19482 0.481481481 0.019019019 1.499499
## 19483 0.482482482 0.019019019 1.498498
## 19484 0.483483483 0.019019019 1.497497
## 19485 0.484484484 0.019019019 1.496496
## 19486 0.485485485 0.019019019 1.495495
## 19487 0.486486486 0.019019019 1.494494
## 19488 0.487487487 0.019019019 1.493493
## 19489 0.488488488 0.019019019 1.492492
## 19490 0.489489489 0.019019019 1.491491
## 19491 0.490490490 0.019019019 1.490490
## 19492 0.491491491 0.019019019 1.489489
## 19493 0.492492492 0.019019019 1.488488
## 19494 0.493493493 0.019019019 1.487487
## 19495 0.494494494 0.019019019 1.486486
## 19496 0.495495495 0.019019019 1.485485
## 19497 0.496496496 0.019019019 1.484484
## 19498 0.497497497 0.019019019 1.483483
## 19499 0.498498498 0.019019019 1.482482
## 19500 0.499499499 0.019019019 1.481481
## 19501 0.500500501 0.019019019 1.480480
## 19502 0.501501502 0.019019019 1.479479
## 19503 0.502502503 0.019019019 1.478478
## 19504 0.503503504 0.019019019 1.477477
## 19505 0.504504505 0.019019019 1.476476
## 19506 0.505505506 0.019019019 1.475475
## 19507 0.506506507 0.019019019 1.474474
## 19508 0.507507508 0.019019019 1.473473
## 19509 0.508508509 0.019019019 1.472472
## 19510 0.509509510 0.019019019 1.471471
```

```
## 19511 0.510510511 0.019019019 1.470470
## 19512 0.511511512 0.019019019 1.469469
## 19513 0.512512513 0.019019019 1.468468
## 19514 0.513513514 0.019019019 1.467467
## 19515 0.514514515 0.019019019 1.466466
## 19516 0.515515516 0.019019019 1.465465
## 19517 0.516516517 0.019019019 1.464464
## 19518 0.517517518 0.019019019 1.463463
## 19519 0.518518519 0.019019019 1.462462
## 19520 0.519519520 0.019019019 1.461461
## 19521 0.520520521 0.019019019 1.460460
## 19522 0.521521522 0.019019019 1.459459
## 19523 0.522522523 0.019019019 1.458458
## 19524 0.523523524 0.019019019 1.457457
## 19525 0.524524525 0.019019019 1.456456
## 19526 0.525525526 0.019019019 1.455455
## 19527 0.526526527 0.019019019 1.454454
## 19528 0.527527528 0.019019019 1.453453
## 19529 0.528528529 0.019019019 1.452452
## 19530 0.529529530 0.019019019 1.451451
## 19531 0.530530531 0.019019019 1.450450
## 19532 0.531531532 0.019019019 1.449449
## 19533 0.532532533 0.019019019 1.448448
## 19534 0.533533534 0.019019019 1.447447
## 19535 0.534534535 0.019019019 1.446446
## 19536 0.535535536 0.019019019 1.445445
## 19537 0.536536537 0.019019019 1.444444
## 19538 0.537537538 0.019019019 1.443443
## 19539 0.538538539 0.019019019 1.442442
## 19540 0.539539540 0.019019019 1.441441
## 19541 0.540540541 0.019019019 1.440440
## 19542 0.541541542 0.019019019 1.439439
## 19543 0.542542543 0.019019019 1.438438
## 19544 0.543543544 0.019019019 1.437437
## 19545 0.544544545 0.019019019 1.436436
## 19546 0.545545546 0.019019019 1.435435
## 19547 0.546546547 0.019019019 1.434434
## 19548 0.547547548 0.019019019 1.433433
## 19549 0.548548549 0.019019019 1.432432
## 19550 0.549549550 0.019019019 1.431431
## 19551 0.550550551 0.019019019 1.430430
## 19552 0.551551552 0.019019019 1.429429
## 19553 0.552552553 0.019019019 1.428428
## 19554 0.553553554 0.019019019 1.427427
## 19555 0.554554555 0.019019019 1.426426
## 19556 0.555555556 0.019019019 1.425425
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 537

```

## 19557 0.556556557 0.019019019 1.424424
## 19558 0.557557558 0.019019019 1.423423
## 19559 0.558558559 0.019019019 1.422422
## 19560 0.559559560 0.019019019 1.421421
## 19561 0.560560561 0.019019019 1.420420
## 19562 0.561561562 0.019019019 1.419419
## 19563 0.562562563 0.019019019 1.418418
## 19564 0.563563564 0.019019019 1.417417
## 19565 0.564564565 0.019019019 1.416416
## 19566 0.565565566 0.019019019 1.415415
## 19567 0.566566567 0.019019019 1.414414
## 19568 0.567567568 0.019019019 1.413413
## 19569 0.568568569 0.019019019 1.412412
## 19570 0.569569570 0.019019019 1.411411
## 19571 0.570570571 0.019019019 1.410410
## 19572 0.571571572 0.019019019 1.409409
## 19573 0.572572573 0.019019019 1.408408
## 19574 0.573573574 0.019019019 1.407407
## 19575 0.574574575 0.019019019 1.406406
## 19576 0.575575576 0.019019019 1.405405
## 19577 0.576576577 0.019019019 1.404404
## 19578 0.577577578 0.019019019 1.403403
## 19579 0.578578579 0.019019019 1.402402
## 19580 0.579579580 0.019019019 1.401401
## 19581 0.580580581 0.019019019 1.400400
## 19582 0.581581582 0.019019019 1.399399
## 19583 0.582582583 0.019019019 1.398398
## 19584 0.583583584 0.019019019 1.397397
## 19585 0.584584585 0.019019019 1.396396
## 19586 0.585585586 0.019019019 1.395395
## 19587 0.586586587 0.019019019 1.394394
## 19588 0.587587588 0.019019019 1.393393
## 19589 0.588588589 0.019019019 1.392392
## 19590 0.589589590 0.019019019 1.391391
## 19591 0.590590591 0.019019019 1.390390
## 19592 0.591591592 0.019019019 1.389389
## 19593 0.592592593 0.019019019 1.388388
## 19594 0.593593594 0.019019019 1.387387
## 19595 0.594594595 0.019019019 1.386386
## 19596 0.595595596 0.019019019 1.385385
## 19597 0.596596597 0.019019019 1.384384
## 19598 0.597597598 0.019019019 1.383383
## 19599 0.598598599 0.019019019 1.382382
## 19600 0.599599600 0.019019019 1.381381
## 19601 0.600600601 0.019019019 1.380380
## 19602 0.601601602 0.019019019 1.379379

```

```
## 19603 0.602602603 0.019019019 1.378378
## 19604 0.603603604 0.019019019 1.377377
## 19605 0.604604605 0.019019019 1.376376
## 19606 0.605605606 0.019019019 1.375375
## 19607 0.606606607 0.019019019 1.374374
## 19608 0.607607608 0.019019019 1.373373
## 19609 0.608608609 0.019019019 1.372372
## 19610 0.609609610 0.019019019 1.371371
## 19611 0.610610611 0.019019019 1.370370
## 19612 0.611611612 0.019019019 1.369369
## 19613 0.612612613 0.019019019 1.368368
## 19614 0.613613614 0.019019019 1.367367
## 19615 0.614614615 0.019019019 1.366366
## 19616 0.615615616 0.019019019 1.365365
## 19617 0.616616617 0.019019019 1.364364
## 19618 0.617617618 0.019019019 1.363363
## 19619 0.618618619 0.019019019 1.362362
## 19620 0.619619620 0.019019019 1.361361
## 19621 0.620620621 0.019019019 1.360360
## 19622 0.621621622 0.019019019 1.359359
## 19623 0.622622623 0.019019019 1.358358
## 19624 0.623623624 0.019019019 1.357357
## 19625 0.624624625 0.019019019 1.356356
## 19626 0.625625626 0.019019019 1.355355
## 19627 0.626626627 0.019019019 1.354354
## 19628 0.627627628 0.019019019 1.353353
## 19629 0.628628629 0.019019019 1.352352
## 19630 0.629629630 0.019019019 1.351351
## 19631 0.630630631 0.019019019 1.350350
## 19632 0.631631632 0.019019019 1.349349
## 19633 0.632632633 0.019019019 1.348348
## 19634 0.633633634 0.019019019 1.347347
## 19635 0.634634635 0.019019019 1.346346
## 19636 0.635635636 0.019019019 1.345345
## 19637 0.636636637 0.019019019 1.344344
## 19638 0.637637638 0.019019019 1.343343
## 19639 0.638638639 0.019019019 1.342342
## 19640 0.639639640 0.019019019 1.341341
## 19641 0.640640641 0.019019019 1.340340
## 19642 0.641641642 0.019019019 1.339339
## 19643 0.642642643 0.019019019 1.338338
## 19644 0.643643644 0.019019019 1.337337
## 19645 0.644644645 0.019019019 1.336336
## 19646 0.645645646 0.019019019 1.335335
## 19647 0.646646647 0.019019019 1.334334
## 19648 0.647647648 0.019019019 1.333333
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 539

```
## 19649 0.648648649 0.019019019 1.332332
## 19650 0.649649650 0.019019019 1.331331
## 19651 0.650650651 0.019019019 1.330330
## 19652 0.651651652 0.019019019 1.329329
## 19653 0.652652653 0.019019019 1.328328
## 19654 0.653653654 0.019019019 1.327327
## 19655 0.654654655 0.019019019 1.326326
## 19656 0.655655656 0.019019019 1.325325
## 19657 0.656656657 0.019019019 1.324324
## 19658 0.657657658 0.019019019 1.323323
## 19659 0.658658659 0.019019019 1.322322
## 19660 0.659659660 0.019019019 1.321321
## 19661 0.660660661 0.019019019 1.320320
## 19662 0.661661662 0.019019019 1.319319
## 19663 0.662662663 0.019019019 1.318318
## 19664 0.663663664 0.019019019 1.317317
## 19665 0.664664665 0.019019019 1.316316
## 19666 0.665665666 0.019019019 1.315315
## 19667 0.666666667 0.019019019 1.314314
## 19668 0.667667668 0.019019019 1.313313
## 19669 0.668668669 0.019019019 1.312312
## 19670 0.669669670 0.019019019 1.311311
## 19671 0.670670671 0.019019019 1.310310
## 19672 0.671671672 0.019019019 1.309309
## 19673 0.672672673 0.019019019 1.308308
## 19674 0.673673674 0.019019019 1.307307
## 19675 0.674674675 0.019019019 1.306306
## 19676 0.675675676 0.019019019 1.305305
## 19677 0.676676677 0.019019019 1.304304
## 19678 0.677677678 0.019019019 1.303303
## 19679 0.678678679 0.019019019 1.302302
## 19680 0.679679680 0.019019019 1.301301
## 19681 0.680680681 0.019019019 1.300300
## 19682 0.681681682 0.019019019 1.299299
## 19683 0.682682683 0.019019019 1.298298
## 19684 0.683683684 0.019019019 1.297297
## 19685 0.684684685 0.019019019 1.296296
## 19686 0.685685686 0.019019019 1.295295
## 19687 0.686686687 0.019019019 1.294294
## 19688 0.687687688 0.019019019 1.293293
## 19689 0.688688689 0.019019019 1.292292
## 19690 0.689689690 0.019019019 1.291291
## 19691 0.690690691 0.019019019 1.290290
## 19692 0.691691692 0.019019019 1.289289
## 19693 0.692692693 0.019019019 1.288288
## 19694 0.693693694 0.019019019 1.287287
```

```
## 19695 0.694694695 0.019019019 1.286286
## 19696 0.695695696 0.019019019 1.285285
## 19697 0.696696697 0.019019019 1.284284
## 19698 0.697697698 0.019019019 1.283283
## 19699 0.698698699 0.019019019 1.282282
## 19700 0.699699700 0.019019019 1.281281
## 19701 0.700700701 0.019019019 1.280280
## 19702 0.701701702 0.019019019 1.279279
## 19703 0.702702703 0.019019019 1.278278
## 19704 0.703703704 0.019019019 1.277277
## 19705 0.704704705 0.019019019 1.276276
## 19706 0.705705706 0.019019019 1.275275
## 19707 0.706706707 0.019019019 1.274274
## 19708 0.707707708 0.019019019 1.273273
## 19709 0.708708709 0.019019019 1.272272
## 19710 0.709709710 0.019019019 1.271271
## 19711 0.710710711 0.019019019 1.270270
## 19712 0.711711712 0.019019019 1.269269
## 19713 0.712712713 0.019019019 1.268268
## 19714 0.713713714 0.019019019 1.267267
## 19715 0.714714715 0.019019019 1.266266
## 19716 0.715715716 0.019019019 1.265265
## 19717 0.716716717 0.019019019 1.264264
## 19718 0.717717718 0.019019019 1.263263
## 19719 0.718718719 0.019019019 1.262262
## 19720 0.719719720 0.019019019 1.261261
## 19721 0.720720721 0.019019019 1.260260
## 19722 0.721721722 0.019019019 1.259259
## 19723 0.722722723 0.019019019 1.258258
## 19724 0.723723724 0.019019019 1.257257
## 19725 0.724724725 0.019019019 1.256256
## 19726 0.725725726 0.019019019 1.255255
## 19727 0.726726727 0.019019019 1.254254
## 19728 0.727727728 0.019019019 1.253253
## 19729 0.728728729 0.019019019 1.252252
## 19730 0.729729730 0.019019019 1.251251
## 19731 0.730730731 0.019019019 1.250250
## 19732 0.731731732 0.019019019 1.249249
## 19733 0.732732733 0.019019019 1.248248
## 19734 0.733733734 0.019019019 1.247247
## 19735 0.734734735 0.019019019 1.246246
## 19736 0.735735736 0.019019019 1.245245
## 19737 0.736736737 0.019019019 1.244244
## 19738 0.737737738 0.019019019 1.243243
## 19739 0.738738739 0.019019019 1.242242
## 19740 0.739739740 0.019019019 1.241241
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 541

```
## 19741 0.740740741 0.019019019 1.240240
## 19742 0.741741742 0.019019019 1.239239
## 19743 0.742742743 0.019019019 1.238238
## 19744 0.743743744 0.019019019 1.237237
## 19745 0.744744745 0.019019019 1.236236
## 19746 0.745745746 0.019019019 1.235235
## 19747 0.746746747 0.019019019 1.234234
## 19748 0.747747748 0.019019019 1.233233
## 19749 0.748748749 0.019019019 1.232232
## 19750 0.749749750 0.019019019 1.231231
## 19751 0.750750751 0.019019019 1.230230
## 19752 0.751751752 0.019019019 1.229229
## 19753 0.752752753 0.019019019 1.228228
## 19754 0.753753754 0.019019019 1.227227
## 19755 0.754754755 0.019019019 1.226226
## 19756 0.755755756 0.019019019 1.225225
## 19757 0.756756757 0.019019019 1.224224
## 19758 0.757757758 0.019019019 1.223223
## 19759 0.758758759 0.019019019 1.222222
## 19760 0.759759760 0.019019019 1.221221
## 19761 0.760760761 0.019019019 1.220220
## 19762 0.761761762 0.019019019 1.219219
## 19763 0.762762763 0.019019019 1.218218
## 19764 0.763763764 0.019019019 1.217217
## 19765 0.764764765 0.019019019 1.216216
## 19766 0.765765766 0.019019019 1.215215
## 19767 0.766766767 0.019019019 1.214214
## 19768 0.767767768 0.019019019 1.213213
## 19769 0.768768769 0.019019019 1.212212
## 19770 0.769769770 0.019019019 1.211211
## 19771 0.770770771 0.019019019 1.210210
## 19772 0.771771772 0.019019019 1.209209
## 19773 0.772772773 0.019019019 1.208208
## 19774 0.773773774 0.019019019 1.207207
## 19775 0.774774775 0.019019019 1.206206
## 19776 0.775775776 0.019019019 1.205205
## 19777 0.776776777 0.019019019 1.204204
## 19778 0.777777778 0.019019019 1.203203
## 19779 0.778778779 0.019019019 1.202202
## 19780 0.779779780 0.019019019 1.201201
## 19781 0.780780781 0.019019019 1.200200
## 19782 0.781781782 0.019019019 1.199199
## 19783 0.782782783 0.019019019 1.198198
## 19784 0.783783784 0.019019019 1.197197
## 19785 0.784784785 0.019019019 1.196196
## 19786 0.785785786 0.019019019 1.195195
```

```
## 19787 0.786786787 0.019019019 1.194194
## 19788 0.787787788 0.019019019 1.193193
## 19789 0.788788789 0.019019019 1.192192
## 19790 0.789789790 0.019019019 1.191191
## 19791 0.790790791 0.019019019 1.190190
## 19792 0.791791792 0.019019019 1.189189
## 19793 0.792792793 0.019019019 1.188188
## 19794 0.793793794 0.019019019 1.187187
## 19795 0.794794795 0.019019019 1.186186
## 19796 0.795795796 0.019019019 1.185185
## 19797 0.796796797 0.019019019 1.184184
## 19798 0.797797798 0.019019019 1.183183
## 19799 0.798798799 0.019019019 1.182182
## 19800 0.799799800 0.019019019 1.181181
## 19801 0.800800801 0.019019019 1.180180
## 19802 0.801801802 0.019019019 1.179179
## 19803 0.802802803 0.019019019 1.178178
## 19804 0.803803804 0.019019019 1.177177
## 19805 0.804804805 0.019019019 1.176176
## 19806 0.805805806 0.019019019 1.175175
## 19807 0.806806807 0.019019019 1.174174
## 19808 0.807807808 0.019019019 1.173173
## 19809 0.808808809 0.019019019 1.172172
## 19810 0.809809810 0.019019019 1.171171
## 19811 0.810810811 0.019019019 1.170170
## 19812 0.811811812 0.019019019 1.169169
## 19813 0.812812813 0.019019019 1.168168
## 19814 0.813813814 0.019019019 1.167167
## 19815 0.814814815 0.019019019 1.166166
## 19816 0.815815816 0.019019019 1.165165
## 19817 0.816816817 0.019019019 1.164164
## 19818 0.817817818 0.019019019 1.163163
## 19819 0.818818819 0.019019019 1.162162
## 19820 0.819819820 0.019019019 1.161161
## 19821 0.820820821 0.019019019 1.160160
## 19822 0.821821822 0.019019019 1.159159
## 19823 0.822822823 0.019019019 1.158158
## 19824 0.823823824 0.019019019 1.157157
## 19825 0.824824825 0.019019019 1.156156
## 19826 0.825825826 0.019019019 1.155155
## 19827 0.826826827 0.019019019 1.154154
## 19828 0.827827828 0.019019019 1.153153
## 19829 0.828828829 0.019019019 1.152152
## 19830 0.829829830 0.019019019 1.151151
## 19831 0.830830831 0.019019019 1.150150
## 19832 0.831831832 0.019019019 1.149149
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 543

```
## 19833 0.832832833 0.019019019 1.148148
## 19834 0.833833834 0.019019019 1.147147
## 19835 0.834834835 0.019019019 1.146146
## 19836 0.835835836 0.019019019 1.145145
## 19837 0.836836837 0.019019019 1.144144
## 19838 0.837837838 0.019019019 1.143143
## 19839 0.838838839 0.019019019 1.142142
## 19840 0.839839840 0.019019019 1.141141
## 19841 0.840840841 0.019019019 1.140140
## 19842 0.841841842 0.019019019 1.139139
## 19843 0.842842843 0.019019019 1.138138
## 19844 0.843843844 0.019019019 1.137137
## 19845 0.844844845 0.019019019 1.136136
## 19846 0.845845846 0.019019019 1.135135
## 19847 0.846846847 0.019019019 1.134134
## 19848 0.847847848 0.019019019 1.133133
## 19849 0.848848849 0.019019019 1.132132
## 19850 0.849849850 0.019019019 1.131131
## 19851 0.850850851 0.019019019 1.130130
## 19852 0.851851852 0.019019019 1.129129
## 19853 0.852852853 0.019019019 1.128128
## 19854 0.853853854 0.019019019 1.127127
## 19855 0.854854855 0.019019019 1.126126
## 19856 0.855855856 0.019019019 1.125125
## 19857 0.856856857 0.019019019 1.124124
## 19858 0.857857858 0.019019019 1.123123
## 19859 0.858858859 0.019019019 1.122122
## 19860 0.859859860 0.019019019 1.121121
## 19861 0.860860861 0.019019019 1.120120
## 19862 0.861861862 0.019019019 1.119119
## 19863 0.862862863 0.019019019 1.118118
## 19864 0.863863864 0.019019019 1.117117
## 19865 0.864864865 0.019019019 1.116116
## 19866 0.865865866 0.019019019 1.115115
## 19867 0.866866867 0.019019019 1.114114
## 19868 0.867867868 0.019019019 1.113113
## 19869 0.868868869 0.019019019 1.112112
## 19870 0.869869870 0.019019019 1.111111
## 19871 0.870870871 0.019019019 1.110110
## 19872 0.871871872 0.019019019 1.109109
## 19873 0.872872873 0.019019019 1.108108
## 19874 0.873873874 0.019019019 1.107107
## 19875 0.874874875 0.019019019 1.106106
## 19876 0.875875876 0.019019019 1.105105
## 19877 0.876876877 0.019019019 1.104104
## 19878 0.877877878 0.019019019 1.103103
```

```
## 19879 0.878878879 0.019019019 1.102102
## 19880 0.879879880 0.019019019 1.101101
## 19881 0.880880881 0.019019019 1.100100
## 19882 0.881881882 0.019019019 1.099099
## 19883 0.882882883 0.019019019 1.098098
## 19884 0.883883884 0.019019019 1.097097
## 19885 0.884884885 0.019019019 1.096096
## 19886 0.885885886 0.019019019 1.095095
## 19887 0.886886887 0.019019019 1.094094
## 19888 0.887887888 0.019019019 1.093093
## 19889 0.888888889 0.019019019 1.092092
## 19890 0.889889890 0.019019019 1.091091
## 19891 0.890890891 0.019019019 1.090090
## 19892 0.891891892 0.019019019 1.089089
## 19893 0.892892893 0.019019019 1.088088
## 19894 0.893893894 0.019019019 1.087087
## 19895 0.894894895 0.019019019 1.086086
## 19896 0.895895896 0.019019019 1.085085
## 19897 0.896896897 0.019019019 1.084084
## 19898 0.897897898 0.019019019 1.083083
## 19899 0.898898899 0.019019019 1.082082
## 19900 0.899899900 0.019019019 1.081081
## 19901 0.900900901 0.019019019 1.080080
## 19902 0.901901902 0.019019019 1.079079
## 19903 0.902902903 0.019019019 1.078078
## 19904 0.903903904 0.019019019 1.077077
## 19905 0.904904905 0.019019019 1.076076
## 19906 0.905905906 0.019019019 1.075075
## 19907 0.906906907 0.019019019 1.074074
## 19908 0.907907908 0.019019019 1.073073
## 19909 0.908908909 0.019019019 1.072072
## 19910 0.909909910 0.019019019 1.071071
## 19911 0.910910911 0.019019019 1.070070
## 19912 0.911911912 0.019019019 1.069069
## 19913 0.912912913 0.019019019 1.068068
## 19914 0.913913914 0.019019019 1.067067
## 19915 0.914914915 0.019019019 1.066066
## 19916 0.915915916 0.019019019 1.065065
## 19917 0.916916917 0.019019019 1.064064
## 19918 0.917917918 0.019019019 1.063063
## 19919 0.918918919 0.019019019 1.062062
## 19920 0.919919920 0.019019019 1.061061
## 19921 0.920920921 0.019019019 1.060060
## 19922 0.921921922 0.019019019 1.059059
## 19923 0.922922923 0.019019019 1.058058
## 19924 0.923923924 0.019019019 1.057057
```

```

## 19925 0.924924925 0.019019019 1.056056
## 19926 0.925925926 0.019019019 1.055055
## 19927 0.926926927 0.019019019 1.054054
## 19928 0.927927928 0.019019019 1.053053
## 19929 0.928928929 0.019019019 1.052052
## 19930 0.929929930 0.019019019 1.051051
## 19931 0.930930931 0.019019019 1.050050
## 19932 0.931931932 0.019019019 1.049049
## 19933 0.932932933 0.019019019 1.048048
## 19934 0.933933934 0.019019019 1.047047
## 19935 0.934934935 0.019019019 1.046046
## 19936 0.935935936 0.019019019 1.045045
## 19937 0.936936937 0.019019019 1.044044
## 19938 0.937937938 0.019019019 1.043043
## 19939 0.938938939 0.019019019 1.042042
## 19940 0.939939940 0.019019019 1.041041
## 19941 0.940940941 0.019019019 1.040040
## 19942 0.941941942 0.019019019 1.039039
## 19943 0.942942943 0.019019019 1.038038
## 19944 0.943943944 0.019019019 1.037037
## 19945 0.944944945 0.019019019 1.036036
## 19946 0.945945946 0.019019019 1.035035
## 19947 0.946946947 0.019019019 1.034034
## 19948 0.947947948 0.019019019 1.033033
## 19949 0.948948949 0.019019019 1.032032
## 19950 0.949949950 0.019019019 1.031031
## 19951 0.950950951 0.019019019 1.030030
## 19952 0.951951952 0.019019019 1.029029
## 19953 0.952952953 0.019019019 1.028028
## 19954 0.953953954 0.019019019 1.027027
## 19955 0.954954955 0.019019019 1.026026
## 19956 0.955955956 0.019019019 1.025025
## 19957 0.956956957 0.019019019 1.024024
## 19958 0.957957958 0.019019019 1.023023
## 19959 0.958958959 0.019019019 1.022022
## 19960 0.959959960 0.019019019 1.021021
## 19961 0.960960961 0.019019019 1.020020
## 19962 0.961961962 0.019019019 1.019019
## 19963 0.962962963 0.019019019 1.018018
## 19964 0.963963964 0.019019019 1.017017
## 19965 0.964964965 0.019019019 1.016016
## 19966 0.965965966 0.019019019 1.015015
## 19967 0.966966967 0.019019019 1.014014
## 19968 0.967967968 0.019019019 1.013013
## 19969 0.968968969 0.019019019 1.012012
## 19970 0.969969970 0.019019019 1.011011

```

```
## 19971 0.970970971 0.019019019 1.010010
## 19972 0.971971972 0.019019019 1.009009
## 19973 0.972972973 0.019019019 1.008008
## 19974 0.973973974 0.019019019 1.007007
## 19975 0.974974975 0.019019019 1.006006
## 19976 0.975975976 0.019019019 1.005005
## 19977 0.976976977 0.019019019 1.004004
## 19978 0.977977978 0.019019019 1.003003
## 19979 0.978978979 0.019019019 1.002002
## 19980 0.979979980 0.019019019 1.001001
## 19981 0.980980981 0.019019019 1.000000
## 19982 0.981981982 0.019019019 0.998999
## 19983 0.982982983 0.019019019 0.997998
## 19984 0.983983984 0.019019019 0.996997
## 19985 0.984984985 0.019019019 0.995996
## 19986 0.985985986 0.019019019 0.994995
## 19987 0.986986987 0.019019019 0.993994
## 19988 0.987987988 0.019019019 0.992993
## 19989 0.988988989 0.019019019 0.991992
## 19990 0.989989990 0.019019019 0.990991
## 19991 0.990990991 0.019019019 0.989990
## 19992 0.991991992 0.019019019 0.988989
## 19993 0.992992993 0.019019019 0.987988
## 19994 0.993993994 0.019019019 0.986987
## 19995 0.994994995 0.019019019 0.985986
## 19996 0.995995996 0.019019019 0.984985
## 19997 0.996996997 0.019019019 0.983984
## 19998 0.997997998 0.019019019 0.982983
## 19999 0.998998999 0.019019019 0.981982
## 20000 1.000000000 0.019019019 0.980981
## 20001 0.000000000 0.020020020 1.979980
## 20002 0.001001001 0.020020020 1.978979
## 20003 0.002002002 0.020020020 1.977978
## 20004 0.003003003 0.020020020 1.976977
## 20005 0.004004004 0.020020020 1.975976
## 20006 0.005005005 0.020020020 1.974975
## 20007 0.006006006 0.020020020 1.973974
## 20008 0.007007007 0.020020020 1.972973
## 20009 0.008008008 0.020020020 1.971972
## 20010 0.009009009 0.020020020 1.970971
## 20011 0.010010010 0.020020020 1.969970
## 20012 0.011011011 0.020020020 1.968969
## 20013 0.012012012 0.020020020 1.967968
## 20014 0.013013013 0.020020020 1.966967
## 20015 0.014014014 0.020020020 1.965966
## 20016 0.015015015 0.020020020 1.964965
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 547

```
## 20017 0.016016016 0.020020020 1.963964
## 20018 0.017017017 0.020020020 1.962963
## 20019 0.018018018 0.020020020 1.961962
## 20020 0.019019019 0.020020020 1.960961
## 20021 0.020020020 0.020020020 1.959960
## 20022 0.021021021 0.020020020 1.958959
## 20023 0.022022022 0.020020020 1.957958
## 20024 0.023023023 0.020020020 1.956957
## 20025 0.024024024 0.020020020 1.955956
## 20026 0.025025025 0.020020020 1.954955
## 20027 0.026026026 0.020020020 1.953954
## 20028 0.027027027 0.020020020 1.952953
## 20029 0.028028028 0.020020020 1.951952
## 20030 0.029029029 0.020020020 1.950951
## 20031 0.030030030 0.020020020 1.949950
## 20032 0.031031031 0.020020020 1.948949
## 20033 0.032032032 0.020020020 1.947948
## 20034 0.033033033 0.020020020 1.946947
## 20035 0.034034034 0.020020020 1.945946
## 20036 0.035035035 0.020020020 1.944945
## 20037 0.036036036 0.020020020 1.943944
## 20038 0.037037037 0.020020020 1.942943
## 20039 0.038038038 0.020020020 1.941942
## 20040 0.039039039 0.020020020 1.940941
## 20041 0.040040040 0.020020020 1.939940
## 20042 0.041041041 0.020020020 1.938939
## 20043 0.042042042 0.020020020 1.937938
## 20044 0.043043043 0.020020020 1.936937
## 20045 0.044044044 0.020020020 1.935936
## 20046 0.045045045 0.020020020 1.934935
## 20047 0.046046046 0.020020020 1.933934
## 20048 0.047047047 0.020020020 1.932933
## 20049 0.048048048 0.020020020 1.931932
## 20050 0.049049049 0.020020020 1.930931
## 20051 0.050050050 0.020020020 1.929930
## 20052 0.051051051 0.020020020 1.928929
## 20053 0.052052052 0.020020020 1.927928
## 20054 0.053053053 0.020020020 1.926927
## 20055 0.054054054 0.020020020 1.925926
## 20056 0.055055055 0.020020020 1.924925
## 20057 0.056056056 0.020020020 1.923924
## 20058 0.057057057 0.020020020 1.922923
## 20059 0.058058058 0.020020020 1.921922
## 20060 0.059059059 0.020020020 1.920921
## 20061 0.060060060 0.020020020 1.919920
## 20062 0.061061061 0.020020020 1.918919
```

```
## 20063 0.062062062 0.020020020 1.917918
## 20064 0.063063063 0.020020020 1.916917
## 20065 0.064064064 0.020020020 1.915916
## 20066 0.065065065 0.020020020 1.914915
## 20067 0.066066066 0.020020020 1.913914
## 20068 0.067067067 0.020020020 1.912913
## 20069 0.068068068 0.020020020 1.911912
## 20070 0.069069069 0.020020020 1.910911
## 20071 0.070070070 0.020020020 1.909910
## 20072 0.071071071 0.020020020 1.908909
## 20073 0.072072072 0.020020020 1.907908
## 20074 0.073073073 0.020020020 1.906907
## 20075 0.074074074 0.020020020 1.905906
## 20076 0.075075075 0.020020020 1.904905
## 20077 0.076076076 0.020020020 1.903904
## 20078 0.077077077 0.020020020 1.902903
## 20079 0.078078078 0.020020020 1.901902
## 20080 0.079079079 0.020020020 1.900901
## 20081 0.080080080 0.020020020 1.899900
## 20082 0.081081081 0.020020020 1.898899
## 20083 0.082082082 0.020020020 1.897898
## 20084 0.083083083 0.020020020 1.896897
## 20085 0.084084084 0.020020020 1.895896
## 20086 0.085085085 0.020020020 1.894895
## 20087 0.086086086 0.020020020 1.893894
## 20088 0.087087087 0.020020020 1.892893
## 20089 0.088088088 0.020020020 1.891892
## 20090 0.089089089 0.020020020 1.890891
## 20091 0.090090090 0.020020020 1.889890
## 20092 0.091091091 0.020020020 1.888889
## 20093 0.092092092 0.020020020 1.887888
## 20094 0.093093093 0.020020020 1.886887
## 20095 0.094094094 0.020020020 1.885886
## 20096 0.095095095 0.020020020 1.884885
## 20097 0.096096096 0.020020020 1.883884
## 20098 0.097097097 0.020020020 1.882883
## 20099 0.098098098 0.020020020 1.881882
## 20100 0.099099099 0.020020020 1.880881
## 20101 0.100100100 0.020020020 1.879880
## 20102 0.101101101 0.020020020 1.878879
## 20103 0.102102102 0.020020020 1.877878
## 20104 0.103103103 0.020020020 1.876877
## 20105 0.104104104 0.020020020 1.875876
## 20106 0.105105105 0.020020020 1.874875
## 20107 0.106106106 0.020020020 1.873874
## 20108 0.107107107 0.020020020 1.872873
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 549

```

## 20109 0.108108108 0.020020020 1.871872
## 20110 0.109109109 0.020020020 1.870871
## 20111 0.110110110 0.020020020 1.869870
## 20112 0.111111111 0.020020020 1.868869
## 20113 0.112112112 0.020020020 1.867868
## 20114 0.113113113 0.020020020 1.866867
## 20115 0.114114114 0.020020020 1.865866
## 20116 0.115115115 0.020020020 1.864865
## 20117 0.116116116 0.020020020 1.863864
## 20118 0.117117117 0.020020020 1.862863
## 20119 0.118118118 0.020020020 1.861862
## 20120 0.119119119 0.020020020 1.860861
## 20121 0.120120120 0.020020020 1.859860
## 20122 0.121121121 0.020020020 1.858859
## 20123 0.122122122 0.020020020 1.857858
## 20124 0.123123123 0.020020020 1.856857
## 20125 0.124124124 0.020020020 1.855856
## 20126 0.125125125 0.020020020 1.854855
## 20127 0.126126126 0.020020020 1.853854
## 20128 0.127127127 0.020020020 1.852853
## 20129 0.128128128 0.020020020 1.851852
## 20130 0.129129129 0.020020020 1.850851
## 20131 0.130130130 0.020020020 1.849850
## 20132 0.131131131 0.020020020 1.848849
## 20133 0.132132132 0.020020020 1.847848
## 20134 0.133133133 0.020020020 1.846847
## 20135 0.134134134 0.020020020 1.845846
## 20136 0.135135135 0.020020020 1.844845
## 20137 0.136136136 0.020020020 1.843844
## 20138 0.137137137 0.020020020 1.842843
## 20139 0.138138138 0.020020020 1.841842
## 20140 0.139139139 0.020020020 1.840841
## 20141 0.140140140 0.020020020 1.839840
## 20142 0.141141141 0.020020020 1.838839
## 20143 0.142142142 0.020020020 1.837838
## 20144 0.143143143 0.020020020 1.836837
## 20145 0.144144144 0.020020020 1.835836
## 20146 0.145145145 0.020020020 1.834835
## 20147 0.146146146 0.020020020 1.833834
## 20148 0.147147147 0.020020020 1.832833
## 20149 0.148148148 0.020020020 1.831832
## 20150 0.149149149 0.020020020 1.830831
## 20151 0.150150150 0.020020020 1.829830
## 20152 0.151151151 0.020020020 1.828829
## 20153 0.152152152 0.020020020 1.827828
## 20154 0.153153153 0.020020020 1.826827

```

```
## 20155 0.154154154 0.020020020 1.825826
## 20156 0.155155155 0.020020020 1.824825
## 20157 0.156156156 0.020020020 1.823824
## 20158 0.157157157 0.020020020 1.822823
## 20159 0.158158158 0.020020020 1.821822
## 20160 0.159159159 0.020020020 1.820821
## 20161 0.160160160 0.020020020 1.819820
## 20162 0.161161161 0.020020020 1.818819
## 20163 0.162162162 0.020020020 1.817818
## 20164 0.163163163 0.020020020 1.816817
## 20165 0.164164164 0.020020020 1.815816
## 20166 0.165165165 0.020020020 1.814815
## 20167 0.166166166 0.020020020 1.813814
## 20168 0.167167167 0.020020020 1.812813
## 20169 0.168168168 0.020020020 1.811812
## 20170 0.169169169 0.020020020 1.810811
## 20171 0.170170170 0.020020020 1.809810
## 20172 0.171171171 0.020020020 1.808809
## 20173 0.172172172 0.020020020 1.807808
## 20174 0.173173173 0.020020020 1.806807
## 20175 0.174174174 0.020020020 1.805806
## 20176 0.175175175 0.020020020 1.804805
## 20177 0.176176176 0.020020020 1.803804
## 20178 0.177177177 0.020020020 1.802803
## 20179 0.178178178 0.020020020 1.801802
## 20180 0.179179179 0.020020020 1.800801
## 20181 0.180180180 0.020020020 1.799800
## 20182 0.181181181 0.020020020 1.798799
## 20183 0.182182182 0.020020020 1.797798
## 20184 0.183183183 0.020020020 1.796797
## 20185 0.184184184 0.020020020 1.795796
## 20186 0.185185185 0.020020020 1.794795
## 20187 0.186186186 0.020020020 1.793794
## 20188 0.187187187 0.020020020 1.792793
## 20189 0.188188188 0.020020020 1.791792
## 20190 0.189189189 0.020020020 1.790791
## 20191 0.190190190 0.020020020 1.789790
## 20192 0.191191191 0.020020020 1.788789
## 20193 0.192192192 0.020020020 1.787788
## 20194 0.193193193 0.020020020 1.786787
## 20195 0.194194194 0.020020020 1.785786
## 20196 0.195195195 0.020020020 1.784785
## 20197 0.196196196 0.020020020 1.783784
## 20198 0.197197197 0.020020020 1.782783
## 20199 0.198198198 0.020020020 1.781782
## 20200 0.199199199 0.020020020 1.780781
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 551

```

## 20201 0.200200200 0.020020020 1.779780
## 20202 0.201201201 0.020020020 1.778779
## 20203 0.202202202 0.020020020 1.777778
## 20204 0.203203203 0.020020020 1.776777
## 20205 0.204204204 0.020020020 1.775776
## 20206 0.205205205 0.020020020 1.774775
## 20207 0.206206206 0.020020020 1.773774
## 20208 0.207207207 0.020020020 1.772773
## 20209 0.208208208 0.020020020 1.771772
## 20210 0.209209209 0.020020020 1.770771
## 20211 0.210210210 0.020020020 1.769770
## 20212 0.211211211 0.020020020 1.768769
## 20213 0.212212212 0.020020020 1.767768
## 20214 0.213213213 0.020020020 1.766767
## 20215 0.214214214 0.020020020 1.765766
## 20216 0.215215215 0.020020020 1.764765
## 20217 0.216216216 0.020020020 1.763764
## 20218 0.217217217 0.020020020 1.762763
## 20219 0.218218218 0.020020020 1.761762
## 20220 0.219219219 0.020020020 1.760761
## 20221 0.220220220 0.020020020 1.759760
## 20222 0.221221221 0.020020020 1.758759
## 20223 0.222222222 0.020020020 1.757758
## 20224 0.223223223 0.020020020 1.756757
## 20225 0.224224224 0.020020020 1.755756
## 20226 0.225225225 0.020020020 1.754755
## 20227 0.226226226 0.020020020 1.753754
## 20228 0.227227227 0.020020020 1.752753
## 20229 0.228228228 0.020020020 1.751752
## 20230 0.229229229 0.020020020 1.750751
## 20231 0.230230230 0.020020020 1.749750
## 20232 0.231231231 0.020020020 1.748749
## 20233 0.232232232 0.020020020 1.747748
## 20234 0.233233233 0.020020020 1.746747
## 20235 0.234234234 0.020020020 1.745746
## 20236 0.235235235 0.020020020 1.744745
## 20237 0.236236236 0.020020020 1.743744
## 20238 0.237237237 0.020020020 1.742743
## 20239 0.238238238 0.020020020 1.741742
## 20240 0.239239239 0.020020020 1.740741
## 20241 0.240240240 0.020020020 1.739740
## 20242 0.241241241 0.020020020 1.738739
## 20243 0.242242242 0.020020020 1.737738
## 20244 0.243243243 0.020020020 1.736737
## 20245 0.244244244 0.020020020 1.735736
## 20246 0.245245245 0.020020020 1.734735

```

```
## 20247 0.246246246 0.020020020 1.733734
## 20248 0.247247247 0.020020020 1.732733
## 20249 0.248248248 0.020020020 1.731732
## 20250 0.249249249 0.020020020 1.730731
## 20251 0.250250250 0.020020020 1.729730
## 20252 0.251251251 0.020020020 1.728729
## 20253 0.252252252 0.020020020 1.727728
## 20254 0.253253253 0.020020020 1.726727
## 20255 0.254254254 0.020020020 1.725726
## 20256 0.255255255 0.020020020 1.724725
## 20257 0.256256256 0.020020020 1.723724
## 20258 0.257257257 0.020020020 1.722723
## 20259 0.258258258 0.020020020 1.721722
## 20260 0.259259259 0.020020020 1.720721
## 20261 0.260260260 0.020020020 1.719720
## 20262 0.261261261 0.020020020 1.718719
## 20263 0.262262262 0.020020020 1.717718
## 20264 0.263263263 0.020020020 1.716717
## 20265 0.264264264 0.020020020 1.715716
## 20266 0.265265265 0.020020020 1.714715
## 20267 0.266266266 0.020020020 1.713714
## 20268 0.267267267 0.020020020 1.712713
## 20269 0.268268268 0.020020020 1.711712
## 20270 0.269269269 0.020020020 1.710711
## 20271 0.270270270 0.020020020 1.709710
## 20272 0.271271271 0.020020020 1.708709
## 20273 0.272272272 0.020020020 1.707708
## 20274 0.273273273 0.020020020 1.706707
## 20275 0.274274274 0.020020020 1.705706
## 20276 0.275275275 0.020020020 1.704705
## 20277 0.276276276 0.020020020 1.703704
## 20278 0.277277277 0.020020020 1.702703
## 20279 0.278278278 0.020020020 1.701702
## 20280 0.279279279 0.020020020 1.700701
## 20281 0.280280280 0.020020020 1.699700
## 20282 0.281281281 0.020020020 1.698699
## 20283 0.282282282 0.020020020 1.697698
## 20284 0.283283283 0.020020020 1.696697
## 20285 0.284284284 0.020020020 1.695696
## 20286 0.285285285 0.020020020 1.694695
## 20287 0.286286286 0.020020020 1.693694
## 20288 0.287287287 0.020020020 1.692693
## 20289 0.288288288 0.020020020 1.691692
## 20290 0.289289289 0.020020020 1.690691
## 20291 0.290290290 0.020020020 1.689690
## 20292 0.291291291 0.020020020 1.688689
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 553

```

## 20293 0.292292292 0.020020020 1.687688
## 20294 0.293293293 0.020020020 1.686687
## 20295 0.294294294 0.020020020 1.685686
## 20296 0.295295295 0.020020020 1.684685
## 20297 0.296296296 0.020020020 1.683684
## 20298 0.297297297 0.020020020 1.682683
## 20299 0.298298298 0.020020020 1.681682
## 20300 0.299299299 0.020020020 1.680681
## 20301 0.300300300 0.020020020 1.679680
## 20302 0.301301301 0.020020020 1.678679
## 20303 0.302302302 0.020020020 1.677678
## 20304 0.303303303 0.020020020 1.676677
## 20305 0.304304304 0.020020020 1.675676
## 20306 0.305305305 0.020020020 1.674675
## 20307 0.306306306 0.020020020 1.673674
## 20308 0.307307307 0.020020020 1.672673
## 20309 0.308308308 0.020020020 1.671672
## 20310 0.309309309 0.020020020 1.670671
## 20311 0.310310310 0.020020020 1.669670
## 20312 0.311311311 0.020020020 1.668669
## 20313 0.312312312 0.020020020 1.667668
## 20314 0.313313313 0.020020020 1.666667
## 20315 0.314314314 0.020020020 1.665666
## 20316 0.315315315 0.020020020 1.664665
## 20317 0.316316316 0.020020020 1.663664
## 20318 0.317317317 0.020020020 1.662663
## 20319 0.318318318 0.020020020 1.661662
## 20320 0.319319319 0.020020020 1.660661
## 20321 0.320320320 0.020020020 1.659660
## 20322 0.321321321 0.020020020 1.658659
## 20323 0.322322322 0.020020020 1.657658
## 20324 0.323323323 0.020020020 1.656657
## 20325 0.324324324 0.020020020 1.655656
## 20326 0.325325325 0.020020020 1.654655
## 20327 0.326326326 0.020020020 1.653654
## 20328 0.327327327 0.020020020 1.652653
## 20329 0.328328328 0.020020020 1.651652
## 20330 0.329329329 0.020020020 1.650651
## 20331 0.330330330 0.020020020 1.649650
## 20332 0.331331331 0.020020020 1.648649
## 20333 0.332332332 0.020020020 1.647648
## 20334 0.333333333 0.020020020 1.646647
## 20335 0.334334334 0.020020020 1.645646
## 20336 0.335335335 0.020020020 1.644645
## 20337 0.336336336 0.020020020 1.643644
## 20338 0.337337337 0.020020020 1.642643

```

```
## 20339 0.338338338 0.020020020 1.641642
## 20340 0.339339339 0.020020020 1.640641
## 20341 0.340340340 0.020020020 1.639640
## 20342 0.341341341 0.020020020 1.638639
## 20343 0.342342342 0.020020020 1.637638
## 20344 0.343343343 0.020020020 1.636637
## 20345 0.344344344 0.020020020 1.635636
## 20346 0.345345345 0.020020020 1.634635
## 20347 0.346346346 0.020020020 1.633634
## 20348 0.347347347 0.020020020 1.632633
## 20349 0.348348348 0.020020020 1.631632
## 20350 0.349349349 0.020020020 1.630631
## 20351 0.350350350 0.020020020 1.629630
## 20352 0.351351351 0.020020020 1.628629
## 20353 0.352352352 0.020020020 1.627628
## 20354 0.353353353 0.020020020 1.626627
## 20355 0.354354354 0.020020020 1.625626
## 20356 0.355355355 0.020020020 1.624625
## 20357 0.356356356 0.020020020 1.623624
## 20358 0.357357357 0.020020020 1.622623
## 20359 0.358358358 0.020020020 1.621622
## 20360 0.359359359 0.020020020 1.620621
## 20361 0.360360360 0.020020020 1.619620
## 20362 0.361361361 0.020020020 1.618619
## 20363 0.362362362 0.020020020 1.617618
## 20364 0.363363363 0.020020020 1.616617
## 20365 0.364364364 0.020020020 1.615616
## 20366 0.365365365 0.020020020 1.614615
## 20367 0.366366366 0.020020020 1.613614
## 20368 0.367367367 0.020020020 1.612613
## 20369 0.368368368 0.020020020 1.611612
## 20370 0.369369369 0.020020020 1.610611
## 20371 0.370370370 0.020020020 1.609610
## 20372 0.371371371 0.020020020 1.608609
## 20373 0.372372372 0.020020020 1.607608
## 20374 0.373373373 0.020020020 1.606607
## 20375 0.374374374 0.020020020 1.605606
## 20376 0.375375375 0.020020020 1.604605
## 20377 0.376376376 0.020020020 1.603604
## 20378 0.377377377 0.020020020 1.602603
## 20379 0.378378378 0.020020020 1.601602
## 20380 0.379379379 0.020020020 1.600601
## 20381 0.380380380 0.020020020 1.599600
## 20382 0.381381381 0.020020020 1.598599
## 20383 0.382382382 0.020020020 1.597598
## 20384 0.383383383 0.020020020 1.596597
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR555

```

## 20385 0.384384384 0.020020020 1.595596
## 20386 0.385385385 0.020020020 1.594595
## 20387 0.386386386 0.020020020 1.593594
## 20388 0.387387387 0.020020020 1.592593
## 20389 0.388388388 0.020020020 1.591592
## 20390 0.389389389 0.020020020 1.590591
## 20391 0.390390390 0.020020020 1.589590
## 20392 0.391391391 0.020020020 1.588589
## 20393 0.392392392 0.020020020 1.587588
## 20394 0.393393393 0.020020020 1.586587
## 20395 0.394394394 0.020020020 1.585586
## 20396 0.395395395 0.020020020 1.584585
## 20397 0.396396396 0.020020020 1.583584
## 20398 0.397397397 0.020020020 1.582583
## 20399 0.398398398 0.020020020 1.581582
## 20400 0.399399399 0.020020020 1.580581
## 20401 0.400400400 0.020020020 1.579580
## 20402 0.401401401 0.020020020 1.578579
## 20403 0.402402402 0.020020020 1.577578
## 20404 0.403403403 0.020020020 1.576577
## 20405 0.404404404 0.020020020 1.575576
## 20406 0.405405405 0.020020020 1.574575
## 20407 0.406406406 0.020020020 1.573574
## 20408 0.407407407 0.020020020 1.572573
## 20409 0.408408408 0.020020020 1.571572
## 20410 0.409409409 0.020020020 1.570571
## 20411 0.410410410 0.020020020 1.569570
## 20412 0.411411411 0.020020020 1.568569
## 20413 0.412412412 0.020020020 1.567568
## 20414 0.413413413 0.020020020 1.566567
## 20415 0.414414414 0.020020020 1.565566
## 20416 0.415415415 0.020020020 1.564565
## 20417 0.416416416 0.020020020 1.563564
## 20418 0.417417417 0.020020020 1.562563
## 20419 0.418418418 0.020020020 1.561562
## 20420 0.419419419 0.020020020 1.560561
## 20421 0.420420420 0.020020020 1.559560
## 20422 0.421421421 0.020020020 1.558559
## 20423 0.422422422 0.020020020 1.557558
## 20424 0.423423423 0.020020020 1.556557
## 20425 0.424424424 0.020020020 1.555556
## 20426 0.425425425 0.020020020 1.554555
## 20427 0.426426426 0.020020020 1.553554
## 20428 0.427427427 0.020020020 1.552553
## 20429 0.428428428 0.020020020 1.551552
## 20430 0.429429429 0.020020020 1.550551

```

```
## 20431 0.430430430 0.020020020 1.549550
## 20432 0.431431431 0.020020020 1.548549
## 20433 0.432432432 0.020020020 1.547548
## 20434 0.433433433 0.020020020 1.546547
## 20435 0.434434434 0.020020020 1.545546
## 20436 0.435435435 0.020020020 1.544545
## 20437 0.436436436 0.020020020 1.543544
## 20438 0.437437437 0.020020020 1.542543
## 20439 0.438438438 0.020020020 1.541542
## 20440 0.439439439 0.020020020 1.540541
## 20441 0.440440440 0.020020020 1.539540
## 20442 0.441441441 0.020020020 1.538539
## 20443 0.442442442 0.020020020 1.537538
## 20444 0.443443443 0.020020020 1.536537
## 20445 0.444444444 0.020020020 1.535536
## 20446 0.445445445 0.020020020 1.534535
## 20447 0.446446446 0.020020020 1.533534
## 20448 0.447447447 0.020020020 1.532533
## 20449 0.448448448 0.020020020 1.531532
## 20450 0.449449449 0.020020020 1.530531
## 20451 0.450450450 0.020020020 1.529530
## 20452 0.451451451 0.020020020 1.528529
## 20453 0.452452452 0.020020020 1.527528
## 20454 0.453453453 0.020020020 1.526527
## 20455 0.454454454 0.020020020 1.525526
## 20456 0.455455455 0.020020020 1.524525
## 20457 0.456456456 0.020020020 1.523524
## 20458 0.457457457 0.020020020 1.522523
## 20459 0.458458458 0.020020020 1.521522
## 20460 0.459459459 0.020020020 1.520521
## 20461 0.460460460 0.020020020 1.519520
## 20462 0.461461461 0.020020020 1.518519
## 20463 0.462462462 0.020020020 1.517518
## 20464 0.463463463 0.020020020 1.516517
## 20465 0.464464464 0.020020020 1.515516
## 20466 0.465465465 0.020020020 1.514515
## 20467 0.466466466 0.020020020 1.513514
## 20468 0.467467467 0.020020020 1.512513
## 20469 0.468468468 0.020020020 1.511512
## 20470 0.469469469 0.020020020 1.510511
## 20471 0.470470470 0.020020020 1.509510
## 20472 0.471471471 0.020020020 1.508509
## 20473 0.472472472 0.020020020 1.507508
## 20474 0.473473473 0.020020020 1.506507
## 20475 0.474474474 0.020020020 1.505506
## 20476 0.475475475 0.020020020 1.504505
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 557

```

## 20477 0.476476476 0.020020020 1.503504
## 20478 0.477477477 0.020020020 1.502503
## 20479 0.478478478 0.020020020 1.501502
## 20480 0.479479479 0.020020020 1.500501
## 20481 0.480480480 0.020020020 1.499499
## 20482 0.481481481 0.020020020 1.498498
## 20483 0.482482482 0.020020020 1.497497
## 20484 0.483483483 0.020020020 1.496496
## 20485 0.484484484 0.020020020 1.495495
## 20486 0.485485485 0.020020020 1.494494
## 20487 0.486486486 0.020020020 1.493493
## 20488 0.487487487 0.020020020 1.492492
## 20489 0.488488488 0.020020020 1.491491
## 20490 0.489489489 0.020020020 1.490490
## 20491 0.490490490 0.020020020 1.489489
## 20492 0.491491491 0.020020020 1.488488
## 20493 0.492492492 0.020020020 1.487487
## 20494 0.493493493 0.020020020 1.486486
## 20495 0.494494494 0.020020020 1.485485
## 20496 0.495495495 0.020020020 1.484484
## 20497 0.496496496 0.020020020 1.483483
## 20498 0.497497497 0.020020020 1.482482
## 20499 0.498498498 0.020020020 1.481481
## 20500 0.499499499 0.020020020 1.480480
## 20501 0.500500501 0.020020020 1.479479
## 20502 0.501501502 0.020020020 1.478478
## 20503 0.502502503 0.020020020 1.477477
## 20504 0.503503504 0.020020020 1.476476
## 20505 0.504504505 0.020020020 1.475475
## 20506 0.505505506 0.020020020 1.474474
## 20507 0.506506507 0.020020020 1.473473
## 20508 0.507507508 0.020020020 1.472472
## 20509 0.508508509 0.020020020 1.471471
## 20510 0.509509510 0.020020020 1.470470
## 20511 0.510510511 0.020020020 1.469469
## 20512 0.511511512 0.020020020 1.468468
## 20513 0.512512513 0.020020020 1.467467
## 20514 0.513513514 0.020020020 1.466466
## 20515 0.514514515 0.020020020 1.465465
## 20516 0.515515516 0.020020020 1.464464
## 20517 0.516516517 0.020020020 1.463463
## 20518 0.517517518 0.020020020 1.462462
## 20519 0.518518519 0.020020020 1.461461
## 20520 0.519519520 0.020020020 1.460460
## 20521 0.520520521 0.020020020 1.459459
## 20522 0.521521522 0.020020020 1.458458

```

```
## 20523 0.522522523 0.020020020 1.457457
## 20524 0.523523524 0.020020020 1.456456
## 20525 0.524524525 0.020020020 1.455455
## 20526 0.525525526 0.020020020 1.454454
## 20527 0.526526527 0.020020020 1.453453
## 20528 0.527527528 0.020020020 1.452452
## 20529 0.528528529 0.020020020 1.451451
## 20530 0.529529530 0.020020020 1.450450
## 20531 0.530530531 0.020020020 1.449449
## 20532 0.531531532 0.020020020 1.448448
## 20533 0.532532533 0.020020020 1.447447
## 20534 0.533533534 0.020020020 1.446446
## 20535 0.534534535 0.020020020 1.445445
## 20536 0.535535536 0.020020020 1.444444
## 20537 0.536536537 0.020020020 1.443443
## 20538 0.537537538 0.020020020 1.442442
## 20539 0.538538539 0.020020020 1.441441
## 20540 0.539539540 0.020020020 1.440440
## 20541 0.540540541 0.020020020 1.439439
## 20542 0.541541542 0.020020020 1.438438
## 20543 0.542542543 0.020020020 1.437437
## 20544 0.543543544 0.020020020 1.436436
## 20545 0.544544545 0.020020020 1.435435
## 20546 0.545545546 0.020020020 1.434434
## 20547 0.546546547 0.020020020 1.433433
## 20548 0.547547548 0.020020020 1.432432
## 20549 0.548548549 0.020020020 1.431431
## 20550 0.549549550 0.020020020 1.430430
## 20551 0.550550551 0.020020020 1.429429
## 20552 0.551551552 0.020020020 1.428428
## 20553 0.552552553 0.020020020 1.427427
## 20554 0.553553554 0.020020020 1.426426
## 20555 0.554554555 0.020020020 1.425425
## 20556 0.555555556 0.020020020 1.424424
## 20557 0.556556557 0.020020020 1.423423
## 20558 0.557557558 0.020020020 1.422422
## 20559 0.558558559 0.020020020 1.421421
## 20560 0.559559560 0.020020020 1.420420
## 20561 0.560560561 0.020020020 1.419419
## 20562 0.561561562 0.020020020 1.418418
## 20563 0.562562563 0.020020020 1.417417
## 20564 0.563563564 0.020020020 1.416416
## 20565 0.564564565 0.020020020 1.415415
## 20566 0.565565566 0.020020020 1.414414
## 20567 0.566566567 0.020020020 1.413413
## 20568 0.567567568 0.020020020 1.412412
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 559

```

## 20569 0.568568569 0.020020020 1.411411
## 20570 0.569569570 0.020020020 1.410410
## 20571 0.570570571 0.020020020 1.409409
## 20572 0.571571572 0.020020020 1.408408
## 20573 0.572572573 0.020020020 1.407407
## 20574 0.573573574 0.020020020 1.406406
## 20575 0.574574575 0.020020020 1.405405
## 20576 0.575575576 0.020020020 1.404404
## 20577 0.576576577 0.020020020 1.403403
## 20578 0.577577578 0.020020020 1.402402
## 20579 0.578578579 0.020020020 1.401401
## 20580 0.579579580 0.020020020 1.400400
## 20581 0.580580581 0.020020020 1.399399
## 20582 0.581581582 0.020020020 1.398398
## 20583 0.582582583 0.020020020 1.397397
## 20584 0.583583584 0.020020020 1.396396
## 20585 0.584584585 0.020020020 1.395395
## 20586 0.585585586 0.020020020 1.394394
## 20587 0.586586587 0.020020020 1.393393
## 20588 0.587587588 0.020020020 1.392392
## 20589 0.588588589 0.020020020 1.391391
## 20590 0.589589590 0.020020020 1.390390
## 20591 0.590590591 0.020020020 1.389389
## 20592 0.591591592 0.020020020 1.388388
## 20593 0.592592593 0.020020020 1.387387
## 20594 0.593593594 0.020020020 1.386386
## 20595 0.594594595 0.020020020 1.385385
## 20596 0.595595596 0.020020020 1.384384
## 20597 0.596596597 0.020020020 1.383383
## 20598 0.597597598 0.020020020 1.382382
## 20599 0.598598599 0.020020020 1.381381
## 20600 0.599599600 0.020020020 1.380380
## 20601 0.600600601 0.020020020 1.379379
## 20602 0.601601602 0.020020020 1.378378
## 20603 0.602602603 0.020020020 1.377377
## 20604 0.603603604 0.020020020 1.376376
## 20605 0.604604605 0.020020020 1.375375
## 20606 0.605605606 0.020020020 1.374374
## 20607 0.606606607 0.020020020 1.373373
## 20608 0.607607608 0.020020020 1.372372
## 20609 0.608608609 0.020020020 1.371371
## 20610 0.609609610 0.020020020 1.370370
## 20611 0.610610611 0.020020020 1.369369
## 20612 0.611611612 0.020020020 1.368368
## 20613 0.612612613 0.020020020 1.367367
## 20614 0.613613614 0.020020020 1.366366

```

```
## 20615 0.614614615 0.020020020 1.365365
## 20616 0.615615616 0.020020020 1.364364
## 20617 0.616616617 0.020020020 1.363363
## 20618 0.617617618 0.020020020 1.362362
## 20619 0.618618619 0.020020020 1.361361
## 20620 0.619619620 0.020020020 1.360360
## 20621 0.620620621 0.020020020 1.359359
## 20622 0.621621622 0.020020020 1.358358
## 20623 0.622622623 0.020020020 1.357357
## 20624 0.623623624 0.020020020 1.356356
## 20625 0.624624625 0.020020020 1.355355
## 20626 0.625625626 0.020020020 1.354354
## 20627 0.626626627 0.020020020 1.353353
## 20628 0.627627628 0.020020020 1.352352
## 20629 0.628628629 0.020020020 1.351351
## 20630 0.629629630 0.020020020 1.350350
## 20631 0.630630631 0.020020020 1.349349
## 20632 0.631631632 0.020020020 1.348348
## 20633 0.632632633 0.020020020 1.347347
## 20634 0.633633634 0.020020020 1.346346
## 20635 0.634634635 0.020020020 1.345345
## 20636 0.635635636 0.020020020 1.344344
## 20637 0.636636637 0.020020020 1.343343
## 20638 0.637637638 0.020020020 1.342342
## 20639 0.638638639 0.020020020 1.341341
## 20640 0.639639640 0.020020020 1.340340
## 20641 0.640640641 0.020020020 1.339339
## 20642 0.641641642 0.020020020 1.338338
## 20643 0.642642643 0.020020020 1.337337
## 20644 0.643643644 0.020020020 1.336336
## 20645 0.644644645 0.020020020 1.335335
## 20646 0.645645646 0.020020020 1.334334
## 20647 0.646646647 0.020020020 1.333333
## 20648 0.647647648 0.020020020 1.332332
## 20649 0.648648649 0.020020020 1.331331
## 20650 0.649649650 0.020020020 1.330330
## 20651 0.650650651 0.020020020 1.329329
## 20652 0.651651652 0.020020020 1.328328
## 20653 0.652652653 0.020020020 1.327327
## 20654 0.653653654 0.020020020 1.326326
## 20655 0.654654655 0.020020020 1.325325
## 20656 0.655655656 0.020020020 1.324324
## 20657 0.656656657 0.020020020 1.323323
## 20658 0.657657658 0.020020020 1.322322
## 20659 0.658658659 0.020020020 1.321321
## 20660 0.659659660 0.020020020 1.320320
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR561

```

## 20661 0.660660661 0.020020020 1.319319
## 20662 0.661661662 0.020020020 1.318318
## 20663 0.662662663 0.020020020 1.317317
## 20664 0.663663664 0.020020020 1.316316
## 20665 0.664664665 0.020020020 1.315315
## 20666 0.665665666 0.020020020 1.314314
## 20667 0.666666667 0.020020020 1.313313
## 20668 0.667667668 0.020020020 1.312312
## 20669 0.668668669 0.020020020 1.311311
## 20670 0.669669670 0.020020020 1.310310
## 20671 0.670670671 0.020020020 1.309309
## 20672 0.671671672 0.020020020 1.308308
## 20673 0.672672673 0.020020020 1.307307
## 20674 0.673673674 0.020020020 1.306306
## 20675 0.674674675 0.020020020 1.305305
## 20676 0.675675676 0.020020020 1.304304
## 20677 0.676676677 0.020020020 1.303303
## 20678 0.677677678 0.020020020 1.302302
## 20679 0.678678679 0.020020020 1.301301
## 20680 0.679679680 0.020020020 1.300300
## 20681 0.680680681 0.020020020 1.299299
## 20682 0.681681682 0.020020020 1.298298
## 20683 0.682682683 0.020020020 1.297297
## 20684 0.683683684 0.020020020 1.296296
## 20685 0.684684685 0.020020020 1.295295
## 20686 0.685685686 0.020020020 1.294294
## 20687 0.686686687 0.020020020 1.293293
## 20688 0.687687688 0.020020020 1.292292
## 20689 0.688688689 0.020020020 1.291291
## 20690 0.689689690 0.020020020 1.290290
## 20691 0.690690691 0.020020020 1.289289
## 20692 0.691691692 0.020020020 1.288288
## 20693 0.692692693 0.020020020 1.287287
## 20694 0.693693694 0.020020020 1.286286
## 20695 0.694694695 0.020020020 1.285285
## 20696 0.695695696 0.020020020 1.284284
## 20697 0.696696697 0.020020020 1.283283
## 20698 0.697697698 0.020020020 1.282282
## 20699 0.698698699 0.020020020 1.281281
## 20700 0.699699700 0.020020020 1.280280
## 20701 0.700700701 0.020020020 1.279279
## 20702 0.701701702 0.020020020 1.278278
## 20703 0.702702703 0.020020020 1.277277
## 20704 0.703703704 0.020020020 1.276276
## 20705 0.704704705 0.020020020 1.275275
## 20706 0.705705706 0.020020020 1.274274

```

```
## 20707 0.706706707 0.020020020 1.273273
## 20708 0.707707708 0.020020020 1.272272
## 20709 0.708708709 0.020020020 1.271271
## 20710 0.709709710 0.020020020 1.270270
## 20711 0.710710711 0.020020020 1.269269
## 20712 0.711711712 0.020020020 1.268268
## 20713 0.712712713 0.020020020 1.267267
## 20714 0.713713714 0.020020020 1.266266
## 20715 0.714714715 0.020020020 1.265265
## 20716 0.715715716 0.020020020 1.264264
## 20717 0.716716717 0.020020020 1.263263
## 20718 0.717717718 0.020020020 1.262262
## 20719 0.718718719 0.020020020 1.261261
## 20720 0.719719720 0.020020020 1.260260
## 20721 0.720720721 0.020020020 1.259259
## 20722 0.721721722 0.020020020 1.258258
## 20723 0.722722723 0.020020020 1.257257
## 20724 0.723723724 0.020020020 1.256256
## 20725 0.724724725 0.020020020 1.255255
## 20726 0.725725726 0.020020020 1.254254
## 20727 0.726726727 0.020020020 1.253253
## 20728 0.727727728 0.020020020 1.252252
## 20729 0.728728729 0.020020020 1.251251
## 20730 0.729729730 0.020020020 1.250250
## 20731 0.730730731 0.020020020 1.249249
## 20732 0.731731732 0.020020020 1.248248
## 20733 0.732732733 0.020020020 1.247247
## 20734 0.733733734 0.020020020 1.246246
## 20735 0.734734735 0.020020020 1.245245
## 20736 0.735735736 0.020020020 1.244244
## 20737 0.736736737 0.020020020 1.243243
## 20738 0.737737738 0.020020020 1.242242
## 20739 0.738738739 0.020020020 1.241241
## 20740 0.739739740 0.020020020 1.240240
## 20741 0.740740741 0.020020020 1.239239
## 20742 0.741741742 0.020020020 1.238238
## 20743 0.742742743 0.020020020 1.237237
## 20744 0.743743744 0.020020020 1.236236
## 20745 0.744744745 0.020020020 1.235235
## 20746 0.745745746 0.020020020 1.234234
## 20747 0.746746747 0.020020020 1.233233
## 20748 0.747747748 0.020020020 1.232232
## 20749 0.748748749 0.020020020 1.231231
## 20750 0.749749750 0.020020020 1.230230
## 20751 0.750750751 0.020020020 1.229229
## 20752 0.751751752 0.020020020 1.228228
```

```

## 20753 0.752752753 0.020020020 1.227227
## 20754 0.753753754 0.020020020 1.226226
## 20755 0.754754755 0.020020020 1.225225
## 20756 0.755755756 0.020020020 1.224224
## 20757 0.756756757 0.020020020 1.223223
## 20758 0.757757758 0.020020020 1.222222
## 20759 0.758758759 0.020020020 1.221221
## 20760 0.759759760 0.020020020 1.220220
## 20761 0.760760761 0.020020020 1.219219
## 20762 0.761761762 0.020020020 1.218218
## 20763 0.762762763 0.020020020 1.217217
## 20764 0.763763764 0.020020020 1.216216
## 20765 0.764764765 0.020020020 1.215215
## 20766 0.765765766 0.020020020 1.214214
## 20767 0.766766767 0.020020020 1.213213
## 20768 0.767767768 0.020020020 1.212212
## 20769 0.768768769 0.020020020 1.211211
## 20770 0.769769770 0.020020020 1.210210
## 20771 0.770770771 0.020020020 1.209209
## 20772 0.771771772 0.020020020 1.208208
## 20773 0.772772773 0.020020020 1.207207
## 20774 0.773773774 0.020020020 1.206206
## 20775 0.774774775 0.020020020 1.205205
## 20776 0.775775776 0.020020020 1.204204
## 20777 0.776776777 0.020020020 1.203203
## 20778 0.777777778 0.020020020 1.202202
## 20779 0.778778779 0.020020020 1.201201
## 20780 0.779779780 0.020020020 1.200200
## 20781 0.780780781 0.020020020 1.199199
## 20782 0.781781782 0.020020020 1.198198
## 20783 0.782782783 0.020020020 1.197197
## 20784 0.783783784 0.020020020 1.196196
## 20785 0.784784785 0.020020020 1.195195
## 20786 0.785785786 0.020020020 1.194194
## 20787 0.786786787 0.020020020 1.193193
## 20788 0.787787788 0.020020020 1.192192
## 20789 0.788788789 0.020020020 1.191191
## 20790 0.789789790 0.020020020 1.190190
## 20791 0.790790791 0.020020020 1.189189
## 20792 0.791791792 0.020020020 1.188188
## 20793 0.792792793 0.020020020 1.187187
## 20794 0.793793794 0.020020020 1.186186
## 20795 0.794794795 0.020020020 1.185185
## 20796 0.795795796 0.020020020 1.184184
## 20797 0.796796797 0.020020020 1.183183
## 20798 0.797797798 0.020020020 1.182182

```

```
## 20799 0.798798799 0.020020020 1.181181
## 20800 0.799799800 0.020020020 1.180180
## 20801 0.800800801 0.020020020 1.179179
## 20802 0.801801802 0.020020020 1.178178
## 20803 0.802802803 0.020020020 1.177177
## 20804 0.803803804 0.020020020 1.176176
## 20805 0.804804805 0.020020020 1.175175
## 20806 0.805805806 0.020020020 1.174174
## 20807 0.806806807 0.020020020 1.173173
## 20808 0.807807808 0.020020020 1.172172
## 20809 0.808808809 0.020020020 1.171171
## 20810 0.809809810 0.020020020 1.170170
## 20811 0.810810811 0.020020020 1.169169
## 20812 0.811811812 0.020020020 1.168168
## 20813 0.812812813 0.020020020 1.167167
## 20814 0.813813814 0.020020020 1.166166
## 20815 0.814814815 0.020020020 1.165165
## 20816 0.815815816 0.020020020 1.164164
## 20817 0.816816817 0.020020020 1.163163
## 20818 0.817817818 0.020020020 1.162162
## 20819 0.818818819 0.020020020 1.161161
## 20820 0.819819820 0.020020020 1.160160
## 20821 0.820820821 0.020020020 1.159159
## 20822 0.821821822 0.020020020 1.158158
## 20823 0.822822823 0.020020020 1.157157
## 20824 0.823823824 0.020020020 1.156156
## 20825 0.824824825 0.020020020 1.155155
## 20826 0.825825826 0.020020020 1.154154
## 20827 0.826826827 0.020020020 1.153153
## 20828 0.827827828 0.020020020 1.152152
## 20829 0.828828829 0.020020020 1.151151
## 20830 0.829829830 0.020020020 1.150150
## 20831 0.830830831 0.020020020 1.149149
## 20832 0.831831832 0.020020020 1.148148
## 20833 0.832832833 0.020020020 1.147147
## 20834 0.833833834 0.020020020 1.146146
## 20835 0.834834835 0.020020020 1.145145
## 20836 0.835835836 0.020020020 1.144144
## 20837 0.836836837 0.020020020 1.143143
## 20838 0.837837838 0.020020020 1.142142
## 20839 0.838838839 0.020020020 1.141141
## 20840 0.839839840 0.020020020 1.140140
## 20841 0.840840841 0.020020020 1.139139
## 20842 0.841841842 0.020020020 1.138138
## 20843 0.842842843 0.020020020 1.137137
## 20844 0.843843844 0.020020020 1.136136
```

```

## 20845 0.844844845 0.020020020 1.135135
## 20846 0.845845846 0.020020020 1.134134
## 20847 0.846846847 0.020020020 1.133133
## 20848 0.847847848 0.020020020 1.132132
## 20849 0.848848849 0.020020020 1.131131
## 20850 0.849849850 0.020020020 1.130130
## 20851 0.850850851 0.020020020 1.129129
## 20852 0.851851852 0.020020020 1.128128
## 20853 0.852852853 0.020020020 1.127127
## 20854 0.853853854 0.020020020 1.126126
## 20855 0.854854855 0.020020020 1.125125
## 20856 0.855855856 0.020020020 1.124124
## 20857 0.856856857 0.020020020 1.123123
## 20858 0.857857858 0.020020020 1.122122
## 20859 0.858858859 0.020020020 1.121121
## 20860 0.859859860 0.020020020 1.120120
## 20861 0.860860861 0.020020020 1.119119
## 20862 0.861861862 0.020020020 1.118118
## 20863 0.862862863 0.020020020 1.117117
## 20864 0.863863864 0.020020020 1.116116
## 20865 0.864864865 0.020020020 1.115115
## 20866 0.865865866 0.020020020 1.114114
## 20867 0.866866867 0.020020020 1.113113
## 20868 0.867867868 0.020020020 1.112112
## 20869 0.868868869 0.020020020 1.111111
## 20870 0.869869870 0.020020020 1.110110
## 20871 0.870870871 0.020020020 1.109109
## 20872 0.871871872 0.020020020 1.108108
## 20873 0.872872873 0.020020020 1.107107
## 20874 0.873873874 0.020020020 1.106106
## 20875 0.874874875 0.020020020 1.105105
## 20876 0.875875876 0.020020020 1.104104
## 20877 0.876876877 0.020020020 1.103103
## 20878 0.877877878 0.020020020 1.102102
## 20879 0.878878879 0.020020020 1.101101
## 20880 0.879879880 0.020020020 1.100100
## 20881 0.880880881 0.020020020 1.099099
## 20882 0.881881882 0.020020020 1.098098
## 20883 0.882882883 0.020020020 1.097097
## 20884 0.883883884 0.020020020 1.096096
## 20885 0.884884885 0.020020020 1.095095
## 20886 0.885885886 0.020020020 1.094094
## 20887 0.886886887 0.020020020 1.093093
## 20888 0.887887888 0.020020020 1.092092
## 20889 0.888888889 0.020020020 1.091091
## 20890 0.889889890 0.020020020 1.090090

```

```
## 20891 0.890890891 0.020020020 1.089089
## 20892 0.891891892 0.020020020 1.088088
## 20893 0.892892893 0.020020020 1.087087
## 20894 0.893893894 0.020020020 1.086086
## 20895 0.894894895 0.020020020 1.085085
## 20896 0.895895896 0.020020020 1.084084
## 20897 0.896896897 0.020020020 1.083083
## 20898 0.897897898 0.020020020 1.082082
## 20899 0.898898899 0.020020020 1.081081
## 20900 0.899899900 0.020020020 1.080080
## 20901 0.900900901 0.020020020 1.079079
## 20902 0.901901902 0.020020020 1.078078
## 20903 0.902902903 0.020020020 1.077077
## 20904 0.903903904 0.020020020 1.076076
## 20905 0.904904905 0.020020020 1.075075
## 20906 0.905905906 0.020020020 1.074074
## 20907 0.906906907 0.020020020 1.073073
## 20908 0.907907908 0.020020020 1.072072
## 20909 0.908908909 0.020020020 1.071071
## 20910 0.909909910 0.020020020 1.070070
## 20911 0.910910911 0.020020020 1.069069
## 20912 0.911911912 0.020020020 1.068068
## 20913 0.912912913 0.020020020 1.067067
## 20914 0.913913914 0.020020020 1.066066
## 20915 0.914914915 0.020020020 1.065065
## 20916 0.915915916 0.020020020 1.064064
## 20917 0.916916917 0.020020020 1.063063
## 20918 0.917917918 0.020020020 1.062062
## 20919 0.918918919 0.020020020 1.061061
## 20920 0.919919920 0.020020020 1.060060
## 20921 0.920920921 0.020020020 1.059059
## 20922 0.921921922 0.020020020 1.058058
## 20923 0.922922923 0.020020020 1.057057
## 20924 0.923923924 0.020020020 1.056056
## 20925 0.924924925 0.020020020 1.055055
## 20926 0.925925926 0.020020020 1.054054
## 20927 0.926926927 0.020020020 1.053053
## 20928 0.927927928 0.020020020 1.052052
## 20929 0.928928929 0.020020020 1.051051
## 20930 0.929929930 0.020020020 1.050050
## 20931 0.930930931 0.020020020 1.049049
## 20932 0.931931932 0.020020020 1.048048
## 20933 0.932932933 0.020020020 1.047047
## 20934 0.933933934 0.020020020 1.046046
## 20935 0.934934935 0.020020020 1.045045
## 20936 0.935935936 0.020020020 1.044044
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 567

```

## 20937 0.936936937 0.020020020 1.043043
## 20938 0.937937938 0.020020020 1.042042
## 20939 0.938938939 0.020020020 1.041041
## 20940 0.939939940 0.020020020 1.040040
## 20941 0.940940941 0.020020020 1.039039
## 20942 0.941941942 0.020020020 1.038038
## 20943 0.942942943 0.020020020 1.037037
## 20944 0.943943944 0.020020020 1.036036
## 20945 0.944944945 0.020020020 1.035035
## 20946 0.945945946 0.020020020 1.034034
## 20947 0.946946947 0.020020020 1.033033
## 20948 0.947947948 0.020020020 1.032032
## 20949 0.948948949 0.020020020 1.031031
## 20950 0.949949950 0.020020020 1.030030
## 20951 0.950950951 0.020020020 1.029029
## 20952 0.951951952 0.020020020 1.028028
## 20953 0.952952953 0.020020020 1.027027
## 20954 0.953953954 0.020020020 1.026026
## 20955 0.954954955 0.020020020 1.025025
## 20956 0.955955956 0.020020020 1.024024
## 20957 0.956956957 0.020020020 1.023023
## 20958 0.957957958 0.020020020 1.022022
## 20959 0.958958959 0.020020020 1.021021
## 20960 0.959959960 0.020020020 1.020020
## 20961 0.960960961 0.020020020 1.019019
## 20962 0.961961962 0.020020020 1.018018
## 20963 0.962962963 0.020020020 1.017017
## 20964 0.963963964 0.020020020 1.016016
## 20965 0.964964965 0.020020020 1.015015
## 20966 0.965965966 0.020020020 1.014014
## 20967 0.966966967 0.020020020 1.013013
## 20968 0.967967968 0.020020020 1.012012
## 20969 0.968968969 0.020020020 1.011011
## 20970 0.969969970 0.020020020 1.010010
## 20971 0.970970971 0.020020020 1.009009
## 20972 0.971971972 0.020020020 1.008008
## 20973 0.972972973 0.020020020 1.007007
## 20974 0.973973974 0.020020020 1.006006
## 20975 0.974974975 0.020020020 1.005005
## 20976 0.975975976 0.020020020 1.004004
## 20977 0.976976977 0.020020020 1.003003
## 20978 0.977977978 0.020020020 1.002002
## 20979 0.978978979 0.020020020 1.001001
## 20980 0.979979980 0.020020020 1.000000
## 20981 0.980980981 0.020020020 0.998999
## 20982 0.981981982 0.020020020 0.997998

```

```
## 20983 0.982982983 0.020020020 0.996997
## 20984 0.983983984 0.020020020 0.995996
## 20985 0.984984985 0.020020020 0.994995
## 20986 0.985985986 0.020020020 0.993994
## 20987 0.986986987 0.020020020 0.992993
## 20988 0.987987988 0.020020020 0.991992
## 20989 0.988988989 0.020020020 0.990991
## 20990 0.989989990 0.020020020 0.989990
## 20991 0.990990991 0.020020020 0.988989
## 20992 0.991991992 0.020020020 0.987988
## 20993 0.992992993 0.020020020 0.986987
## 20994 0.993993994 0.020020020 0.985986
## 20995 0.994994995 0.020020020 0.984985
## 20996 0.995995996 0.020020020 0.983984
## 20997 0.996996997 0.020020020 0.982983
## 20998 0.997997998 0.020020020 0.981982
## 20999 0.998998999 0.020020020 0.980981
## 21000 1.000000000 0.020020020 0.979980
## 21001 0.000000000 0.021021021 1.978979
## 21002 0.001001001 0.021021021 1.977978
## 21003 0.002002002 0.021021021 1.976977
## 21004 0.003003003 0.021021021 1.975976
## 21005 0.004004004 0.021021021 1.974975
## 21006 0.005005005 0.021021021 1.973974
## 21007 0.006006006 0.021021021 1.972973
## 21008 0.007007007 0.021021021 1.971972
## 21009 0.008008008 0.021021021 1.970971
## 21010 0.009009009 0.021021021 1.969970
## 21011 0.010010010 0.021021021 1.968969
## 21012 0.011011011 0.021021021 1.967968
## 21013 0.012012012 0.021021021 1.966967
## 21014 0.013013013 0.021021021 1.965966
## 21015 0.014014014 0.021021021 1.964965
## 21016 0.015015015 0.021021021 1.963964
## 21017 0.016016016 0.021021021 1.962963
## 21018 0.017017017 0.021021021 1.961962
## 21019 0.018018018 0.021021021 1.960961
## 21020 0.019019019 0.021021021 1.959960
## 21021 0.020020020 0.021021021 1.958959
## 21022 0.021021021 0.021021021 1.957958
## 21023 0.022022022 0.021021021 1.956957
## 21024 0.023023023 0.021021021 1.955956
## 21025 0.024024024 0.021021021 1.954955
## 21026 0.025025025 0.021021021 1.953954
## 21027 0.026026026 0.021021021 1.952953
## 21028 0.027027027 0.021021021 1.951952
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 569

```
## 21029 0.028028028 0.021021021 1.950951
## 21030 0.029029029 0.021021021 1.949950
## 21031 0.030030030 0.021021021 1.948949
## 21032 0.031031031 0.021021021 1.947948
## 21033 0.032032032 0.021021021 1.946947
## 21034 0.033033033 0.021021021 1.945946
## 21035 0.034034034 0.021021021 1.944945
## 21036 0.035035035 0.021021021 1.943944
## 21037 0.036036036 0.021021021 1.942943
## 21038 0.037037037 0.021021021 1.941942
## 21039 0.038038038 0.021021021 1.940941
## 21040 0.039039039 0.021021021 1.939940
## 21041 0.040040040 0.021021021 1.938939
## 21042 0.041041041 0.021021021 1.937938
## 21043 0.042042042 0.021021021 1.936937
## 21044 0.043043043 0.021021021 1.935936
## 21045 0.044044044 0.021021021 1.934935
## 21046 0.045045045 0.021021021 1.933934
## 21047 0.046046046 0.021021021 1.932933
## 21048 0.047047047 0.021021021 1.931932
## 21049 0.048048048 0.021021021 1.930931
## 21050 0.049049049 0.021021021 1.929930
## 21051 0.050050050 0.021021021 1.928929
## 21052 0.051051051 0.021021021 1.927928
## 21053 0.052052052 0.021021021 1.926927
## 21054 0.053053053 0.021021021 1.925926
## 21055 0.054054054 0.021021021 1.924925
## 21056 0.055055055 0.021021021 1.923924
## 21057 0.056056056 0.021021021 1.922923
## 21058 0.057057057 0.021021021 1.921922
## 21059 0.058058058 0.021021021 1.920921
## 21060 0.059059059 0.021021021 1.919920
## 21061 0.060060060 0.021021021 1.918919
## 21062 0.061061061 0.021021021 1.917918
## 21063 0.062062062 0.021021021 1.916917
## 21064 0.063063063 0.021021021 1.915916
## 21065 0.064064064 0.021021021 1.914915
## 21066 0.065065065 0.021021021 1.913914
## 21067 0.066066066 0.021021021 1.912913
## 21068 0.067067067 0.021021021 1.911912
## 21069 0.068068068 0.021021021 1.910911
## 21070 0.069069069 0.021021021 1.909910
## 21071 0.070070070 0.021021021 1.908909
## 21072 0.071071071 0.021021021 1.907908
## 21073 0.072072072 0.021021021 1.906907
## 21074 0.073073073 0.021021021 1.905906
```

```
## 21075 0.074074074 0.021021021 1.904905
## 21076 0.075075075 0.021021021 1.903904
## 21077 0.076076076 0.021021021 1.902903
## 21078 0.077077077 0.021021021 1.901902
## 21079 0.078078078 0.021021021 1.900901
## 21080 0.079079079 0.021021021 1.899900
## 21081 0.080080080 0.021021021 1.898899
## 21082 0.081081081 0.021021021 1.897898
## 21083 0.082082082 0.021021021 1.896897
## 21084 0.083083083 0.021021021 1.895896
## 21085 0.084084084 0.021021021 1.894895
## 21086 0.085085085 0.021021021 1.893894
## 21087 0.086086086 0.021021021 1.892893
## 21088 0.087087087 0.021021021 1.891892
## 21089 0.088088088 0.021021021 1.890891
## 21090 0.089089089 0.021021021 1.889890
## 21091 0.090090090 0.021021021 1.888889
## 21092 0.091091091 0.021021021 1.887888
## 21093 0.092092092 0.021021021 1.886887
## 21094 0.093093093 0.021021021 1.885886
## 21095 0.094094094 0.021021021 1.884885
## 21096 0.095095095 0.021021021 1.883884
## 21097 0.096096096 0.021021021 1.882883
## 21098 0.097097097 0.021021021 1.881882
## 21099 0.098098098 0.021021021 1.880881
## 21100 0.099099099 0.021021021 1.879880
## 21101 0.100100100 0.021021021 1.878879
## 21102 0.101101101 0.021021021 1.877878
## 21103 0.102102102 0.021021021 1.876877
## 21104 0.103103103 0.021021021 1.875876
## 21105 0.104104104 0.021021021 1.874875
## 21106 0.105105105 0.021021021 1.873874
## 21107 0.106106106 0.021021021 1.872873
## 21108 0.107107107 0.021021021 1.871872
## 21109 0.108108108 0.021021021 1.870871
## 21110 0.109109109 0.021021021 1.869870
## 21111 0.110110110 0.021021021 1.868869
## 21112 0.111111111 0.021021021 1.867868
## 21113 0.112112112 0.021021021 1.866867
## 21114 0.113113113 0.021021021 1.865866
## 21115 0.114114114 0.021021021 1.864865
## 21116 0.115115115 0.021021021 1.863864
## 21117 0.116116116 0.021021021 1.862863
## 21118 0.117117117 0.021021021 1.861862
## 21119 0.118118118 0.021021021 1.860861
## 21120 0.119119119 0.021021021 1.859860
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 571

```
## 21121 0.120120120 0.021021021 1.858859
## 21122 0.121121121 0.021021021 1.857858
## 21123 0.122122122 0.021021021 1.856857
## 21124 0.123123123 0.021021021 1.855856
## 21125 0.124124124 0.021021021 1.854855
## 21126 0.125125125 0.021021021 1.853854
## 21127 0.126126126 0.021021021 1.852853
## 21128 0.127127127 0.021021021 1.851852
## 21129 0.128128128 0.021021021 1.850851
## 21130 0.129129129 0.021021021 1.849850
## 21131 0.130130130 0.021021021 1.848849
## 21132 0.131131131 0.021021021 1.847848
## 21133 0.132132132 0.021021021 1.846847
## 21134 0.133133133 0.021021021 1.845846
## 21135 0.134134134 0.021021021 1.844845
## 21136 0.135135135 0.021021021 1.843844
## 21137 0.136136136 0.021021021 1.842843
## 21138 0.137137137 0.021021021 1.841842
## 21139 0.138138138 0.021021021 1.840841
## 21140 0.139139139 0.021021021 1.839840
## 21141 0.140140140 0.021021021 1.838839
## 21142 0.141141141 0.021021021 1.837838
## 21143 0.142142142 0.021021021 1.836837
## 21144 0.143143143 0.021021021 1.835836
## 21145 0.144144144 0.021021021 1.834835
## 21146 0.145145145 0.021021021 1.833834
## 21147 0.146146146 0.021021021 1.832833
## 21148 0.147147147 0.021021021 1.831832
## 21149 0.148148148 0.021021021 1.830831
## 21150 0.149149149 0.021021021 1.829830
## 21151 0.150150150 0.021021021 1.828829
## 21152 0.151151151 0.021021021 1.827828
## 21153 0.152152152 0.021021021 1.826827
## 21154 0.153153153 0.021021021 1.825826
## 21155 0.154154154 0.021021021 1.824825
## 21156 0.155155155 0.021021021 1.823824
## 21157 0.156156156 0.021021021 1.822823
## 21158 0.157157157 0.021021021 1.821822
## 21159 0.158158158 0.021021021 1.820821
## 21160 0.159159159 0.021021021 1.819820
## 21161 0.160160160 0.021021021 1.818819
## 21162 0.161161161 0.021021021 1.817818
## 21163 0.162162162 0.021021021 1.816817
## 21164 0.163163163 0.021021021 1.815816
## 21165 0.164164164 0.021021021 1.814815
## 21166 0.165165165 0.021021021 1.813814
```

```
## 21167 0.166166166 0.021021021 1.812813
## 21168 0.167167167 0.021021021 1.811812
## 21169 0.168168168 0.021021021 1.810811
## 21170 0.169169169 0.021021021 1.809810
## 21171 0.170170170 0.021021021 1.808809
## 21172 0.171171171 0.021021021 1.807808
## 21173 0.172172172 0.021021021 1.806807
## 21174 0.173173173 0.021021021 1.805806
## 21175 0.174174174 0.021021021 1.804805
## 21176 0.175175175 0.021021021 1.803804
## 21177 0.176176176 0.021021021 1.802803
## 21178 0.177177177 0.021021021 1.801802
## 21179 0.178178178 0.021021021 1.800801
## 21180 0.179179179 0.021021021 1.799800
## 21181 0.180180180 0.021021021 1.798799
## 21182 0.181181181 0.021021021 1.797798
## 21183 0.182182182 0.021021021 1.796797
## 21184 0.183183183 0.021021021 1.795796
## 21185 0.184184184 0.021021021 1.794795
## 21186 0.185185185 0.021021021 1.793794
## 21187 0.186186186 0.021021021 1.792793
## 21188 0.187187187 0.021021021 1.791792
## 21189 0.188188188 0.021021021 1.790791
## 21190 0.189189189 0.021021021 1.789790
## 21191 0.190190190 0.021021021 1.788789
## 21192 0.191191191 0.021021021 1.787788
## 21193 0.192192192 0.021021021 1.786787
## 21194 0.193193193 0.021021021 1.785786
## 21195 0.194194194 0.021021021 1.784785
## 21196 0.195195195 0.021021021 1.783784
## 21197 0.196196196 0.021021021 1.782783
## 21198 0.197197197 0.021021021 1.781782
## 21199 0.198198198 0.021021021 1.780781
## 21200 0.199199199 0.021021021 1.779780
## 21201 0.200200200 0.021021021 1.778779
## 21202 0.201201201 0.021021021 1.777778
## 21203 0.202202202 0.021021021 1.776777
## 21204 0.203203203 0.021021021 1.775776
## 21205 0.204204204 0.021021021 1.774775
## 21206 0.205205205 0.021021021 1.773774
## 21207 0.206206206 0.021021021 1.772773
## 21208 0.207207207 0.021021021 1.771772
## 21209 0.208208208 0.021021021 1.770771
## 21210 0.209209209 0.021021021 1.769770
## 21211 0.210210210 0.021021021 1.768769
## 21212 0.211211211 0.021021021 1.767768
```

```

## 21213 0.212212212 0.021021021 1.766767
## 21214 0.213213213 0.021021021 1.765766
## 21215 0.214214214 0.021021021 1.764765
## 21216 0.215215215 0.021021021 1.763764
## 21217 0.216216216 0.021021021 1.762763
## 21218 0.217217217 0.021021021 1.761762
## 21219 0.218218218 0.021021021 1.760761
## 21220 0.219219219 0.021021021 1.759760
## 21221 0.220220220 0.021021021 1.758759
## 21222 0.221221221 0.021021021 1.757758
## 21223 0.222222222 0.021021021 1.756757
## 21224 0.223223223 0.021021021 1.755756
## 21225 0.224224224 0.021021021 1.754755
## 21226 0.225225225 0.021021021 1.753754
## 21227 0.226226226 0.021021021 1.752753
## 21228 0.227227227 0.021021021 1.751752
## 21229 0.228228228 0.021021021 1.750751
## 21230 0.229229229 0.021021021 1.749750
## 21231 0.230230230 0.021021021 1.748749
## 21232 0.231231231 0.021021021 1.747748
## 21233 0.232232232 0.021021021 1.746747
## 21234 0.233233233 0.021021021 1.745746
## 21235 0.234234234 0.021021021 1.744745
## 21236 0.235235235 0.021021021 1.743744
## 21237 0.236236236 0.021021021 1.742743
## 21238 0.237237237 0.021021021 1.741742
## 21239 0.238238238 0.021021021 1.740741
## 21240 0.239239239 0.021021021 1.739740
## 21241 0.240240240 0.021021021 1.738739
## 21242 0.241241241 0.021021021 1.737738
## 21243 0.242242242 0.021021021 1.736737
## 21244 0.243243243 0.021021021 1.735736
## 21245 0.244244244 0.021021021 1.734735
## 21246 0.245245245 0.021021021 1.733734
## 21247 0.246246246 0.021021021 1.732733
## 21248 0.247247247 0.021021021 1.731732
## 21249 0.248248248 0.021021021 1.730731
## 21250 0.249249249 0.021021021 1.729730
## 21251 0.250250250 0.021021021 1.728729
## 21252 0.251251251 0.021021021 1.727728
## 21253 0.252252252 0.021021021 1.726727
## 21254 0.253253253 0.021021021 1.725726
## 21255 0.254254254 0.021021021 1.724725
## 21256 0.255255255 0.021021021 1.723724
## 21257 0.256256256 0.021021021 1.722723
## 21258 0.257257257 0.021021021 1.721722

```

```
## 21259 0.258258258 0.021021021 1.720721
## 21260 0.259259259 0.021021021 1.719720
## 21261 0.260260260 0.021021021 1.718719
## 21262 0.261261261 0.021021021 1.717718
## 21263 0.262262262 0.021021021 1.716717
## 21264 0.263263263 0.021021021 1.715716
## 21265 0.264264264 0.021021021 1.714715
## 21266 0.265265265 0.021021021 1.713714
## 21267 0.266266266 0.021021021 1.712713
## 21268 0.267267267 0.021021021 1.711712
## 21269 0.268268268 0.021021021 1.710711
## 21270 0.269269269 0.021021021 1.709710
## 21271 0.270270270 0.021021021 1.708709
## 21272 0.271271271 0.021021021 1.707708
## 21273 0.272272272 0.021021021 1.706707
## 21274 0.273273273 0.021021021 1.705706
## 21275 0.274274274 0.021021021 1.704705
## 21276 0.275275275 0.021021021 1.703704
## 21277 0.276276276 0.021021021 1.702703
## 21278 0.277277277 0.021021021 1.701702
## 21279 0.278278278 0.021021021 1.700701
## 21280 0.279279279 0.021021021 1.699700
## 21281 0.280280280 0.021021021 1.698699
## 21282 0.281281281 0.021021021 1.697698
## 21283 0.282282282 0.021021021 1.696697
## 21284 0.283283283 0.021021021 1.695696
## 21285 0.284284284 0.021021021 1.694695
## 21286 0.285285285 0.021021021 1.693694
## 21287 0.286286286 0.021021021 1.692693
## 21288 0.287287287 0.021021021 1.691692
## 21289 0.288288288 0.021021021 1.690691
## 21290 0.289289289 0.021021021 1.689690
## 21291 0.290290290 0.021021021 1.688689
## 21292 0.291291291 0.021021021 1.687688
## 21293 0.292292292 0.021021021 1.686687
## 21294 0.293293293 0.021021021 1.685686
## 21295 0.294294294 0.021021021 1.684685
## 21296 0.295295295 0.021021021 1.683684
## 21297 0.296296296 0.021021021 1.682683
## 21298 0.297297297 0.021021021 1.681682
## 21299 0.298298298 0.021021021 1.680681
## 21300 0.299299299 0.021021021 1.679680
## 21301 0.300300300 0.021021021 1.678679
## 21302 0.301301301 0.021021021 1.677678
## 21303 0.302302302 0.021021021 1.676677
## 21304 0.303303303 0.021021021 1.675676
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 575

```
## 21305 0.304304304 0.021021021 1.674675
## 21306 0.305305305 0.021021021 1.673674
## 21307 0.306306306 0.021021021 1.672673
## 21308 0.307307307 0.021021021 1.671672
## 21309 0.308308308 0.021021021 1.670671
## 21310 0.309309309 0.021021021 1.669670
## 21311 0.310310310 0.021021021 1.668669
## 21312 0.311311311 0.021021021 1.667668
## 21313 0.312312312 0.021021021 1.666667
## 21314 0.313313313 0.021021021 1.665666
## 21315 0.314314314 0.021021021 1.664665
## 21316 0.315315315 0.021021021 1.663664
## 21317 0.316316316 0.021021021 1.662663
## 21318 0.317317317 0.021021021 1.661662
## 21319 0.318318318 0.021021021 1.660661
## 21320 0.319319319 0.021021021 1.659660
## 21321 0.320320320 0.021021021 1.658659
## 21322 0.321321321 0.021021021 1.657658
## 21323 0.322322322 0.021021021 1.656657
## 21324 0.323323323 0.021021021 1.655656
## 21325 0.324324324 0.021021021 1.654655
## 21326 0.325325325 0.021021021 1.653654
## 21327 0.326326326 0.021021021 1.652653
## 21328 0.327327327 0.021021021 1.651652
## 21329 0.328328328 0.021021021 1.650651
## 21330 0.329329329 0.021021021 1.649650
## 21331 0.330330330 0.021021021 1.648649
## 21332 0.331331331 0.021021021 1.647648
## 21333 0.332332332 0.021021021 1.646647
## 21334 0.333333333 0.021021021 1.645646
## 21335 0.334334334 0.021021021 1.644645
## 21336 0.335335335 0.021021021 1.643644
## 21337 0.336336336 0.021021021 1.642643
## 21338 0.337337337 0.021021021 1.641642
## 21339 0.338338338 0.021021021 1.640641
## 21340 0.339339339 0.021021021 1.639640
## 21341 0.340340340 0.021021021 1.638639
## 21342 0.341341341 0.021021021 1.637638
## 21343 0.342342342 0.021021021 1.636637
## 21344 0.343343343 0.021021021 1.635636
## 21345 0.344344344 0.021021021 1.634635
## 21346 0.345345345 0.021021021 1.633634
## 21347 0.346346346 0.021021021 1.632633
## 21348 0.347347347 0.021021021 1.631632
## 21349 0.348348348 0.021021021 1.630631
## 21350 0.349349349 0.021021021 1.629630
```

```
## 21351 0.350350350 0.021021021 1.628629
## 21352 0.351351351 0.021021021 1.627628
## 21353 0.352352352 0.021021021 1.626627
## 21354 0.353353353 0.021021021 1.625626
## 21355 0.354354354 0.021021021 1.624625
## 21356 0.355355355 0.021021021 1.623624
## 21357 0.356356356 0.021021021 1.622623
## 21358 0.357357357 0.021021021 1.621622
## 21359 0.358358358 0.021021021 1.620621
## 21360 0.359359359 0.021021021 1.619620
## 21361 0.360360360 0.021021021 1.618619
## 21362 0.361361361 0.021021021 1.617618
## 21363 0.362362362 0.021021021 1.616617
## 21364 0.363363363 0.021021021 1.615616
## 21365 0.364364364 0.021021021 1.614615
## 21366 0.365365365 0.021021021 1.613614
## 21367 0.366366366 0.021021021 1.612613
## 21368 0.367367367 0.021021021 1.611612
## 21369 0.368368368 0.021021021 1.610611
## 21370 0.369369369 0.021021021 1.609610
## 21371 0.370370370 0.021021021 1.608609
## 21372 0.371371371 0.021021021 1.607608
## 21373 0.372372372 0.021021021 1.606607
## 21374 0.373373373 0.021021021 1.605606
## 21375 0.374374374 0.021021021 1.604605
## 21376 0.375375375 0.021021021 1.603604
## 21377 0.376376376 0.021021021 1.602603
## 21378 0.377377377 0.021021021 1.601602
## 21379 0.378378378 0.021021021 1.600601
## 21380 0.379379379 0.021021021 1.599600
## 21381 0.380380380 0.021021021 1.598599
## 21382 0.381381381 0.021021021 1.597598
## 21383 0.382382382 0.021021021 1.596597
## 21384 0.383383383 0.021021021 1.595596
## 21385 0.384384384 0.021021021 1.594595
## 21386 0.385385385 0.021021021 1.593594
## 21387 0.386386386 0.021021021 1.592593
## 21388 0.387387387 0.021021021 1.591592
## 21389 0.388388388 0.021021021 1.590591
## 21390 0.389389389 0.021021021 1.589590
## 21391 0.390390390 0.021021021 1.588589
## 21392 0.391391391 0.021021021 1.587588
## 21393 0.392392392 0.021021021 1.586587
## 21394 0.393393393 0.021021021 1.585586
## 21395 0.394394394 0.021021021 1.584585
## 21396 0.395395395 0.021021021 1.583584
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 577

```

## 21397 0.396396396 0.021021021 1.582583
## 21398 0.397397397 0.021021021 1.581582
## 21399 0.398398398 0.021021021 1.580581
## 21400 0.399399399 0.021021021 1.579580
## 21401 0.400400400 0.021021021 1.578579
## 21402 0.401401401 0.021021021 1.577578
## 21403 0.402402402 0.021021021 1.576577
## 21404 0.403403403 0.021021021 1.575576
## 21405 0.404404404 0.021021021 1.574575
## 21406 0.405405405 0.021021021 1.573574
## 21407 0.406406406 0.021021021 1.572573
## 21408 0.407407407 0.021021021 1.571572
## 21409 0.408408408 0.021021021 1.570571
## 21410 0.409409409 0.021021021 1.569570
## 21411 0.410410410 0.021021021 1.568569
## 21412 0.411411411 0.021021021 1.567568
## 21413 0.412412412 0.021021021 1.566567
## 21414 0.413413413 0.021021021 1.565566
## 21415 0.414414414 0.021021021 1.564565
## 21416 0.415415415 0.021021021 1.563564
## 21417 0.416416416 0.021021021 1.562563
## 21418 0.417417417 0.021021021 1.561562
## 21419 0.418418418 0.021021021 1.560561
## 21420 0.419419419 0.021021021 1.559560
## 21421 0.420420420 0.021021021 1.558559
## 21422 0.421421421 0.021021021 1.557558
## 21423 0.422422422 0.021021021 1.556557
## 21424 0.423423423 0.021021021 1.555556
## 21425 0.424424424 0.021021021 1.554555
## 21426 0.425425425 0.021021021 1.553554
## 21427 0.426426426 0.021021021 1.552553
## 21428 0.427427427 0.021021021 1.551552
## 21429 0.428428428 0.021021021 1.550551
## 21430 0.429429429 0.021021021 1.549550
## 21431 0.430430430 0.021021021 1.548549
## 21432 0.431431431 0.021021021 1.547548
## 21433 0.432432432 0.021021021 1.546547
## 21434 0.433433433 0.021021021 1.545546
## 21435 0.434434434 0.021021021 1.544545
## 21436 0.435435435 0.021021021 1.543544
## 21437 0.436436436 0.021021021 1.542543
## 21438 0.437437437 0.021021021 1.541542
## 21439 0.438438438 0.021021021 1.540541
## 21440 0.439439439 0.021021021 1.539540
## 21441 0.440440440 0.021021021 1.538539
## 21442 0.441441441 0.021021021 1.537538

```

```
## 21443 0.442442442 0.021021021 1.536537
## 21444 0.443443443 0.021021021 1.535536
## 21445 0.444444444 0.021021021 1.534535
## 21446 0.445445445 0.021021021 1.533534
## 21447 0.446446446 0.021021021 1.532533
## 21448 0.447447447 0.021021021 1.531532
## 21449 0.448448448 0.021021021 1.530531
## 21450 0.449449449 0.021021021 1.529530
## 21451 0.450450450 0.021021021 1.528529
## 21452 0.451451451 0.021021021 1.527528
## 21453 0.452452452 0.021021021 1.526527
## 21454 0.453453453 0.021021021 1.525526
## 21455 0.454454454 0.021021021 1.524525
## 21456 0.455455455 0.021021021 1.523524
## 21457 0.456456456 0.021021021 1.522523
## 21458 0.457457457 0.021021021 1.521522
## 21459 0.458458458 0.021021021 1.520521
## 21460 0.459459459 0.021021021 1.519520
## 21461 0.460460460 0.021021021 1.518519
## 21462 0.461461461 0.021021021 1.517518
## 21463 0.462462462 0.021021021 1.516517
## 21464 0.463463463 0.021021021 1.515516
## 21465 0.464464464 0.021021021 1.514515
## 21466 0.465465465 0.021021021 1.513514
## 21467 0.466466466 0.021021021 1.512513
## 21468 0.467467467 0.021021021 1.511512
## 21469 0.468468468 0.021021021 1.510511
## 21470 0.469469469 0.021021021 1.509510
## 21471 0.470470470 0.021021021 1.508509
## 21472 0.471471471 0.021021021 1.507508
## 21473 0.472472472 0.021021021 1.506507
## 21474 0.473473473 0.021021021 1.505506
## 21475 0.474474474 0.021021021 1.504505
## 21476 0.475475475 0.021021021 1.503504
## 21477 0.476476476 0.021021021 1.502503
## 21478 0.477477477 0.021021021 1.501502
## 21479 0.478478478 0.021021021 1.500501
## 21480 0.479479479 0.021021021 1.499499
## 21481 0.480480480 0.021021021 1.498498
## 21482 0.481481481 0.021021021 1.497497
## 21483 0.482482482 0.021021021 1.496496
## 21484 0.483483483 0.021021021 1.495495
## 21485 0.484484484 0.021021021 1.494494
## 21486 0.485485485 0.021021021 1.493493
## 21487 0.486486486 0.021021021 1.492492
## 21488 0.487487487 0.021021021 1.491491
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 579

```
## 21489 0.488488488 0.021021021 1.490490
## 21490 0.489489489 0.021021021 1.489489
## 21491 0.490490490 0.021021021 1.488488
## 21492 0.491491491 0.021021021 1.487487
## 21493 0.492492492 0.021021021 1.486486
## 21494 0.493493493 0.021021021 1.485485
## 21495 0.494494494 0.021021021 1.484484
## 21496 0.495495495 0.021021021 1.483483
## 21497 0.496496496 0.021021021 1.482482
## 21498 0.497497497 0.021021021 1.481481
## 21499 0.498498498 0.021021021 1.480480
## 21500 0.499499499 0.021021021 1.479479
## 21501 0.500500501 0.021021021 1.478478
## 21502 0.501501502 0.021021021 1.477477
## 21503 0.502502503 0.021021021 1.476476
## 21504 0.503503504 0.021021021 1.475475
## 21505 0.504504505 0.021021021 1.474474
## 21506 0.505505506 0.021021021 1.473473
## 21507 0.506506507 0.021021021 1.472472
## 21508 0.507507508 0.021021021 1.471471
## 21509 0.508508509 0.021021021 1.470470
## 21510 0.509509510 0.021021021 1.469469
## 21511 0.510510511 0.021021021 1.468468
## 21512 0.511511512 0.021021021 1.467467
## 21513 0.512512513 0.021021021 1.466466
## 21514 0.513513514 0.021021021 1.465465
## 21515 0.514514515 0.021021021 1.464464
## 21516 0.515515516 0.021021021 1.463463
## 21517 0.516516517 0.021021021 1.462462
## 21518 0.517517518 0.021021021 1.461461
## 21519 0.518518519 0.021021021 1.460460
## 21520 0.519519520 0.021021021 1.459459
## 21521 0.520520521 0.021021021 1.458458
## 21522 0.521521522 0.021021021 1.457457
## 21523 0.522522523 0.021021021 1.456456
## 21524 0.523523524 0.021021021 1.455455
## 21525 0.524524525 0.021021021 1.454454
## 21526 0.525525526 0.021021021 1.453453
## 21527 0.526526527 0.021021021 1.452452
## 21528 0.527527528 0.021021021 1.451451
## 21529 0.528528529 0.021021021 1.450450
## 21530 0.529529530 0.021021021 1.449449
## 21531 0.530530531 0.021021021 1.448448
## 21532 0.531531532 0.021021021 1.447447
## 21533 0.532532533 0.021021021 1.446446
## 21534 0.533533534 0.021021021 1.445445
```

```
## 21535 0.534534535 0.021021021 1.444444
## 21536 0.535535536 0.021021021 1.443443
## 21537 0.536536537 0.021021021 1.442442
## 21538 0.537537538 0.021021021 1.441441
## 21539 0.538538539 0.021021021 1.440440
## 21540 0.539539540 0.021021021 1.439439
## 21541 0.540540541 0.021021021 1.438438
## 21542 0.541541542 0.021021021 1.437437
## 21543 0.542542543 0.021021021 1.436436
## 21544 0.543543544 0.021021021 1.435435
## 21545 0.544544545 0.021021021 1.434434
## 21546 0.545545546 0.021021021 1.433433
## 21547 0.546546547 0.021021021 1.432432
## 21548 0.547547548 0.021021021 1.431431
## 21549 0.548548549 0.021021021 1.430430
## 21550 0.549549550 0.021021021 1.429429
## 21551 0.550550551 0.021021021 1.428428
## 21552 0.551551552 0.021021021 1.427427
## 21553 0.552552553 0.021021021 1.426426
## 21554 0.553553554 0.021021021 1.425425
## 21555 0.554554555 0.021021021 1.424424
## 21556 0.555555556 0.021021021 1.423423
## 21557 0.556556557 0.021021021 1.422422
## 21558 0.557557558 0.021021021 1.421421
## 21559 0.558558559 0.021021021 1.420420
## 21560 0.559559560 0.021021021 1.419419
## 21561 0.560560561 0.021021021 1.418418
## 21562 0.561561562 0.021021021 1.417417
## 21563 0.562562563 0.021021021 1.416416
## 21564 0.563563564 0.021021021 1.415415
## 21565 0.564564565 0.021021021 1.414414
## 21566 0.565565566 0.021021021 1.413413
## 21567 0.566566567 0.021021021 1.412412
## 21568 0.567567568 0.021021021 1.411411
## 21569 0.568568569 0.021021021 1.410410
## 21570 0.569569570 0.021021021 1.409409
## 21571 0.570570571 0.021021021 1.408408
## 21572 0.571571572 0.021021021 1.407407
## 21573 0.572572573 0.021021021 1.406406
## 21574 0.573573574 0.021021021 1.405405
## 21575 0.574574575 0.021021021 1.404404
## 21576 0.575575576 0.021021021 1.403403
## 21577 0.576576577 0.021021021 1.402402
## 21578 0.577577578 0.021021021 1.401401
## 21579 0.578578579 0.021021021 1.400400
## 21580 0.579579580 0.021021021 1.399399
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 581

```
## 21581 0.580580581 0.021021021 1.398398
## 21582 0.581581582 0.021021021 1.397397
## 21583 0.582582583 0.021021021 1.396396
## 21584 0.583583584 0.021021021 1.395395
## 21585 0.584584585 0.021021021 1.394394
## 21586 0.585585586 0.021021021 1.393393
## 21587 0.586586587 0.021021021 1.392392
## 21588 0.587587588 0.021021021 1.391391
## 21589 0.588588589 0.021021021 1.390390
## 21590 0.589589590 0.021021021 1.389389
## 21591 0.590590591 0.021021021 1.388388
## 21592 0.591591592 0.021021021 1.387387
## 21593 0.592592593 0.021021021 1.386386
## 21594 0.593593594 0.021021021 1.385385
## 21595 0.594594595 0.021021021 1.384384
## 21596 0.595595596 0.021021021 1.383383
## 21597 0.596596597 0.021021021 1.382382
## 21598 0.597597598 0.021021021 1.381381
## 21599 0.598598599 0.021021021 1.380380
## 21600 0.599599600 0.021021021 1.379379
## 21601 0.600600601 0.021021021 1.378378
## 21602 0.601601602 0.021021021 1.377377
## 21603 0.602602603 0.021021021 1.376376
## 21604 0.603603604 0.021021021 1.375375
## 21605 0.604604605 0.021021021 1.374374
## 21606 0.605605606 0.021021021 1.373373
## 21607 0.606606607 0.021021021 1.372372
## 21608 0.607607608 0.021021021 1.371371
## 21609 0.608608609 0.021021021 1.370370
## 21610 0.609609610 0.021021021 1.369369
## 21611 0.610610611 0.021021021 1.368368
## 21612 0.611611612 0.021021021 1.367367
## 21613 0.612612613 0.021021021 1.366366
## 21614 0.613613614 0.021021021 1.365365
## 21615 0.614614615 0.021021021 1.364364
## 21616 0.615615616 0.021021021 1.363363
## 21617 0.616616617 0.021021021 1.362362
## 21618 0.617617618 0.021021021 1.361361
## 21619 0.618618619 0.021021021 1.360360
## 21620 0.619619620 0.021021021 1.359359
## 21621 0.620620621 0.021021021 1.358358
## 21622 0.621621622 0.021021021 1.357357
## 21623 0.622622623 0.021021021 1.356356
## 21624 0.623623624 0.021021021 1.355355
## 21625 0.624624625 0.021021021 1.354354
## 21626 0.625625626 0.021021021 1.353353
```

```
## 21627 0.626626627 0.021021021 1.352352
## 21628 0.627627628 0.021021021 1.351351
## 21629 0.628628629 0.021021021 1.350350
## 21630 0.629629630 0.021021021 1.349349
## 21631 0.630630631 0.021021021 1.348348
## 21632 0.631631632 0.021021021 1.347347
## 21633 0.632632633 0.021021021 1.346346
## 21634 0.633633634 0.021021021 1.345345
## 21635 0.634634635 0.021021021 1.344344
## 21636 0.635635636 0.021021021 1.343343
## 21637 0.636636637 0.021021021 1.342342
## 21638 0.637637638 0.021021021 1.341341
## 21639 0.638638639 0.021021021 1.340340
## 21640 0.639639640 0.021021021 1.339339
## 21641 0.640640641 0.021021021 1.338338
## 21642 0.641641642 0.021021021 1.337337
## 21643 0.642642643 0.021021021 1.336336
## 21644 0.643643644 0.021021021 1.335335
## 21645 0.644644645 0.021021021 1.334334
## 21646 0.645645646 0.021021021 1.333333
## 21647 0.646646647 0.021021021 1.332332
## 21648 0.647647648 0.021021021 1.331331
## 21649 0.648648649 0.021021021 1.330330
## 21650 0.649649650 0.021021021 1.329329
## 21651 0.650650651 0.021021021 1.328328
## 21652 0.651651652 0.021021021 1.327327
## 21653 0.652652653 0.021021021 1.326326
## 21654 0.653653654 0.021021021 1.325325
## 21655 0.654654655 0.021021021 1.324324
## 21656 0.6556555656 0.021021021 1.323323
## 21657 0.656656657 0.021021021 1.322322
## 21658 0.657657658 0.021021021 1.321321
## 21659 0.658658659 0.021021021 1.320320
## 21660 0.659659660 0.021021021 1.319319
## 21661 0.660660661 0.021021021 1.318318
## 21662 0.661661662 0.021021021 1.317317
## 21663 0.662662663 0.021021021 1.316316
## 21664 0.663663664 0.021021021 1.315315
## 21665 0.664664665 0.021021021 1.314314
## 21666 0.665665666 0.021021021 1.313313
## 21667 0.666666667 0.021021021 1.312312
## 21668 0.667667668 0.021021021 1.311311
## 21669 0.668668669 0.021021021 1.310310
## 21670 0.669669670 0.021021021 1.309309
## 21671 0.670670671 0.021021021 1.308308
## 21672 0.671671672 0.021021021 1.307307
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 583

```
## 21673 0.672672673 0.021021021 1.306306
## 21674 0.673673674 0.021021021 1.305305
## 21675 0.674674675 0.021021021 1.304304
## 21676 0.675675676 0.021021021 1.303303
## 21677 0.676676677 0.021021021 1.302302
## 21678 0.677677678 0.021021021 1.301301
## 21679 0.678678679 0.021021021 1.300300
## 21680 0.679679680 0.021021021 1.299299
## 21681 0.680680681 0.021021021 1.298298
## 21682 0.681681682 0.021021021 1.297297
## 21683 0.682682683 0.021021021 1.296296
## 21684 0.683683684 0.021021021 1.295295
## 21685 0.684684685 0.021021021 1.294294
## 21686 0.685685686 0.021021021 1.293293
## 21687 0.686686687 0.021021021 1.292292
## 21688 0.687687688 0.021021021 1.291291
## 21689 0.688688689 0.021021021 1.290290
## 21690 0.689689690 0.021021021 1.289289
## 21691 0.690690691 0.021021021 1.288288
## 21692 0.691691692 0.021021021 1.287287
## 21693 0.692692693 0.021021021 1.286286
## 21694 0.693693694 0.021021021 1.285285
## 21695 0.694694695 0.021021021 1.284284
## 21696 0.695695696 0.021021021 1.283283
## 21697 0.696696697 0.021021021 1.282282
## 21698 0.697697698 0.021021021 1.281281
## 21699 0.698698699 0.021021021 1.280280
## 21700 0.699699700 0.021021021 1.279279
## 21701 0.700700701 0.021021021 1.278278
## 21702 0.701701702 0.021021021 1.277277
## 21703 0.702702703 0.021021021 1.276276
## 21704 0.703703704 0.021021021 1.275275
## 21705 0.704704705 0.021021021 1.274274
## 21706 0.705705706 0.021021021 1.273273
## 21707 0.706706707 0.021021021 1.272272
## 21708 0.707707708 0.021021021 1.271271
## 21709 0.708708709 0.021021021 1.270270
## 21710 0.709709710 0.021021021 1.269269
## 21711 0.710710711 0.021021021 1.268268
## 21712 0.711711712 0.021021021 1.267267
## 21713 0.712712713 0.021021021 1.266266
## 21714 0.713713714 0.021021021 1.265265
## 21715 0.714714715 0.021021021 1.264264
## 21716 0.715715716 0.021021021 1.263263
## 21717 0.716716717 0.021021021 1.262262
## 21718 0.717717718 0.021021021 1.261261
```

```
## 21719 0.718718719 0.021021021 1.260260
## 21720 0.719719720 0.021021021 1.259259
## 21721 0.720720721 0.021021021 1.258258
## 21722 0.721721722 0.021021021 1.257257
## 21723 0.722722723 0.021021021 1.256256
## 21724 0.723723724 0.021021021 1.255255
## 21725 0.724724725 0.021021021 1.254254
## 21726 0.725725726 0.021021021 1.253253
## 21727 0.726726727 0.021021021 1.252252
## 21728 0.727727728 0.021021021 1.251251
## 21729 0.728728729 0.021021021 1.250250
## 21730 0.729729730 0.021021021 1.249249
## 21731 0.730730731 0.021021021 1.248248
## 21732 0.731731732 0.021021021 1.247247
## 21733 0.732732733 0.021021021 1.246246
## 21734 0.733733734 0.021021021 1.245245
## 21735 0.734734735 0.021021021 1.244244
## 21736 0.735735736 0.021021021 1.243243
## 21737 0.736736737 0.021021021 1.242242
## 21738 0.737737738 0.021021021 1.241241
## 21739 0.738738739 0.021021021 1.240240
## 21740 0.739739740 0.021021021 1.239239
## 21741 0.740740741 0.021021021 1.238238
## 21742 0.741741742 0.021021021 1.237237
## 21743 0.742742743 0.021021021 1.236236
## 21744 0.743743744 0.021021021 1.235235
## 21745 0.744744745 0.021021021 1.234234
## 21746 0.745745746 0.021021021 1.233233
## 21747 0.746746747 0.021021021 1.232232
## 21748 0.747747748 0.021021021 1.231231
## 21749 0.748748749 0.021021021 1.230230
## 21750 0.749749750 0.021021021 1.229229
## 21751 0.750750751 0.021021021 1.228228
## 21752 0.751751752 0.021021021 1.227227
## 21753 0.752752753 0.021021021 1.226226
## 21754 0.753753754 0.021021021 1.225225
## 21755 0.754754755 0.021021021 1.224224
## 21756 0.7557555756 0.021021021 1.223223
## 21757 0.756756757 0.021021021 1.222222
## 21758 0.757757758 0.021021021 1.221221
## 21759 0.758758759 0.021021021 1.220220
## 21760 0.759759760 0.021021021 1.219219
## 21761 0.760760761 0.021021021 1.218218
## 21762 0.761761762 0.021021021 1.217217
## 21763 0.762762763 0.021021021 1.216216
## 21764 0.763763764 0.021021021 1.215215
```

```

## 21765 0.764764765 0.021021021 1.214214
## 21766 0.765765766 0.021021021 1.213213
## 21767 0.766766767 0.021021021 1.212212
## 21768 0.767767768 0.021021021 1.211211
## 21769 0.768768769 0.021021021 1.210210
## 21770 0.769769770 0.021021021 1.209209
## 21771 0.770770771 0.021021021 1.208208
## 21772 0.771771772 0.021021021 1.207207
## 21773 0.772772773 0.021021021 1.206206
## 21774 0.773773774 0.021021021 1.205205
## 21775 0.774774775 0.021021021 1.204204
## 21776 0.775775776 0.021021021 1.203203
## 21777 0.776776777 0.021021021 1.202202
## 21778 0.777777778 0.021021021 1.201201
## 21779 0.778778779 0.021021021 1.200200
## 21780 0.779779780 0.021021021 1.199199
## 21781 0.780780781 0.021021021 1.198198
## 21782 0.781781782 0.021021021 1.197197
## 21783 0.782782783 0.021021021 1.196196
## 21784 0.783783784 0.021021021 1.195195
## 21785 0.784784785 0.021021021 1.194194
## 21786 0.785785786 0.021021021 1.193193
## 21787 0.786786787 0.021021021 1.192192
## 21788 0.787787788 0.021021021 1.191191
## 21789 0.788788789 0.021021021 1.190190
## 21790 0.789789790 0.021021021 1.189189
## 21791 0.790790791 0.021021021 1.188188
## 21792 0.791791792 0.021021021 1.187187
## 21793 0.792792793 0.021021021 1.186186
## 21794 0.793793794 0.021021021 1.185185
## 21795 0.794794795 0.021021021 1.184184
## 21796 0.795795796 0.021021021 1.183183
## 21797 0.796796797 0.021021021 1.182182
## 21798 0.797797798 0.021021021 1.181181
## 21799 0.798798799 0.021021021 1.180180
## 21800 0.799799800 0.021021021 1.179179
## 21801 0.800800801 0.021021021 1.178178
## 21802 0.801801802 0.021021021 1.177177
## 21803 0.802802803 0.021021021 1.176176
## 21804 0.803803804 0.021021021 1.175175
## 21805 0.804804805 0.021021021 1.174174
## 21806 0.805805806 0.021021021 1.173173
## 21807 0.806806807 0.021021021 1.172172
## 21808 0.807807808 0.021021021 1.171171
## 21809 0.808808809 0.021021021 1.170170
## 21810 0.809809810 0.021021021 1.169169

```

```
## 21811 0.810810811 0.021021021 1.168168
## 21812 0.811811812 0.021021021 1.167167
## 21813 0.812812813 0.021021021 1.166166
## 21814 0.813813814 0.021021021 1.165165
## 21815 0.814814815 0.021021021 1.164164
## 21816 0.815815816 0.021021021 1.163163
## 21817 0.816816817 0.021021021 1.162162
## 21818 0.817817818 0.021021021 1.161161
## 21819 0.818818819 0.021021021 1.160160
## 21820 0.819819820 0.021021021 1.159159
## 21821 0.820820821 0.021021021 1.158158
## 21822 0.821821822 0.021021021 1.157157
## 21823 0.822822823 0.021021021 1.156156
## 21824 0.823823824 0.021021021 1.155155
## 21825 0.824824825 0.021021021 1.154154
## 21826 0.825825826 0.021021021 1.153153
## 21827 0.826826827 0.021021021 1.152152
## 21828 0.827827828 0.021021021 1.151151
## 21829 0.828828829 0.021021021 1.150150
## 21830 0.829829830 0.021021021 1.149149
## 21831 0.830830831 0.021021021 1.148148
## 21832 0.831831832 0.021021021 1.147147
## 21833 0.832832833 0.021021021 1.146146
## 21834 0.833833834 0.021021021 1.145145
## 21835 0.834834835 0.021021021 1.144144
## 21836 0.835835836 0.021021021 1.143143
## 21837 0.836836837 0.021021021 1.142142
## 21838 0.837837838 0.021021021 1.141141
## 21839 0.838838839 0.021021021 1.140140
## 21840 0.839839840 0.021021021 1.139139
## 21841 0.840840841 0.021021021 1.138138
## 21842 0.841841842 0.021021021 1.137137
## 21843 0.842842843 0.021021021 1.136136
## 21844 0.843843844 0.021021021 1.135135
## 21845 0.844844845 0.021021021 1.134134
## 21846 0.845845846 0.021021021 1.133133
## 21847 0.846846847 0.021021021 1.132132
## 21848 0.847847848 0.021021021 1.131131
## 21849 0.848848849 0.021021021 1.130130
## 21850 0.849849850 0.021021021 1.129129
## 21851 0.850850851 0.021021021 1.128128
## 21852 0.851851852 0.021021021 1.127127
## 21853 0.852852853 0.021021021 1.126126
## 21854 0.853853854 0.021021021 1.125125
## 21855 0.854854855 0.021021021 1.124124
## 21856 0.855855856 0.021021021 1.123123
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 587

```
## 21857 0.856856857 0.021021021 1.122122
## 21858 0.857857858 0.021021021 1.121121
## 21859 0.858858859 0.021021021 1.120120
## 21860 0.859859860 0.021021021 1.119119
## 21861 0.860860861 0.021021021 1.118118
## 21862 0.861861862 0.021021021 1.117117
## 21863 0.862862863 0.021021021 1.116116
## 21864 0.863863864 0.021021021 1.115115
## 21865 0.864864865 0.021021021 1.114114
## 21866 0.865865866 0.021021021 1.113113
## 21867 0.866866867 0.021021021 1.112112
## 21868 0.867867868 0.021021021 1.111111
## 21869 0.868868869 0.021021021 1.110110
## 21870 0.869869870 0.021021021 1.109109
## 21871 0.870870871 0.021021021 1.108108
## 21872 0.871871872 0.021021021 1.107107
## 21873 0.872872873 0.021021021 1.106106
## 21874 0.873873874 0.021021021 1.105105
## 21875 0.874874875 0.021021021 1.104104
## 21876 0.875875876 0.021021021 1.103103
## 21877 0.876876877 0.021021021 1.102102
## 21878 0.877877878 0.021021021 1.101101
## 21879 0.878878879 0.021021021 1.100100
## 21880 0.879879880 0.021021021 1.099099
## 21881 0.880880881 0.021021021 1.098098
## 21882 0.881881882 0.021021021 1.097097
## 21883 0.882882883 0.021021021 1.096096
## 21884 0.883883884 0.021021021 1.095095
## 21885 0.884884885 0.021021021 1.094094
## 21886 0.885885886 0.021021021 1.093093
## 21887 0.886886887 0.021021021 1.092092
## 21888 0.887887888 0.021021021 1.091091
## 21889 0.888888889 0.021021021 1.090090
## 21890 0.889889890 0.021021021 1.089089
## 21891 0.890890891 0.021021021 1.088088
## 21892 0.891891892 0.021021021 1.087087
## 21893 0.892892893 0.021021021 1.086086
## 21894 0.893893894 0.021021021 1.085085
## 21895 0.894894895 0.021021021 1.084084
## 21896 0.895895896 0.021021021 1.083083
## 21897 0.896896897 0.021021021 1.082082
## 21898 0.897897898 0.021021021 1.081081
## 21899 0.898898899 0.021021021 1.080080
## 21900 0.899899900 0.021021021 1.079079
## 21901 0.900900901 0.021021021 1.078078
## 21902 0.901901902 0.021021021 1.077077
```

```
## 21903 0.902902903 0.021021021 1.076076
## 21904 0.903903904 0.021021021 1.075075
## 21905 0.904904905 0.021021021 1.074074
## 21906 0.905905906 0.021021021 1.073073
## 21907 0.906906907 0.021021021 1.072072
## 21908 0.907907908 0.021021021 1.071071
## 21909 0.908908909 0.021021021 1.070070
## 21910 0.909909910 0.021021021 1.069069
## 21911 0.910910911 0.021021021 1.068068
## 21912 0.911911912 0.021021021 1.067067
## 21913 0.912912913 0.021021021 1.066066
## 21914 0.913913914 0.021021021 1.065065
## 21915 0.914914915 0.021021021 1.064064
## 21916 0.915915916 0.021021021 1.063063
## 21917 0.916916917 0.021021021 1.062062
## 21918 0.917917918 0.021021021 1.061061
## 21919 0.918918919 0.021021021 1.060060
## 21920 0.919919920 0.021021021 1.059059
## 21921 0.920920921 0.021021021 1.058058
## 21922 0.921921922 0.021021021 1.057057
## 21923 0.922922923 0.021021021 1.056056
## 21924 0.923923924 0.021021021 1.055055
## 21925 0.924924925 0.021021021 1.054054
## 21926 0.925925926 0.021021021 1.053053
## 21927 0.926926927 0.021021021 1.052052
## 21928 0.927927928 0.021021021 1.051051
## 21929 0.928928929 0.021021021 1.050050
## 21930 0.929929930 0.021021021 1.049049
## 21931 0.930930931 0.021021021 1.048048
## 21932 0.931931932 0.021021021 1.047047
## 21933 0.932932933 0.021021021 1.046046
## 21934 0.933933934 0.021021021 1.045045
## 21935 0.934934935 0.021021021 1.044044
## 21936 0.935935936 0.021021021 1.043043
## 21937 0.936936937 0.021021021 1.042042
## 21938 0.937937938 0.021021021 1.041041
## 21939 0.938938939 0.021021021 1.040040
## 21940 0.939939940 0.021021021 1.039039
## 21941 0.940940941 0.021021021 1.038038
## 21942 0.941941942 0.021021021 1.037037
## 21943 0.942942943 0.021021021 1.036036
## 21944 0.943943944 0.021021021 1.035035
## 21945 0.944944945 0.021021021 1.034034
## 21946 0.945945946 0.021021021 1.033033
## 21947 0.946946947 0.021021021 1.032032
## 21948 0.947947948 0.021021021 1.031031
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 589

```
## 21949 0.948948949 0.021021021 1.030030
## 21950 0.949949950 0.021021021 1.029029
## 21951 0.950950951 0.021021021 1.028028
## 21952 0.951951952 0.021021021 1.027027
## 21953 0.952952953 0.021021021 1.026026
## 21954 0.953953954 0.021021021 1.025025
## 21955 0.954954955 0.021021021 1.024024
## 21956 0.955955956 0.021021021 1.023023
## 21957 0.956956957 0.021021021 1.022022
## 21958 0.957957958 0.021021021 1.021021
## 21959 0.958958959 0.021021021 1.020020
## 21960 0.959959960 0.021021021 1.019019
## 21961 0.960960961 0.021021021 1.018018
## 21962 0.961961962 0.021021021 1.017017
## 21963 0.962962963 0.021021021 1.016016
## 21964 0.963963964 0.021021021 1.015015
## 21965 0.964964965 0.021021021 1.014014
## 21966 0.965965966 0.021021021 1.013013
## 21967 0.966966967 0.021021021 1.012012
## 21968 0.967967968 0.021021021 1.011011
## 21969 0.968968969 0.021021021 1.010010
## 21970 0.969969970 0.021021021 1.009009
## 21971 0.970970971 0.021021021 1.008008
## 21972 0.971971972 0.021021021 1.007007
## 21973 0.972972973 0.021021021 1.006006
## 21974 0.973973974 0.021021021 1.005005
## 21975 0.974974975 0.021021021 1.004004
## 21976 0.975975976 0.021021021 1.003003
## 21977 0.976976977 0.021021021 1.002002
## 21978 0.977977978 0.021021021 1.001001
## 21979 0.978978979 0.021021021 1.000000
## 21980 0.979979980 0.021021021 0.998999
## 21981 0.980980981 0.021021021 0.997998
## 21982 0.981981982 0.021021021 0.996997
## 21983 0.982982983 0.021021021 0.995996
## 21984 0.983983984 0.021021021 0.994995
## 21985 0.984984985 0.021021021 0.993994
## 21986 0.985985986 0.021021021 0.992993
## 21987 0.986986987 0.021021021 0.991992
## 21988 0.987987988 0.021021021 0.990991
## 21989 0.988988989 0.021021021 0.989990
## 21990 0.989989990 0.021021021 0.988989
## 21991 0.990990991 0.021021021 0.987988
## 21992 0.991991992 0.021021021 0.986987
## 21993 0.992992993 0.021021021 0.985986
## 21994 0.993993994 0.021021021 0.984985
```

```
## 21995 0.994994995 0.021021021 0.983984
## 21996 0.995995996 0.021021021 0.982983
## 21997 0.996996997 0.021021021 0.981982
## 21998 0.997997998 0.021021021 0.980981
## 21999 0.998998999 0.021021021 0.979980
## 22000 1.000000000 0.021021021 0.978979
## 22001 0.000000000 0.022022022 1.977978
## 22002 0.001001001 0.022022022 1.976977
## 22003 0.002002002 0.022022022 1.975976
## 22004 0.003003003 0.022022022 1.974975
## 22005 0.004004004 0.022022022 1.973974
## 22006 0.005005005 0.022022022 1.972973
## 22007 0.006006006 0.022022022 1.971972
## 22008 0.007007007 0.022022022 1.970971
## 22009 0.008008008 0.022022022 1.969970
## 22010 0.009009009 0.022022022 1.968969
## 22011 0.010010010 0.022022022 1.967968
## 22012 0.011011011 0.022022022 1.966967
## 22013 0.012012012 0.022022022 1.965966
## 22014 0.013013013 0.022022022 1.964965
## 22015 0.014014014 0.022022022 1.963964
## 22016 0.015015015 0.022022022 1.962963
## 22017 0.016016016 0.022022022 1.961962
## 22018 0.017017017 0.022022022 1.960961
## 22019 0.018018018 0.022022022 1.959960
## 22020 0.019019019 0.022022022 1.958959
## 22021 0.020020020 0.022022022 1.957958
## 22022 0.021021021 0.022022022 1.956957
## 22023 0.022022022 0.022022022 1.955956
## 22024 0.023023023 0.022022022 1.954955
## 22025 0.024024024 0.022022022 1.953954
## 22026 0.025025025 0.022022022 1.952953
## 22027 0.026026026 0.022022022 1.951952
## 22028 0.027027027 0.022022022 1.950951
## 22029 0.028028028 0.022022022 1.949950
## 22030 0.029029029 0.022022022 1.948949
## 22031 0.030030030 0.022022022 1.947948
## 22032 0.031031031 0.022022022 1.946947
## 22033 0.032032032 0.022022022 1.945946
## 22034 0.033033033 0.022022022 1.944945
## 22035 0.034034034 0.022022022 1.943944
## 22036 0.035035035 0.022022022 1.942943
## 22037 0.036036036 0.022022022 1.941942
## 22038 0.037037037 0.022022022 1.940941
## 22039 0.038038038 0.022022022 1.939940
## 22040 0.039039039 0.022022022 1.938939
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 591

```
## 22041 0.040040040 0.022022022 1.937938
## 22042 0.041041041 0.022022022 1.936937
## 22043 0.042042042 0.022022022 1.935936
## 22044 0.043043043 0.022022022 1.934935
## 22045 0.044044044 0.022022022 1.933934
## 22046 0.045045045 0.022022022 1.932933
## 22047 0.046046046 0.022022022 1.931932
## 22048 0.047047047 0.022022022 1.930931
## 22049 0.048048048 0.022022022 1.929930
## 22050 0.049049049 0.022022022 1.928929
## 22051 0.050050050 0.022022022 1.927928
## 22052 0.051051051 0.022022022 1.926927
## 22053 0.052052052 0.022022022 1.925926
## 22054 0.053053053 0.022022022 1.924925
## 22055 0.054054054 0.022022022 1.923924
## 22056 0.055055055 0.022022022 1.922923
## 22057 0.056056056 0.022022022 1.921922
## 22058 0.057057057 0.022022022 1.920921
## 22059 0.058058058 0.022022022 1.919920
## 22060 0.059059059 0.022022022 1.918919
## 22061 0.060060060 0.022022022 1.917918
## 22062 0.061061061 0.022022022 1.916917
## 22063 0.062062062 0.022022022 1.915916
## 22064 0.063063063 0.022022022 1.914915
## 22065 0.064064064 0.022022022 1.913914
## 22066 0.065065065 0.022022022 1.912913
## 22067 0.066066066 0.022022022 1.911912
## 22068 0.067067067 0.022022022 1.910911
## 22069 0.068068068 0.022022022 1.909910
## 22070 0.069069069 0.022022022 1.908909
## 22071 0.070070070 0.022022022 1.907908
## 22072 0.071071071 0.022022022 1.906907
## 22073 0.072072072 0.022022022 1.905906
## 22074 0.073073073 0.022022022 1.904905
## 22075 0.074074074 0.022022022 1.903904
## 22076 0.075075075 0.022022022 1.902903
## 22077 0.076076076 0.022022022 1.901902
## 22078 0.077077077 0.022022022 1.900901
## 22079 0.078078078 0.022022022 1.899900
## 22080 0.079079079 0.022022022 1.898899
## 22081 0.080080080 0.022022022 1.897898
## 22082 0.081081081 0.022022022 1.896897
## 22083 0.082082082 0.022022022 1.895896
## 22084 0.083083083 0.022022022 1.894895
## 22085 0.084084084 0.022022022 1.893894
## 22086 0.085085085 0.022022022 1.892893
```

```
## 22087 0.086086086 0.022022022 1.891892
## 22088 0.087087087 0.022022022 1.890891
## 22089 0.088088088 0.022022022 1.889890
## 22090 0.089089089 0.022022022 1.888889
## 22091 0.090090090 0.022022022 1.887888
## 22092 0.091091091 0.022022022 1.886887
## 22093 0.092092092 0.022022022 1.885886
## 22094 0.093093093 0.022022022 1.884885
## 22095 0.094094094 0.022022022 1.883884
## 22096 0.095095095 0.022022022 1.882883
## 22097 0.096096096 0.022022022 1.881882
## 22098 0.097097097 0.022022022 1.880881
## 22099 0.098098098 0.022022022 1.879880
## 22100 0.099099099 0.022022022 1.878879
## 22101 0.100100100 0.022022022 1.877878
## 22102 0.101101101 0.022022022 1.876877
## 22103 0.102102102 0.022022022 1.875876
## 22104 0.103103103 0.022022022 1.874875
## 22105 0.104104104 0.022022022 1.873874
## 22106 0.105105105 0.022022022 1.872873
## 22107 0.106106106 0.022022022 1.871872
## 22108 0.107107107 0.022022022 1.870871
## 22109 0.108108108 0.022022022 1.869870
## 22110 0.109109109 0.022022022 1.868869
## 22111 0.110110110 0.022022022 1.867868
## 22112 0.111111111 0.022022022 1.866867
## 22113 0.112112112 0.022022022 1.865866
## 22114 0.113113113 0.022022022 1.864865
## 22115 0.114114114 0.022022022 1.863864
## 22116 0.115115115 0.022022022 1.862863
## 22117 0.116116116 0.022022022 1.861862
## 22118 0.117117117 0.022022022 1.860861
## 22119 0.118118118 0.022022022 1.859860
## 22120 0.119119119 0.022022022 1.858859
## 22121 0.120120120 0.022022022 1.857858
## 22122 0.121121121 0.022022022 1.856857
## 22123 0.122122122 0.022022022 1.855856
## 22124 0.123123123 0.022022022 1.854855
## 22125 0.124124124 0.022022022 1.853854
## 22126 0.125125125 0.022022022 1.852853
## 22127 0.126126126 0.022022022 1.851852
## 22128 0.127127127 0.022022022 1.850851
## 22129 0.128128128 0.022022022 1.849850
## 22130 0.129129129 0.022022022 1.848849
## 22131 0.130130130 0.022022022 1.847848
## 22132 0.131131131 0.022022022 1.846847
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 593

```
## 22133 0.132132132 0.022022022 1.845846
## 22134 0.133133133 0.022022022 1.844845
## 22135 0.134134134 0.022022022 1.843844
## 22136 0.135135135 0.022022022 1.842843
## 22137 0.136136136 0.022022022 1.841842
## 22138 0.137137137 0.022022022 1.840841
## 22139 0.138138138 0.022022022 1.839840
## 22140 0.139139139 0.022022022 1.838839
## 22141 0.140140140 0.022022022 1.837838
## 22142 0.141141141 0.022022022 1.836837
## 22143 0.142142142 0.022022022 1.835836
## 22144 0.143143143 0.022022022 1.834835
## 22145 0.144144144 0.022022022 1.833834
## 22146 0.145145145 0.022022022 1.832833
## 22147 0.146146146 0.022022022 1.831832
## 22148 0.147147147 0.022022022 1.830831
## 22149 0.148148148 0.022022022 1.829830
## 22150 0.149149149 0.022022022 1.828829
## 22151 0.150150150 0.022022022 1.827828
## 22152 0.151151151 0.022022022 1.826827
## 22153 0.152152152 0.022022022 1.825826
## 22154 0.153153153 0.022022022 1.824825
## 22155 0.154154154 0.022022022 1.823824
## 22156 0.155155155 0.022022022 1.822823
## 22157 0.156156156 0.022022022 1.821822
## 22158 0.157157157 0.022022022 1.820821
## 22159 0.158158158 0.022022022 1.819820
## 22160 0.159159159 0.022022022 1.818819
## 22161 0.160160160 0.022022022 1.817818
## 22162 0.161161161 0.022022022 1.816817
## 22163 0.162162162 0.022022022 1.815816
## 22164 0.163163163 0.022022022 1.814815
## 22165 0.164164164 0.022022022 1.813814
## 22166 0.165165165 0.022022022 1.812813
## 22167 0.166166166 0.022022022 1.811812
## 22168 0.167167167 0.022022022 1.810811
## 22169 0.168168168 0.022022022 1.809810
## 22170 0.169169169 0.022022022 1.808809
## 22171 0.170170170 0.022022022 1.807808
## 22172 0.171171171 0.022022022 1.806807
## 22173 0.172172172 0.022022022 1.805806
## 22174 0.173173173 0.022022022 1.804805
## 22175 0.174174174 0.022022022 1.803804
## 22176 0.175175175 0.022022022 1.802803
## 22177 0.176176176 0.022022022 1.801802
## 22178 0.177177177 0.022022022 1.800801
```

```
## 22179 0.178178178 0.022022022 1.799800
## 22180 0.179179179 0.022022022 1.798799
## 22181 0.180180180 0.022022022 1.797798
## 22182 0.181181181 0.022022022 1.796797
## 22183 0.182182182 0.022022022 1.795796
## 22184 0.183183183 0.022022022 1.794795
## 22185 0.184184184 0.022022022 1.793794
## 22186 0.185185185 0.022022022 1.792793
## 22187 0.186186186 0.022022022 1.791792
## 22188 0.187187187 0.022022022 1.790791
## 22189 0.188188188 0.022022022 1.789790
## 22190 0.189189189 0.022022022 1.788789
## 22191 0.190190190 0.022022022 1.787788
## 22192 0.191191191 0.022022022 1.786787
## 22193 0.192192192 0.022022022 1.785786
## 22194 0.193193193 0.022022022 1.784785
## 22195 0.194194194 0.022022022 1.783784
## 22196 0.195195195 0.022022022 1.782783
## 22197 0.196196196 0.022022022 1.781782
## 22198 0.197197197 0.022022022 1.780781
## 22199 0.198198198 0.022022022 1.779780
## 22200 0.199199199 0.022022022 1.778779
## 22201 0.200200200 0.022022022 1.777778
## 22202 0.201201201 0.022022022 1.776777
## 22203 0.202202202 0.022022022 1.775776
## 22204 0.203203203 0.022022022 1.774775
## 22205 0.204204204 0.022022022 1.773774
## 22206 0.205205205 0.022022022 1.772773
## 22207 0.206206206 0.022022022 1.771772
## 22208 0.207207207 0.022022022 1.770771
## 22209 0.208208208 0.022022022 1.769770
## 22210 0.209209209 0.022022022 1.768769
## 22211 0.210210210 0.022022022 1.767768
## 22212 0.211211211 0.022022022 1.766767
## 22213 0.212212212 0.022022022 1.765766
## 22214 0.213213213 0.022022022 1.764765
## 22215 0.214214214 0.022022022 1.763764
## 22216 0.215215215 0.022022022 1.762763
## 22217 0.216216216 0.022022022 1.761762
## 22218 0.217217217 0.022022022 1.760761
## 22219 0.218218218 0.022022022 1.759760
## 22220 0.219219219 0.022022022 1.758759
## 22221 0.220220220 0.022022022 1.757758
## 22222 0.221221221 0.022022022 1.756757
## 22223 0.222222222 0.022022022 1.755756
## 22224 0.223223223 0.022022022 1.754755
```

```

## 22225 0.224224224 0.022022022 1.753754
## 22226 0.225225225 0.022022022 1.752753
## 22227 0.226226226 0.022022022 1.751752
## 22228 0.227227227 0.022022022 1.750751
## 22229 0.228228228 0.022022022 1.749750
## 22230 0.229229229 0.022022022 1.748749
## 22231 0.230230230 0.022022022 1.747748
## 22232 0.231231231 0.022022022 1.746747
## 22233 0.232232232 0.022022022 1.745746
## 22234 0.233233233 0.022022022 1.744745
## 22235 0.234234234 0.022022022 1.743744
## 22236 0.235235235 0.022022022 1.742743
## 22237 0.236236236 0.022022022 1.741742
## 22238 0.237237237 0.022022022 1.740741
## 22239 0.238238238 0.022022022 1.739740
## 22240 0.239239239 0.022022022 1.738739
## 22241 0.240240240 0.022022022 1.737738
## 22242 0.241241241 0.022022022 1.736737
## 22243 0.242242242 0.022022022 1.735736
## 22244 0.243243243 0.022022022 1.734735
## 22245 0.244244244 0.022022022 1.733734
## 22246 0.245245245 0.022022022 1.732733
## 22247 0.246246246 0.022022022 1.731732
## 22248 0.247247247 0.022022022 1.730731
## 22249 0.248248248 0.022022022 1.729730
## 22250 0.249249249 0.022022022 1.728729
## 22251 0.250250250 0.022022022 1.727728
## 22252 0.251251251 0.022022022 1.726727
## 22253 0.252252252 0.022022022 1.725726
## 22254 0.253253253 0.022022022 1.724725
## 22255 0.254254254 0.022022022 1.723724
## 22256 0.255255255 0.022022022 1.722723
## 22257 0.256256256 0.022022022 1.721722
## 22258 0.257257257 0.022022022 1.720721
## 22259 0.258258258 0.022022022 1.719720
## 22260 0.259259259 0.022022022 1.718719
## 22261 0.260260260 0.022022022 1.717718
## 22262 0.261261261 0.022022022 1.716717
## 22263 0.262262262 0.022022022 1.715716
## 22264 0.263263263 0.022022022 1.714715
## 22265 0.264264264 0.022022022 1.713714
## 22266 0.265265265 0.022022022 1.712713
## 22267 0.266266266 0.022022022 1.711712
## 22268 0.267267267 0.022022022 1.710711
## 22269 0.268268268 0.022022022 1.709710
## 22270 0.269269269 0.022022022 1.708709

```

```
## 22271 0.270270270 0.022022022 1.707708
## 22272 0.271271271 0.022022022 1.706707
## 22273 0.272272272 0.022022022 1.705706
## 22274 0.273273273 0.022022022 1.704705
## 22275 0.274274274 0.022022022 1.703704
## 22276 0.275275275 0.022022022 1.702703
## 22277 0.276276276 0.022022022 1.701702
## 22278 0.277277277 0.022022022 1.700701
## 22279 0.278278278 0.022022022 1.699700
## 22280 0.279279279 0.022022022 1.698699
## 22281 0.280280280 0.022022022 1.697698
## 22282 0.281281281 0.022022022 1.696697
## 22283 0.282282282 0.022022022 1.695696
## 22284 0.283283283 0.022022022 1.694695
## 22285 0.284284284 0.022022022 1.693694
## 22286 0.285285285 0.022022022 1.692693
## 22287 0.286286286 0.022022022 1.691692
## 22288 0.287287287 0.022022022 1.690691
## 22289 0.288288288 0.022022022 1.689690
## 22290 0.289289289 0.022022022 1.688689
## 22291 0.290290290 0.022022022 1.687688
## 22292 0.291291291 0.022022022 1.686687
## 22293 0.292292292 0.022022022 1.685686
## 22294 0.293293293 0.022022022 1.684685
## 22295 0.294294294 0.022022022 1.683684
## 22296 0.295295295 0.022022022 1.682683
## 22297 0.296296296 0.022022022 1.681682
## 22298 0.297297297 0.022022022 1.680681
## 22299 0.298298298 0.022022022 1.679680
## 22300 0.299299299 0.022022022 1.678679
## 22301 0.300300300 0.022022022 1.677678
## 22302 0.301301301 0.022022022 1.676677
## 22303 0.302302302 0.022022022 1.675676
## 22304 0.303303303 0.022022022 1.674675
## 22305 0.304304304 0.022022022 1.673674
## 22306 0.305305305 0.022022022 1.672673
## 22307 0.306306306 0.022022022 1.671672
## 22308 0.307307307 0.022022022 1.670671
## 22309 0.308308308 0.022022022 1.669670
## 22310 0.309309309 0.022022022 1.668669
## 22311 0.310310310 0.022022022 1.667668
## 22312 0.311311311 0.022022022 1.666667
## 22313 0.312312312 0.022022022 1.665666
## 22314 0.313313313 0.022022022 1.664665
## 22315 0.314314314 0.022022022 1.663664
## 22316 0.315315315 0.022022022 1.662663
```

```

## 22317 0.316316316 0.022022022 1.661662
## 22318 0.317317317 0.022022022 1.660661
## 22319 0.318318318 0.022022022 1.659660
## 22320 0.319319319 0.022022022 1.658659
## 22321 0.320320320 0.022022022 1.657658
## 22322 0.321321321 0.022022022 1.656657
## 22323 0.322322322 0.022022022 1.655656
## 22324 0.323323323 0.022022022 1.654655
## 22325 0.324324324 0.022022022 1.653654
## 22326 0.325325325 0.022022022 1.652653
## 22327 0.326326326 0.022022022 1.651652
## 22328 0.327327327 0.022022022 1.650651
## 22329 0.328328328 0.022022022 1.649650
## 22330 0.329329329 0.022022022 1.648649
## 22331 0.330330330 0.022022022 1.647648
## 22332 0.331331331 0.022022022 1.646647
## 22333 0.332332332 0.022022022 1.645646
## 22334 0.333333333 0.022022022 1.644645
## 22335 0.334334334 0.022022022 1.643644
## 22336 0.335335335 0.022022022 1.642643
## 22337 0.336336336 0.022022022 1.641642
## 22338 0.337337337 0.022022022 1.640641
## 22339 0.338338338 0.022022022 1.639640
## 22340 0.339339339 0.022022022 1.638639
## 22341 0.340340340 0.022022022 1.637638
## 22342 0.341341341 0.022022022 1.636637
## 22343 0.342342342 0.022022022 1.635636
## 22344 0.343343343 0.022022022 1.634635
## 22345 0.344344344 0.022022022 1.633634
## 22346 0.345345345 0.022022022 1.632633
## 22347 0.346346346 0.022022022 1.631632
## 22348 0.347347347 0.022022022 1.630631
## 22349 0.348348348 0.022022022 1.629630
## 22350 0.349349349 0.022022022 1.628629
## 22351 0.350350350 0.022022022 1.627628
## 22352 0.351351351 0.022022022 1.626627
## 22353 0.352352352 0.022022022 1.625626
## 22354 0.353353353 0.022022022 1.624625
## 22355 0.354354354 0.022022022 1.623624
## 22356 0.355355355 0.022022022 1.622623
## 22357 0.356356356 0.022022022 1.621622
## 22358 0.357357357 0.022022022 1.620621
## 22359 0.358358358 0.022022022 1.619620
## 22360 0.359359359 0.022022022 1.618619
## 22361 0.360360360 0.022022022 1.617618
## 22362 0.361361361 0.022022022 1.616617

```

```
## 22363 0.362362362 0.022022022 1.615616
## 22364 0.363363363 0.022022022 1.614615
## 22365 0.364364364 0.022022022 1.613614
## 22366 0.365365365 0.022022022 1.612613
## 22367 0.366366366 0.022022022 1.611612
## 22368 0.367367367 0.022022022 1.610611
## 22369 0.368368368 0.022022022 1.609610
## 22370 0.369369369 0.022022022 1.608609
## 22371 0.370370370 0.022022022 1.607608
## 22372 0.371371371 0.022022022 1.606607
## 22373 0.372372372 0.022022022 1.605606
## 22374 0.373373373 0.022022022 1.604605
## 22375 0.374374374 0.022022022 1.603604
## 22376 0.375375375 0.022022022 1.602603
## 22377 0.376376376 0.022022022 1.601602
## 22378 0.377377377 0.022022022 1.600601
## 22379 0.378378378 0.022022022 1.599600
## 22380 0.379379379 0.022022022 1.598599
## 22381 0.380380380 0.022022022 1.597598
## 22382 0.381381381 0.022022022 1.596597
## 22383 0.382382382 0.022022022 1.595596
## 22384 0.383383383 0.022022022 1.594595
## 22385 0.384384384 0.022022022 1.593594
## 22386 0.385385385 0.022022022 1.592593
## 22387 0.386386386 0.022022022 1.591592
## 22388 0.387387387 0.022022022 1.590591
## 22389 0.388388388 0.022022022 1.589590
## 22390 0.389389389 0.022022022 1.588589
## 22391 0.390390390 0.022022022 1.587588
## 22392 0.391391391 0.022022022 1.586587
## 22393 0.392392392 0.022022022 1.585586
## 22394 0.393393393 0.022022022 1.584585
## 22395 0.394394394 0.022022022 1.583584
## 22396 0.395395395 0.022022022 1.582583
## 22397 0.396396396 0.022022022 1.581582
## 22398 0.397397397 0.022022022 1.580581
## 22399 0.398398398 0.022022022 1.579580
## 22400 0.399399399 0.022022022 1.578579
## 22401 0.400400400 0.022022022 1.577578
## 22402 0.401401401 0.022022022 1.576577
## 22403 0.402402402 0.022022022 1.575576
## 22404 0.403403403 0.022022022 1.574575
## 22405 0.404404404 0.022022022 1.573574
## 22406 0.405405405 0.022022022 1.572573
## 22407 0.406406406 0.022022022 1.571572
## 22408 0.407407407 0.022022022 1.570571
```

```

## 22409 0.408408408 0.022022022 1.569570
## 22410 0.409409409 0.022022022 1.568569
## 22411 0.410410410 0.022022022 1.567568
## 22412 0.411411411 0.022022022 1.566567
## 22413 0.412412412 0.022022022 1.565566
## 22414 0.413413413 0.022022022 1.564565
## 22415 0.414414414 0.022022022 1.563564
## 22416 0.415415415 0.022022022 1.562563
## 22417 0.416416416 0.022022022 1.561562
## 22418 0.417417417 0.022022022 1.560561
## 22419 0.418418418 0.022022022 1.559560
## 22420 0.419419419 0.022022022 1.558559
## 22421 0.420420420 0.022022022 1.557558
## 22422 0.421421421 0.022022022 1.556557
## 22423 0.422422422 0.022022022 1.555556
## 22424 0.423423423 0.022022022 1.554555
## 22425 0.424424424 0.022022022 1.553554
## 22426 0.425425425 0.022022022 1.552553
## 22427 0.426426426 0.022022022 1.551552
## 22428 0.427427427 0.022022022 1.550551
## 22429 0.428428428 0.022022022 1.549550
## 22430 0.429429429 0.022022022 1.548549
## 22431 0.430430430 0.022022022 1.547548
## 22432 0.431431431 0.022022022 1.546547
## 22433 0.432432432 0.022022022 1.545546
## 22434 0.433433433 0.022022022 1.544545
## 22435 0.434434434 0.022022022 1.543544
## 22436 0.435435435 0.022022022 1.542543
## 22437 0.436436436 0.022022022 1.541542
## 22438 0.437437437 0.022022022 1.540541
## 22439 0.438438438 0.022022022 1.539540
## 22440 0.439439439 0.022022022 1.538539
## 22441 0.440440440 0.022022022 1.537538
## 22442 0.441441441 0.022022022 1.536537
## 22443 0.442442442 0.022022022 1.535536
## 22444 0.443443443 0.022022022 1.534535
## 22445 0.444444444 0.022022022 1.533534
## 22446 0.445445445 0.022022022 1.532533
## 22447 0.446446446 0.022022022 1.531532
## 22448 0.447447447 0.022022022 1.530531
## 22449 0.448448448 0.022022022 1.529530
## 22450 0.449449449 0.022022022 1.528529
## 22451 0.450450450 0.022022022 1.527528
## 22452 0.451451451 0.022022022 1.526527
## 22453 0.452452452 0.022022022 1.525526
## 22454 0.453453453 0.022022022 1.524525

```

```
## 22455 0.454454454 0.022022022 1.523524
## 22456 0.455455455 0.022022022 1.522523
## 22457 0.456456456 0.022022022 1.521522
## 22458 0.457457457 0.022022022 1.520521
## 22459 0.458458458 0.022022022 1.519520
## 22460 0.459459459 0.022022022 1.518519
## 22461 0.460460460 0.022022022 1.517518
## 22462 0.461461461 0.022022022 1.516517
## 22463 0.462462462 0.022022022 1.515516
## 22464 0.463463463 0.022022022 1.514515
## 22465 0.464464464 0.022022022 1.513514
## 22466 0.465465465 0.022022022 1.512513
## 22467 0.466466466 0.022022022 1.511512
## 22468 0.467467467 0.022022022 1.510511
## 22469 0.468468468 0.022022022 1.509510
## 22470 0.469469469 0.022022022 1.508509
## 22471 0.470470470 0.022022022 1.507508
## 22472 0.471471471 0.022022022 1.506507
## 22473 0.472472472 0.022022022 1.505506
## 22474 0.473473473 0.022022022 1.504505
## 22475 0.474474474 0.022022022 1.503504
## 22476 0.475475475 0.022022022 1.502503
## 22477 0.476476476 0.022022022 1.501502
## 22478 0.477477477 0.022022022 1.500501
## 22479 0.478478478 0.022022022 1.499499
## 22480 0.479479479 0.022022022 1.498498
## 22481 0.480480480 0.022022022 1.497497
## 22482 0.481481481 0.022022022 1.496496
## 22483 0.482482482 0.022022022 1.495495
## 22484 0.483483483 0.022022022 1.494494
## 22485 0.484484484 0.022022022 1.493493
## 22486 0.485485485 0.022022022 1.492492
## 22487 0.486486486 0.022022022 1.491491
## 22488 0.487487487 0.022022022 1.490490
## 22489 0.488488488 0.022022022 1.489489
## 22490 0.489489489 0.022022022 1.488488
## 22491 0.490490490 0.022022022 1.487487
## 22492 0.491491491 0.022022022 1.486486
## 22493 0.492492492 0.022022022 1.485485
## 22494 0.493493493 0.022022022 1.484484
## 22495 0.494494494 0.022022022 1.483483
## 22496 0.495495495 0.022022022 1.482482
## 22497 0.496496496 0.022022022 1.481481
## 22498 0.497497497 0.022022022 1.480480
## 22499 0.498498498 0.022022022 1.479479
## 22500 0.499499499 0.022022022 1.478478
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR601

```
## 22501 0.500500501 0.022022022 1.477477
## 22502 0.501501502 0.022022022 1.476476
## 22503 0.502502503 0.022022022 1.475475
## 22504 0.503503504 0.022022022 1.474474
## 22505 0.504504505 0.022022022 1.473473
## 22506 0.505505506 0.022022022 1.472472
## 22507 0.506506507 0.022022022 1.471471
## 22508 0.507507508 0.022022022 1.470470
## 22509 0.508508509 0.022022022 1.469469
## 22510 0.509509510 0.022022022 1.468468
## 22511 0.510510511 0.022022022 1.467467
## 22512 0.511511512 0.022022022 1.466466
## 22513 0.512512513 0.022022022 1.465465
## 22514 0.513513514 0.022022022 1.464464
## 22515 0.514514515 0.022022022 1.463463
## 22516 0.515515516 0.022022022 1.462462
## 22517 0.516516517 0.022022022 1.461461
## 22518 0.517517518 0.022022022 1.460460
## 22519 0.518518519 0.022022022 1.459459
## 22520 0.519519520 0.022022022 1.458458
## 22521 0.520520521 0.022022022 1.457457
## 22522 0.521521522 0.022022022 1.456456
## 22523 0.522522523 0.022022022 1.455455
## 22524 0.523523524 0.022022022 1.454454
## 22525 0.524524525 0.022022022 1.453453
## 22526 0.525525526 0.022022022 1.452452
## 22527 0.526526527 0.022022022 1.451451
## 22528 0.527527528 0.022022022 1.450450
## 22529 0.528528529 0.022022022 1.449449
## 22530 0.529529530 0.022022022 1.448448
## 22531 0.530530531 0.022022022 1.447447
## 22532 0.531531532 0.022022022 1.446446
## 22533 0.532532533 0.022022022 1.445445
## 22534 0.533533534 0.022022022 1.444444
## 22535 0.534534535 0.022022022 1.443443
## 22536 0.535535536 0.022022022 1.442442
## 22537 0.536536537 0.022022022 1.441441
## 22538 0.537537538 0.022022022 1.440440
## 22539 0.538538539 0.022022022 1.439439
## 22540 0.539539540 0.022022022 1.438438
## 22541 0.540540541 0.022022022 1.437437
## 22542 0.541541542 0.022022022 1.436436
## 22543 0.542542543 0.022022022 1.435435
## 22544 0.543543544 0.022022022 1.434434
## 22545 0.544544545 0.022022022 1.433433
## 22546 0.545545546 0.022022022 1.432432
```

```
## 22547 0.546546547 0.022022022 1.431431
## 22548 0.547547548 0.022022022 1.430430
## 22549 0.548548549 0.022022022 1.429429
## 22550 0.549549550 0.022022022 1.428428
## 22551 0.550550551 0.022022022 1.427427
## 22552 0.551551552 0.022022022 1.426426
## 22553 0.552552553 0.022022022 1.425425
## 22554 0.553553554 0.022022022 1.424424
## 22555 0.554554555 0.022022022 1.423423
## 22556 0.555555556 0.022022022 1.422422
## 22557 0.556556557 0.022022022 1.421421
## 22558 0.557557558 0.022022022 1.420420
## 22559 0.558558559 0.022022022 1.419419
## 22560 0.559559560 0.022022022 1.418418
## 22561 0.560560561 0.022022022 1.417417
## 22562 0.561561562 0.022022022 1.416416
## 22563 0.562562563 0.022022022 1.415415
## 22564 0.563563564 0.022022022 1.414414
## 22565 0.564564565 0.022022022 1.413413
## 22566 0.565565566 0.022022022 1.412412
## 22567 0.566566567 0.022022022 1.411411
## 22568 0.567567568 0.022022022 1.410410
## 22569 0.568568569 0.022022022 1.409409
## 22570 0.569569570 0.022022022 1.408408
## 22571 0.570570571 0.022022022 1.407407
## 22572 0.571571572 0.022022022 1.406406
## 22573 0.572572573 0.022022022 1.405405
## 22574 0.573573574 0.022022022 1.404404
## 22575 0.574574575 0.022022022 1.403403
## 22576 0.575575576 0.022022022 1.402402
## 22577 0.576576577 0.022022022 1.401401
## 22578 0.577577578 0.022022022 1.400400
## 22579 0.578578579 0.022022022 1.399399
## 22580 0.579579580 0.022022022 1.398398
## 22581 0.580580581 0.022022022 1.397397
## 22582 0.581581582 0.022022022 1.396396
## 22583 0.582582583 0.022022022 1.395395
## 22584 0.583583584 0.022022022 1.394394
## 22585 0.584584585 0.022022022 1.393393
## 22586 0.585585586 0.022022022 1.392392
## 22587 0.586586587 0.022022022 1.391391
## 22588 0.587587588 0.022022022 1.390390
## 22589 0.588588589 0.022022022 1.389389
## 22590 0.589589590 0.022022022 1.388388
## 22591 0.590590591 0.022022022 1.387387
## 22592 0.591591592 0.022022022 1.386386
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR603

```
## 22593 0.592592593 0.022022022 1.385385
## 22594 0.593593594 0.022022022 1.384384
## 22595 0.594594595 0.022022022 1.383383
## 22596 0.595595596 0.022022022 1.382382
## 22597 0.596596597 0.022022022 1.381381
## 22598 0.597597598 0.022022022 1.380380
## 22599 0.598598599 0.022022022 1.379379
## 22600 0.599599600 0.022022022 1.378378
## 22601 0.600600601 0.022022022 1.377377
## 22602 0.601601602 0.022022022 1.376376
## 22603 0.602602603 0.022022022 1.375375
## 22604 0.603603604 0.022022022 1.374374
## 22605 0.604604605 0.022022022 1.373373
## 22606 0.605605606 0.022022022 1.372372
## 22607 0.606606607 0.022022022 1.371371
## 22608 0.607607608 0.022022022 1.370370
## 22609 0.608608609 0.022022022 1.369369
## 22610 0.609609610 0.022022022 1.368368
## 22611 0.610610611 0.022022022 1.367367
## 22612 0.611611612 0.022022022 1.366366
## 22613 0.612612613 0.022022022 1.365365
## 22614 0.613613614 0.022022022 1.364364
## 22615 0.614614615 0.022022022 1.363363
## 22616 0.615615616 0.022022022 1.362362
## 22617 0.616616617 0.022022022 1.361361
## 22618 0.617617618 0.022022022 1.360360
## 22619 0.618618619 0.022022022 1.359359
## 22620 0.619619620 0.022022022 1.358358
## 22621 0.620620621 0.022022022 1.357357
## 22622 0.621621622 0.022022022 1.356356
## 22623 0.622622623 0.022022022 1.355355
## 22624 0.623623624 0.022022022 1.354354
## 22625 0.624624625 0.022022022 1.353353
## 22626 0.625625626 0.022022022 1.352352
## 22627 0.626626627 0.022022022 1.351351
## 22628 0.627627628 0.022022022 1.350350
## 22629 0.628628629 0.022022022 1.349349
## 22630 0.629629630 0.022022022 1.348348
## 22631 0.630630631 0.022022022 1.347347
## 22632 0.631631632 0.022022022 1.346346
## 22633 0.632632633 0.022022022 1.345345
## 22634 0.633633634 0.022022022 1.344344
## 22635 0.634634635 0.022022022 1.343343
## 22636 0.635635636 0.022022022 1.342342
## 22637 0.636636637 0.022022022 1.341341
## 22638 0.637637638 0.022022022 1.340340
```

```
## 22639 0.638638639 0.022022022 1.339339
## 22640 0.639639640 0.022022022 1.338338
## 22641 0.640640641 0.022022022 1.337337
## 22642 0.641641642 0.022022022 1.336336
## 22643 0.642642643 0.022022022 1.335335
## 22644 0.643643644 0.022022022 1.334334
## 22645 0.644644645 0.022022022 1.333333
## 22646 0.645645646 0.022022022 1.332332
## 22647 0.646646647 0.022022022 1.331331
## 22648 0.647647648 0.022022022 1.330330
## 22649 0.648648649 0.022022022 1.329329
## 22650 0.649649650 0.022022022 1.328328
## 22651 0.650650651 0.022022022 1.327327
## 22652 0.651651652 0.022022022 1.326326
## 22653 0.652652653 0.022022022 1.325325
## 22654 0.653653654 0.022022022 1.324324
## 22655 0.654654655 0.022022022 1.323323
## 22656 0.655655656 0.022022022 1.322322
## 22657 0.656656657 0.022022022 1.321321
## 22658 0.657657658 0.022022022 1.320320
## 22659 0.658658659 0.022022022 1.319319
## 22660 0.659659660 0.022022022 1.318318
## 22661 0.660660661 0.022022022 1.317317
## 22662 0.661661662 0.022022022 1.316316
## 22663 0.662662663 0.022022022 1.315315
## 22664 0.663663664 0.022022022 1.314314
## 22665 0.664664665 0.022022022 1.313313
## 22666 0.665665666 0.022022022 1.312312
## 22667 0.666666667 0.022022022 1.311311
## 22668 0.667667668 0.022022022 1.310310
## 22669 0.668668669 0.022022022 1.309309
## 22670 0.669669670 0.022022022 1.308308
## 22671 0.670670671 0.022022022 1.307307
## 22672 0.671671672 0.022022022 1.306306
## 22673 0.672672673 0.022022022 1.305305
## 22674 0.673673674 0.022022022 1.304304
## 22675 0.674674675 0.022022022 1.303303
## 22676 0.675675676 0.022022022 1.302302
## 22677 0.676676677 0.022022022 1.301301
## 22678 0.677677678 0.022022022 1.300300
## 22679 0.678678679 0.022022022 1.299299
## 22680 0.679679680 0.022022022 1.298298
## 22681 0.680680681 0.022022022 1.297297
## 22682 0.681681682 0.022022022 1.296296
## 22683 0.682682683 0.022022022 1.295295
## 22684 0.683683684 0.022022022 1.294294
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR605

```
## 22685 0.684684685 0.022022022 1.293293
## 22686 0.685685686 0.022022022 1.292292
## 22687 0.686686687 0.022022022 1.291291
## 22688 0.687687688 0.022022022 1.290290
## 22689 0.688688689 0.022022022 1.289289
## 22690 0.689689690 0.022022022 1.288288
## 22691 0.690690691 0.022022022 1.287287
## 22692 0.691691692 0.022022022 1.286286
## 22693 0.692692693 0.022022022 1.285285
## 22694 0.693693694 0.022022022 1.284284
## 22695 0.694694695 0.022022022 1.283283
## 22696 0.695695696 0.022022022 1.282282
## 22697 0.696696697 0.022022022 1.281281
## 22698 0.697697698 0.022022022 1.280280
## 22699 0.698698699 0.022022022 1.279279
## 22700 0.699699700 0.022022022 1.278278
## 22701 0.700700701 0.022022022 1.277277
## 22702 0.701701702 0.022022022 1.276276
## 22703 0.702702703 0.022022022 1.275275
## 22704 0.703703704 0.022022022 1.274274
## 22705 0.704704705 0.022022022 1.273273
## 22706 0.705705706 0.022022022 1.272272
## 22707 0.706706707 0.022022022 1.271271
## 22708 0.707707708 0.022022022 1.270270
## 22709 0.708708709 0.022022022 1.269269
## 22710 0.709709710 0.022022022 1.268268
## 22711 0.710710711 0.022022022 1.267267
## 22712 0.711711712 0.022022022 1.266266
## 22713 0.712712713 0.022022022 1.265265
## 22714 0.713713714 0.022022022 1.264264
## 22715 0.714714715 0.022022022 1.263263
## 22716 0.715715716 0.022022022 1.262262
## 22717 0.716716717 0.022022022 1.261261
## 22718 0.717717718 0.022022022 1.260260
## 22719 0.718718719 0.022022022 1.259259
## 22720 0.719719720 0.022022022 1.258258
## 22721 0.720720721 0.022022022 1.257257
## 22722 0.721721722 0.022022022 1.256256
## 22723 0.722722723 0.022022022 1.255255
## 22724 0.723723724 0.022022022 1.254254
## 22725 0.724724725 0.022022022 1.253253
## 22726 0.725725726 0.022022022 1.252252
## 22727 0.726726727 0.022022022 1.251251
## 22728 0.727727728 0.022022022 1.250250
## 22729 0.728728729 0.022022022 1.249249
## 22730 0.729729730 0.022022022 1.248248
```

```
## 22731 0.730730731 0.022022022 1.247247
## 22732 0.731731732 0.022022022 1.246246
## 22733 0.732732733 0.022022022 1.245245
## 22734 0.733733734 0.022022022 1.244244
## 22735 0.734734735 0.022022022 1.243243
## 22736 0.735735736 0.022022022 1.242242
## 22737 0.736736737 0.022022022 1.241241
## 22738 0.737737738 0.022022022 1.240240
## 22739 0.738738739 0.022022022 1.239239
## 22740 0.739739740 0.022022022 1.238238
## 22741 0.740740741 0.022022022 1.237237
## 22742 0.741741742 0.022022022 1.236236
## 22743 0.742742743 0.022022022 1.235235
## 22744 0.743743744 0.022022022 1.234234
## 22745 0.744744745 0.022022022 1.233233
## 22746 0.745745746 0.022022022 1.232232
## 22747 0.746746747 0.022022022 1.231231
## 22748 0.747747748 0.022022022 1.230230
## 22749 0.748748749 0.022022022 1.229229
## 22750 0.749749750 0.022022022 1.228228
## 22751 0.750750751 0.022022022 1.227227
## 22752 0.751751752 0.022022022 1.226226
## 22753 0.752752753 0.022022022 1.225225
## 22754 0.753753754 0.022022022 1.224224
## 22755 0.754754755 0.022022022 1.223223
## 22756 0.755755756 0.022022022 1.222222
## 22757 0.756756757 0.022022022 1.221221
## 22758 0.757757758 0.022022022 1.220220
## 22759 0.758758759 0.022022022 1.219219
## 22760 0.759759760 0.022022022 1.218218
## 22761 0.760760761 0.022022022 1.217217
## 22762 0.761761762 0.022022022 1.216216
## 22763 0.762762763 0.022022022 1.215215
## 22764 0.763763764 0.022022022 1.214214
## 22765 0.764764765 0.022022022 1.213213
## 22766 0.765765766 0.022022022 1.212212
## 22767 0.766766767 0.022022022 1.211211
## 22768 0.767767768 0.022022022 1.210210
## 22769 0.768768769 0.022022022 1.209209
## 22770 0.769769770 0.022022022 1.208208
## 22771 0.770770771 0.022022022 1.207207
## 22772 0.771771772 0.022022022 1.206206
## 22773 0.772772773 0.022022022 1.205205
## 22774 0.773773774 0.022022022 1.204204
## 22775 0.774774775 0.022022022 1.203203
## 22776 0.775775776 0.022022022 1.202202
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR607

```
## 22777 0.776776777 0.022022022 1.201201
## 22778 0.777777778 0.022022022 1.200200
## 22779 0.778778779 0.022022022 1.199199
## 22780 0.779779780 0.022022022 1.198198
## 22781 0.780780781 0.022022022 1.197197
## 22782 0.781781782 0.022022022 1.196196
## 22783 0.782782783 0.022022022 1.195195
## 22784 0.783783784 0.022022022 1.194194
## 22785 0.784784785 0.022022022 1.193193
## 22786 0.785785786 0.022022022 1.192192
## 22787 0.786786787 0.022022022 1.191191
## 22788 0.787787788 0.022022022 1.190190
## 22789 0.788788789 0.022022022 1.189189
## 22790 0.789789790 0.022022022 1.188188
## 22791 0.790790791 0.022022022 1.187187
## 22792 0.791791792 0.022022022 1.186186
## 22793 0.792792793 0.022022022 1.185185
## 22794 0.793793794 0.022022022 1.184184
## 22795 0.794794795 0.022022022 1.183183
## 22796 0.795795796 0.022022022 1.182182
## 22797 0.796796797 0.022022022 1.181181
## 22798 0.797797798 0.022022022 1.180180
## 22799 0.798798799 0.022022022 1.179179
## 22800 0.799799800 0.022022022 1.178178
## 22801 0.800800801 0.022022022 1.177177
## 22802 0.801801802 0.022022022 1.176176
## 22803 0.802802803 0.022022022 1.175175
## 22804 0.803803804 0.022022022 1.174174
## 22805 0.804804805 0.022022022 1.173173
## 22806 0.805805806 0.022022022 1.172172
## 22807 0.806806807 0.022022022 1.171171
## 22808 0.807807808 0.022022022 1.170170
## 22809 0.808808809 0.022022022 1.169169
## 22810 0.809809810 0.022022022 1.168168
## 22811 0.810810811 0.022022022 1.167167
## 22812 0.811811812 0.022022022 1.166166
## 22813 0.812812813 0.022022022 1.165165
## 22814 0.813813814 0.022022022 1.164164
## 22815 0.814814815 0.022022022 1.163163
## 22816 0.815815816 0.022022022 1.162162
## 22817 0.816816817 0.022022022 1.161161
## 22818 0.817817818 0.022022022 1.160160
## 22819 0.818818819 0.022022022 1.159159
## 22820 0.819819820 0.022022022 1.158158
## 22821 0.820820821 0.022022022 1.157157
## 22822 0.821821822 0.022022022 1.156156
```

```
## 22823 0.822822823 0.022022022 1.155155
## 22824 0.823823824 0.022022022 1.154154
## 22825 0.824824825 0.022022022 1.153153
## 22826 0.825825826 0.022022022 1.152152
## 22827 0.826826827 0.022022022 1.151151
## 22828 0.827827828 0.022022022 1.150150
## 22829 0.828828829 0.022022022 1.149149
## 22830 0.829829830 0.022022022 1.148148
## 22831 0.830830831 0.022022022 1.147147
## 22832 0.831831832 0.022022022 1.146146
## 22833 0.832832833 0.022022022 1.145145
## 22834 0.833833834 0.022022022 1.144144
## 22835 0.834834835 0.022022022 1.143143
## 22836 0.835835836 0.022022022 1.142142
## 22837 0.836836837 0.022022022 1.141141
## 22838 0.837837838 0.022022022 1.140140
## 22839 0.838838839 0.022022022 1.139139
## 22840 0.839839840 0.022022022 1.138138
## 22841 0.840840841 0.022022022 1.137137
## 22842 0.841841842 0.022022022 1.136136
## 22843 0.842842843 0.022022022 1.135135
## 22844 0.843843844 0.022022022 1.134134
## 22845 0.844844845 0.022022022 1.133133
## 22846 0.845845846 0.022022022 1.132132
## 22847 0.846846847 0.022022022 1.131131
## 22848 0.847847848 0.022022022 1.130130
## 22849 0.848848849 0.022022022 1.129129
## 22850 0.849849850 0.022022022 1.128128
## 22851 0.850850851 0.022022022 1.127127
## 22852 0.851851852 0.022022022 1.126126
## 22853 0.852852853 0.022022022 1.125125
## 22854 0.853853854 0.022022022 1.124124
## 22855 0.854854855 0.022022022 1.123123
## 22856 0.855855856 0.022022022 1.122122
## 22857 0.856856857 0.022022022 1.121121
## 22858 0.857857858 0.022022022 1.120120
## 22859 0.858858859 0.022022022 1.119119
## 22860 0.859859860 0.022022022 1.118118
## 22861 0.860860861 0.022022022 1.117117
## 22862 0.861861862 0.022022022 1.116116
## 22863 0.862862863 0.022022022 1.115115
## 22864 0.863863864 0.022022022 1.114114
## 22865 0.864864865 0.022022022 1.113113
## 22866 0.865865866 0.022022022 1.112112
## 22867 0.866866867 0.022022022 1.111111
## 22868 0.867867868 0.022022022 1.110110
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR609

```
## 22869 0.868868869 0.022022022 1.109109
## 22870 0.869869870 0.022022022 1.108108
## 22871 0.870870871 0.022022022 1.107107
## 22872 0.871871872 0.022022022 1.106106
## 22873 0.872872873 0.022022022 1.105105
## 22874 0.873873874 0.022022022 1.104104
## 22875 0.874874875 0.022022022 1.103103
## 22876 0.875875876 0.022022022 1.102102
## 22877 0.876876877 0.022022022 1.101101
## 22878 0.877877878 0.022022022 1.100100
## 22879 0.878878879 0.022022022 1.099099
## 22880 0.879879880 0.022022022 1.098098
## 22881 0.880880881 0.022022022 1.097097
## 22882 0.881881882 0.022022022 1.096096
## 22883 0.882882883 0.022022022 1.095095
## 22884 0.883883884 0.022022022 1.094094
## 22885 0.884884885 0.022022022 1.093093
## 22886 0.885885886 0.022022022 1.092092
## 22887 0.886886887 0.022022022 1.091091
## 22888 0.887887888 0.022022022 1.090090
## 22889 0.888888889 0.022022022 1.089089
## 22890 0.889889890 0.022022022 1.088088
## 22891 0.890890891 0.022022022 1.087087
## 22892 0.891891892 0.022022022 1.086086
## 22893 0.892892893 0.022022022 1.085085
## 22894 0.893893894 0.022022022 1.084084
## 22895 0.894894895 0.022022022 1.083083
## 22896 0.895895896 0.022022022 1.082082
## 22897 0.896896897 0.022022022 1.081081
## 22898 0.897897898 0.022022022 1.080080
## 22899 0.898898899 0.022022022 1.079079
## 22900 0.899899900 0.022022022 1.078078
## 22901 0.900900901 0.022022022 1.077077
## 22902 0.901901902 0.022022022 1.076076
## 22903 0.902902903 0.022022022 1.075075
## 22904 0.903903904 0.022022022 1.074074
## 22905 0.904904905 0.022022022 1.073073
## 22906 0.905905906 0.022022022 1.072072
## 22907 0.906906907 0.022022022 1.071071
## 22908 0.907907908 0.022022022 1.070070
## 22909 0.908908909 0.022022022 1.069069
## 22910 0.909909910 0.022022022 1.068068
## 22911 0.910910911 0.022022022 1.067067
## 22912 0.911911912 0.022022022 1.066066
## 22913 0.912912913 0.022022022 1.065065
## 22914 0.913913914 0.022022022 1.064064
```

```
## 22915 0.914914915 0.022022022 1.063063
## 22916 0.915915916 0.022022022 1.062062
## 22917 0.916916917 0.022022022 1.061061
## 22918 0.917917918 0.022022022 1.060060
## 22919 0.918918919 0.022022022 1.059059
## 22920 0.919919920 0.022022022 1.058058
## 22921 0.920920921 0.022022022 1.057057
## 22922 0.921921922 0.022022022 1.056056
## 22923 0.922922923 0.022022022 1.055055
## 22924 0.923923924 0.022022022 1.054054
## 22925 0.924924925 0.022022022 1.053053
## 22926 0.925925926 0.022022022 1.052052
## 22927 0.926926927 0.022022022 1.051051
## 22928 0.927927928 0.022022022 1.050050
## 22929 0.928928929 0.022022022 1.049049
## 22930 0.929929930 0.022022022 1.048048
## 22931 0.930930931 0.022022022 1.047047
## 22932 0.931931932 0.022022022 1.046046
## 22933 0.932932933 0.022022022 1.045045
## 22934 0.933933934 0.022022022 1.044044
## 22935 0.934934935 0.022022022 1.043043
## 22936 0.935935936 0.022022022 1.042042
## 22937 0.936936937 0.022022022 1.041041
## 22938 0.937937938 0.022022022 1.040040
## 22939 0.938938939 0.022022022 1.039039
## 22940 0.939939940 0.022022022 1.038038
## 22941 0.940940941 0.022022022 1.037037
## 22942 0.941941942 0.022022022 1.036036
## 22943 0.942942943 0.022022022 1.035035
## 22944 0.943943944 0.022022022 1.034034
## 22945 0.9449444945 0.022022022 1.033033
## 22946 0.945945946 0.022022022 1.032032
## 22947 0.946946947 0.022022022 1.031031
## 22948 0.947947948 0.022022022 1.030030
## 22949 0.948948949 0.022022022 1.029029
## 22950 0.949949950 0.022022022 1.028028
## 22951 0.950950951 0.022022022 1.027027
## 22952 0.951951952 0.022022022 1.026026
## 22953 0.952952953 0.022022022 1.025025
## 22954 0.953953954 0.022022022 1.024024
## 22955 0.954954955 0.022022022 1.023023
## 22956 0.955955956 0.022022022 1.022022
## 22957 0.956956957 0.022022022 1.021021
## 22958 0.957957958 0.022022022 1.020020
## 22959 0.958958959 0.022022022 1.019019
## 22960 0.959959960 0.022022022 1.018018
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR611

```

## 22961 0.960960961 0.022022022 1.017017
## 22962 0.961961962 0.022022022 1.016016
## 22963 0.962962963 0.022022022 1.015015
## 22964 0.963963964 0.022022022 1.014014
## 22965 0.964964965 0.022022022 1.013013
## 22966 0.965965966 0.022022022 1.012012
## 22967 0.966966967 0.022022022 1.011011
## 22968 0.967967968 0.022022022 1.010010
## 22969 0.968968969 0.022022022 1.009009
## 22970 0.969969970 0.022022022 1.008008
## 22971 0.970970971 0.022022022 1.007007
## 22972 0.971971972 0.022022022 1.006006
## 22973 0.972972973 0.022022022 1.005005
## 22974 0.973973974 0.022022022 1.004004
## 22975 0.974974975 0.022022022 1.003003
## 22976 0.975975976 0.022022022 1.002002
## 22977 0.976976977 0.022022022 1.001001
## 22978 0.977977978 0.022022022 1.000000
## 22979 0.978978979 0.022022022 0.998999
## 22980 0.979979980 0.022022022 0.997998
## 22981 0.980980981 0.022022022 0.996997
## 22982 0.981981982 0.022022022 0.995996
## 22983 0.982982983 0.022022022 0.994995
## 22984 0.983983984 0.022022022 0.993994
## 22985 0.984984985 0.022022022 0.992993
## 22986 0.985985986 0.022022022 0.991992
## 22987 0.986986987 0.022022022 0.990991
## 22988 0.987987988 0.022022022 0.989990
## 22989 0.988988989 0.022022022 0.988989
## 22990 0.989989990 0.022022022 0.987988
## 22991 0.990990991 0.022022022 0.986987
## 22992 0.991991992 0.022022022 0.985986
## 22993 0.992992993 0.022022022 0.984985
## 22994 0.993993994 0.022022022 0.983984
## 22995 0.994994995 0.022022022 0.982983
## 22996 0.995995996 0.022022022 0.981982
## 22997 0.996996997 0.022022022 0.980981
## 22998 0.997997998 0.022022022 0.979980
## 22999 0.998998999 0.022022022 0.978979
## 23000 1.000000000 0.022022022 0.977978
## 23001 0.000000000 0.023023023 1.976977
## 23002 0.001001001 0.023023023 1.975976
## 23003 0.002002002 0.023023023 1.974975
## 23004 0.003003003 0.023023023 1.973974
## 23005 0.004004004 0.023023023 1.972973
## 23006 0.005005005 0.023023023 1.971972

```

```
## 23007 0.006006006 0.023023023 1.970971
## 23008 0.007007007 0.023023023 1.969970
## 23009 0.008008008 0.023023023 1.968969
## 23010 0.009009009 0.023023023 1.967968
## 23011 0.010010010 0.023023023 1.966967
## 23012 0.011011011 0.023023023 1.965966
## 23013 0.012012012 0.023023023 1.964965
## 23014 0.013013013 0.023023023 1.963964
## 23015 0.014014014 0.023023023 1.962963
## 23016 0.015015015 0.023023023 1.961962
## 23017 0.016016016 0.023023023 1.960961
## 23018 0.017017017 0.023023023 1.959960
## 23019 0.018018018 0.023023023 1.958959
## 23020 0.019019019 0.023023023 1.957958
## 23021 0.020020020 0.023023023 1.956957
## 23022 0.021021021 0.023023023 1.955956
## 23023 0.022022022 0.023023023 1.954955
## 23024 0.023023023 0.023023023 1.953954
## 23025 0.024024024 0.023023023 1.952953
## 23026 0.025025025 0.023023023 1.951952
## 23027 0.026026026 0.023023023 1.950951
## 23028 0.027027027 0.023023023 1.949950
## 23029 0.028028028 0.023023023 1.948949
## 23030 0.029029029 0.023023023 1.947948
## 23031 0.030030030 0.023023023 1.946947
## 23032 0.031031031 0.023023023 1.945946
## 23033 0.032032032 0.023023023 1.944945
## 23034 0.033033033 0.023023023 1.943944
## 23035 0.034034034 0.023023023 1.942943
## 23036 0.035035035 0.023023023 1.941942
## 23037 0.036036036 0.023023023 1.940941
## 23038 0.037037037 0.023023023 1.939940
## 23039 0.038038038 0.023023023 1.938939
## 23040 0.039039039 0.023023023 1.937938
## 23041 0.040040040 0.023023023 1.936937
## 23042 0.041041041 0.023023023 1.935936
## 23043 0.042042042 0.023023023 1.934935
## 23044 0.043043043 0.023023023 1.933934
## 23045 0.044044044 0.023023023 1.932933
## 23046 0.045045045 0.023023023 1.931932
## 23047 0.046046046 0.023023023 1.930931
## 23048 0.047047047 0.023023023 1.929930
## 23049 0.048048048 0.023023023 1.928929
## 23050 0.049049049 0.023023023 1.927928
## 23051 0.050050050 0.023023023 1.926927
## 23052 0.051051051 0.023023023 1.925926
```

```
## 23053 0.052052052 0.023023023 1.924925
## 23054 0.053053053 0.023023023 1.923924
## 23055 0.054054054 0.023023023 1.922923
## 23056 0.055055055 0.023023023 1.921922
## 23057 0.056056056 0.023023023 1.920921
## 23058 0.057057057 0.023023023 1.919920
## 23059 0.058058058 0.023023023 1.918919
## 23060 0.059059059 0.023023023 1.917918
## 23061 0.060060060 0.023023023 1.916917
## 23062 0.061061061 0.023023023 1.915916
## 23063 0.062062062 0.023023023 1.914915
## 23064 0.063063063 0.023023023 1.913914
## 23065 0.064064064 0.023023023 1.912913
## 23066 0.065065065 0.023023023 1.911912
## 23067 0.066066066 0.023023023 1.910911
## 23068 0.067067067 0.023023023 1.909910
## 23069 0.068068068 0.023023023 1.908909
## 23070 0.069069069 0.023023023 1.907908
## 23071 0.070070070 0.023023023 1.906907
## 23072 0.071071071 0.023023023 1.905906
## 23073 0.072072072 0.023023023 1.904905
## 23074 0.073073073 0.023023023 1.903904
## 23075 0.074074074 0.023023023 1.902903
## 23076 0.075075075 0.023023023 1.901902
## 23077 0.076076076 0.023023023 1.900901
## 23078 0.077077077 0.023023023 1.899900
## 23079 0.078078078 0.023023023 1.898899
## 23080 0.079079079 0.023023023 1.897898
## 23081 0.080080080 0.023023023 1.896897
## 23082 0.081081081 0.023023023 1.895896
## 23083 0.082082082 0.023023023 1.894895
## 23084 0.083083083 0.023023023 1.893894
## 23085 0.084084084 0.023023023 1.892893
## 23086 0.085085085 0.023023023 1.891892
## 23087 0.086086086 0.023023023 1.890891
## 23088 0.087087087 0.023023023 1.889890
## 23089 0.088088088 0.023023023 1.888889
## 23090 0.089089089 0.023023023 1.887888
## 23091 0.090090090 0.023023023 1.886887
## 23092 0.091091091 0.023023023 1.885886
## 23093 0.092092092 0.023023023 1.884885
## 23094 0.093093093 0.023023023 1.883884
## 23095 0.094094094 0.023023023 1.882883
## 23096 0.095095095 0.023023023 1.881882
## 23097 0.096096096 0.023023023 1.880881
## 23098 0.097097097 0.023023023 1.879880
```

```
## 23099 0.098098098 0.023023023 1.878879
## 23100 0.099099099 0.023023023 1.877878
## 23101 0.100100100 0.023023023 1.876877
## 23102 0.101101101 0.023023023 1.875876
## 23103 0.102102102 0.023023023 1.874875
## 23104 0.103103103 0.023023023 1.873874
## 23105 0.104104104 0.023023023 1.872873
## 23106 0.105105105 0.023023023 1.871872
## 23107 0.106106106 0.023023023 1.870871
## 23108 0.107107107 0.023023023 1.869870
## 23109 0.108108108 0.023023023 1.868869
## 23110 0.109109109 0.023023023 1.867868
## 23111 0.110110110 0.023023023 1.866867
## 23112 0.111111111 0.023023023 1.865866
## 23113 0.112112112 0.023023023 1.864865
## 23114 0.113113113 0.023023023 1.863864
## 23115 0.114114114 0.023023023 1.862863
## 23116 0.115115115 0.023023023 1.861862
## 23117 0.116116116 0.023023023 1.860861
## 23118 0.117117117 0.023023023 1.859860
## 23119 0.118118118 0.023023023 1.858859
## 23120 0.119119119 0.023023023 1.857858
## 23121 0.120120120 0.023023023 1.856857
## 23122 0.121121121 0.023023023 1.855856
## 23123 0.122122122 0.023023023 1.854855
## 23124 0.123123123 0.023023023 1.853854
## 23125 0.124124124 0.023023023 1.852853
## 23126 0.125125125 0.023023023 1.851852
## 23127 0.126126126 0.023023023 1.850851
## 23128 0.127127127 0.023023023 1.849850
## 23129 0.128128128 0.023023023 1.848849
## 23130 0.129129129 0.023023023 1.847848
## 23131 0.130130130 0.023023023 1.846847
## 23132 0.131131131 0.023023023 1.845846
## 23133 0.132132132 0.023023023 1.844845
## 23134 0.133133133 0.023023023 1.843844
## 23135 0.134134134 0.023023023 1.842843
## 23136 0.135135135 0.023023023 1.841842
## 23137 0.136136136 0.023023023 1.840841
## 23138 0.137137137 0.023023023 1.839840
## 23139 0.138138138 0.023023023 1.838839
## 23140 0.139139139 0.023023023 1.837838
## 23141 0.140140140 0.023023023 1.836837
## 23142 0.141141141 0.023023023 1.835836
## 23143 0.142142142 0.023023023 1.834835
## 23144 0.143143143 0.023023023 1.833834
```

```

## 23145 0.144144144 0.023023023 1.832833
## 23146 0.145145145 0.023023023 1.831832
## 23147 0.146146146 0.023023023 1.830831
## 23148 0.147147147 0.023023023 1.829830
## 23149 0.148148148 0.023023023 1.828829
## 23150 0.149149149 0.023023023 1.827828
## 23151 0.150150150 0.023023023 1.826827
## 23152 0.151151151 0.023023023 1.825826
## 23153 0.152152152 0.023023023 1.824825
## 23154 0.153153153 0.023023023 1.823824
## 23155 0.154154154 0.023023023 1.822823
## 23156 0.155155155 0.023023023 1.821822
## 23157 0.156156156 0.023023023 1.820821
## 23158 0.157157157 0.023023023 1.819820
## 23159 0.158158158 0.023023023 1.818819
## 23160 0.159159159 0.023023023 1.817818
## 23161 0.160160160 0.023023023 1.816817
## 23162 0.161161161 0.023023023 1.815816
## 23163 0.162162162 0.023023023 1.814815
## 23164 0.163163163 0.023023023 1.813814
## 23165 0.164164164 0.023023023 1.812813
## 23166 0.165165165 0.023023023 1.811812
## 23167 0.166166166 0.023023023 1.810811
## 23168 0.167167167 0.023023023 1.809810
## 23169 0.168168168 0.023023023 1.808809
## 23170 0.169169169 0.023023023 1.807808
## 23171 0.170170170 0.023023023 1.806807
## 23172 0.171171171 0.023023023 1.805806
## 23173 0.172172172 0.023023023 1.804805
## 23174 0.173173173 0.023023023 1.803804
## 23175 0.174174174 0.023023023 1.802803
## 23176 0.175175175 0.023023023 1.801802
## 23177 0.176176176 0.023023023 1.800801
## 23178 0.177177177 0.023023023 1.799800
## 23179 0.178178178 0.023023023 1.798799
## 23180 0.179179179 0.023023023 1.797798
## 23181 0.180180180 0.023023023 1.796797
## 23182 0.181181181 0.023023023 1.795796
## 23183 0.182182182 0.023023023 1.794795
## 23184 0.183183183 0.023023023 1.793794
## 23185 0.184184184 0.023023023 1.792793
## 23186 0.185185185 0.023023023 1.791792
## 23187 0.186186186 0.023023023 1.790791
## 23188 0.187187187 0.023023023 1.789790
## 23189 0.188188188 0.023023023 1.788789
## 23190 0.189189189 0.023023023 1.787788

```

```
## 23191 0.190190190 0.023023023 1.786787
## 23192 0.191191191 0.023023023 1.785786
## 23193 0.192192192 0.023023023 1.784785
## 23194 0.193193193 0.023023023 1.783784
## 23195 0.194194194 0.023023023 1.782783
## 23196 0.195195195 0.023023023 1.781782
## 23197 0.196196196 0.023023023 1.780781
## 23198 0.197197197 0.023023023 1.779780
## 23199 0.198198198 0.023023023 1.778779
## 23200 0.199199199 0.023023023 1.777778
## 23201 0.200200200 0.023023023 1.776777
## 23202 0.201201201 0.023023023 1.775776
## 23203 0.202202202 0.023023023 1.774775
## 23204 0.203203203 0.023023023 1.773774
## 23205 0.204204204 0.023023023 1.772773
## 23206 0.205205205 0.023023023 1.771772
## 23207 0.206206206 0.023023023 1.770771
## 23208 0.207207207 0.023023023 1.769770
## 23209 0.208208208 0.023023023 1.768769
## 23210 0.209209209 0.023023023 1.767768
## 23211 0.210210210 0.023023023 1.766767
## 23212 0.211211211 0.023023023 1.765766
## 23213 0.212212212 0.023023023 1.764765
## 23214 0.213213213 0.023023023 1.763764
## 23215 0.214214214 0.023023023 1.762763
## 23216 0.215215215 0.023023023 1.761762
## 23217 0.216216216 0.023023023 1.760761
## 23218 0.217217217 0.023023023 1.759760
## 23219 0.218218218 0.023023023 1.758759
## 23220 0.219219219 0.023023023 1.757758
## 23221 0.220220220 0.023023023 1.756757
## 23222 0.221221221 0.023023023 1.755756
## 23223 0.222222222 0.023023023 1.754755
## 23224 0.223223223 0.023023023 1.753754
## 23225 0.224224224 0.023023023 1.752753
## 23226 0.225225225 0.023023023 1.751752
## 23227 0.226226226 0.023023023 1.750751
## 23228 0.227227227 0.023023023 1.749750
## 23229 0.228228228 0.023023023 1.748749
## 23230 0.229229229 0.023023023 1.747748
## 23231 0.230230230 0.023023023 1.746747
## 23232 0.231231231 0.023023023 1.745746
## 23233 0.232232232 0.023023023 1.744745
## 23234 0.233233233 0.023023023 1.743744
## 23235 0.234234234 0.023023023 1.742743
## 23236 0.235235235 0.023023023 1.741742
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 617

```
## 23237 0.236236236 0.023023023 1.740741
## 23238 0.237237237 0.023023023 1.739740
## 23239 0.238238238 0.023023023 1.738739
## 23240 0.239239239 0.023023023 1.737738
## 23241 0.240240240 0.023023023 1.736737
## 23242 0.241241241 0.023023023 1.735736
## 23243 0.242242242 0.023023023 1.734735
## 23244 0.243243243 0.023023023 1.733734
## 23245 0.244244244 0.023023023 1.732733
## 23246 0.245245245 0.023023023 1.731732
## 23247 0.246246246 0.023023023 1.730731
## 23248 0.247247247 0.023023023 1.729730
## 23249 0.248248248 0.023023023 1.728729
## 23250 0.249249249 0.023023023 1.727728
## 23251 0.250250250 0.023023023 1.726727
## 23252 0.251251251 0.023023023 1.725726
## 23253 0.252252252 0.023023023 1.724725
## 23254 0.253253253 0.023023023 1.723724
## 23255 0.254254254 0.023023023 1.722723
## 23256 0.255255255 0.023023023 1.721722
## 23257 0.256256256 0.023023023 1.720721
## 23258 0.257257257 0.023023023 1.719720
## 23259 0.258258258 0.023023023 1.718719
## 23260 0.259259259 0.023023023 1.717718
## 23261 0.260260260 0.023023023 1.716717
## 23262 0.261261261 0.023023023 1.715716
## 23263 0.262262262 0.023023023 1.714715
## 23264 0.263263263 0.023023023 1.713714
## 23265 0.264264264 0.023023023 1.712713
## 23266 0.265265265 0.023023023 1.711712
## 23267 0.266266266 0.023023023 1.710711
## 23268 0.267267267 0.023023023 1.709710
## 23269 0.268268268 0.023023023 1.708709
## 23270 0.269269269 0.023023023 1.707708
## 23271 0.270270270 0.023023023 1.706707
## 23272 0.271271271 0.023023023 1.705706
## 23273 0.272272272 0.023023023 1.704705
## 23274 0.273273273 0.023023023 1.703704
## 23275 0.274274274 0.023023023 1.702703
## 23276 0.275275275 0.023023023 1.701702
## 23277 0.276276276 0.023023023 1.700701
## 23278 0.277277277 0.023023023 1.699700
## 23279 0.278278278 0.023023023 1.698699
## 23280 0.279279279 0.023023023 1.697698
## 23281 0.280280280 0.023023023 1.696697
## 23282 0.281281281 0.023023023 1.695696
```

```
## 23283 0.282282282 0.023023023 1.694695
## 23284 0.283283283 0.023023023 1.693694
## 23285 0.284284284 0.023023023 1.692693
## 23286 0.285285285 0.023023023 1.691692
## 23287 0.286286286 0.023023023 1.690691
## 23288 0.287287287 0.023023023 1.689690
## 23289 0.288288288 0.023023023 1.688689
## 23290 0.289289289 0.023023023 1.687688
## 23291 0.290290290 0.023023023 1.686687
## 23292 0.291291291 0.023023023 1.685686
## 23293 0.292292292 0.023023023 1.684685
## 23294 0.293293293 0.023023023 1.683684
## 23295 0.294294294 0.023023023 1.682683
## 23296 0.295295295 0.023023023 1.681682
## 23297 0.296296296 0.023023023 1.680681
## 23298 0.297297297 0.023023023 1.679680
## 23299 0.298298298 0.023023023 1.678679
## 23300 0.299299299 0.023023023 1.677678
## 23301 0.300300300 0.023023023 1.676677
## 23302 0.301301301 0.023023023 1.675676
## 23303 0.302302302 0.023023023 1.674675
## 23304 0.303303303 0.023023023 1.673674
## 23305 0.304304304 0.023023023 1.672673
## 23306 0.305305305 0.023023023 1.671672
## 23307 0.306306306 0.023023023 1.670671
## 23308 0.307307307 0.023023023 1.669670
## 23309 0.308308308 0.023023023 1.668669
## 23310 0.309309309 0.023023023 1.667668
## 23311 0.310310310 0.023023023 1.666667
## 23312 0.311311311 0.023023023 1.665666
## 23313 0.312312312 0.023023023 1.664665
## 23314 0.313313313 0.023023023 1.663664
## 23315 0.314314314 0.023023023 1.662663
## 23316 0.315315315 0.023023023 1.661662
## 23317 0.316316316 0.023023023 1.660661
## 23318 0.317317317 0.023023023 1.659660
## 23319 0.318318318 0.023023023 1.658659
## 23320 0.319319319 0.023023023 1.657658
## 23321 0.320320320 0.023023023 1.656657
## 23322 0.321321321 0.023023023 1.655656
## 23323 0.322322322 0.023023023 1.654655
## 23324 0.323323323 0.023023023 1.653654
## 23325 0.324324324 0.023023023 1.652653
## 23326 0.325325325 0.023023023 1.651652
## 23327 0.326326326 0.023023023 1.650651
## 23328 0.327327327 0.023023023 1.649650
```

```

## 23329 0.328328328 0.023023023 1.648649
## 23330 0.329329329 0.023023023 1.647648
## 23331 0.330330330 0.023023023 1.646647
## 23332 0.331331331 0.023023023 1.645646
## 23333 0.332332332 0.023023023 1.644645
## 23334 0.333333333 0.023023023 1.643644
## 23335 0.334334334 0.023023023 1.642643
## 23336 0.335335335 0.023023023 1.641642
## 23337 0.336336336 0.023023023 1.640641
## 23338 0.337337337 0.023023023 1.639640
## 23339 0.338338338 0.023023023 1.638639
## 23340 0.339339339 0.023023023 1.637638
## 23341 0.340340340 0.023023023 1.636637
## 23342 0.341341341 0.023023023 1.635636
## 23343 0.342342342 0.023023023 1.634635
## 23344 0.343343343 0.023023023 1.633634
## 23345 0.344344344 0.023023023 1.632633
## 23346 0.345345345 0.023023023 1.631632
## 23347 0.346346346 0.023023023 1.630631
## 23348 0.347347347 0.023023023 1.629630
## 23349 0.348348348 0.023023023 1.628629
## 23350 0.349349349 0.023023023 1.627628
## 23351 0.350350350 0.023023023 1.626627
## 23352 0.351351351 0.023023023 1.625626
## 23353 0.352352352 0.023023023 1.624625
## 23354 0.353353353 0.023023023 1.623624
## 23355 0.354354354 0.023023023 1.622623
## 23356 0.355355355 0.023023023 1.621622
## 23357 0.356356356 0.023023023 1.620621
## 23358 0.357357357 0.023023023 1.619620
## 23359 0.358358358 0.023023023 1.618619
## 23360 0.359359359 0.023023023 1.617618
## 23361 0.360360360 0.023023023 1.616617
## 23362 0.361361361 0.023023023 1.615616
## 23363 0.362362362 0.023023023 1.614615
## 23364 0.363363363 0.023023023 1.613614
## 23365 0.364364364 0.023023023 1.612613
## 23366 0.365365365 0.023023023 1.611612
## 23367 0.366366366 0.023023023 1.610611
## 23368 0.367367367 0.023023023 1.609610
## 23369 0.368368368 0.023023023 1.608609
## 23370 0.369369369 0.023023023 1.607608
## 23371 0.370370370 0.023023023 1.606607
## 23372 0.371371371 0.023023023 1.605606
## 23373 0.372372372 0.023023023 1.604605
## 23374 0.373373373 0.023023023 1.603604

```

```
## 23375 0.374374374 0.023023023 1.602603
## 23376 0.375375375 0.023023023 1.601602
## 23377 0.376376376 0.023023023 1.600601
## 23378 0.377377377 0.023023023 1.599600
## 23379 0.378378378 0.023023023 1.598599
## 23380 0.379379379 0.023023023 1.597598
## 23381 0.380380380 0.023023023 1.596597
## 23382 0.381381381 0.023023023 1.595596
## 23383 0.382382382 0.023023023 1.594595
## 23384 0.383383383 0.023023023 1.593594
## 23385 0.384384384 0.023023023 1.592593
## 23386 0.385385385 0.023023023 1.591592
## 23387 0.386386386 0.023023023 1.590591
## 23388 0.387387387 0.023023023 1.589590
## 23389 0.388388388 0.023023023 1.588589
## 23390 0.389389389 0.023023023 1.587588
## 23391 0.390390390 0.023023023 1.586587
## 23392 0.391391391 0.023023023 1.585586
## 23393 0.392392392 0.023023023 1.584585
## 23394 0.393393393 0.023023023 1.583584
## 23395 0.394394394 0.023023023 1.582583
## 23396 0.395395395 0.023023023 1.581582
## 23397 0.396396396 0.023023023 1.580581
## 23398 0.397397397 0.023023023 1.579580
## 23399 0.398398398 0.023023023 1.578579
## 23400 0.399399399 0.023023023 1.577578
## 23401 0.400400400 0.023023023 1.576577
## 23402 0.401401401 0.023023023 1.575576
## 23403 0.402402402 0.023023023 1.574575
## 23404 0.403403403 0.023023023 1.573574
## 23405 0.404404404 0.023023023 1.572573
## 23406 0.405405405 0.023023023 1.571572
## 23407 0.406406406 0.023023023 1.570571
## 23408 0.407407407 0.023023023 1.569570
## 23409 0.408408408 0.023023023 1.568569
## 23410 0.409409409 0.023023023 1.567568
## 23411 0.410410410 0.023023023 1.566567
## 23412 0.411411411 0.023023023 1.565566
## 23413 0.412412412 0.023023023 1.564565
## 23414 0.413413413 0.023023023 1.563564
## 23415 0.414414414 0.023023023 1.562563
## 23416 0.415415415 0.023023023 1.561562
## 23417 0.416416416 0.023023023 1.560561
## 23418 0.417417417 0.023023023 1.559560
## 23419 0.418418418 0.023023023 1.558559
## 23420 0.419419419 0.023023023 1.557558
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 621

```

## 23421 0.420420420 0.023023023 1.556557
## 23422 0.421421421 0.023023023 1.555556
## 23423 0.422422422 0.023023023 1.554555
## 23424 0.423423423 0.023023023 1.553554
## 23425 0.424424424 0.023023023 1.552553
## 23426 0.425425425 0.023023023 1.551552
## 23427 0.426426426 0.023023023 1.550551
## 23428 0.427427427 0.023023023 1.549550
## 23429 0.428428428 0.023023023 1.548549
## 23430 0.429429429 0.023023023 1.547548
## 23431 0.430430430 0.023023023 1.546547
## 23432 0.431431431 0.023023023 1.545546
## 23433 0.432432432 0.023023023 1.544545
## 23434 0.433433433 0.023023023 1.543544
## 23435 0.434434434 0.023023023 1.542543
## 23436 0.435435435 0.023023023 1.541542
## 23437 0.436436436 0.023023023 1.540541
## 23438 0.437437437 0.023023023 1.539540
## 23439 0.438438438 0.023023023 1.538539
## 23440 0.439439439 0.023023023 1.537538
## 23441 0.440440440 0.023023023 1.536537
## 23442 0.441441441 0.023023023 1.535536
## 23443 0.442442442 0.023023023 1.534535
## 23444 0.443443443 0.023023023 1.533534
## 23445 0.444444444 0.023023023 1.532533
## 23446 0.445445445 0.023023023 1.531532
## 23447 0.446446446 0.023023023 1.530531
## 23448 0.447447447 0.023023023 1.529530
## 23449 0.448448448 0.023023023 1.528529
## 23450 0.449449449 0.023023023 1.527528
## 23451 0.450450450 0.023023023 1.526527
## 23452 0.451451451 0.023023023 1.525526
## 23453 0.452452452 0.023023023 1.524525
## 23454 0.453453453 0.023023023 1.523524
## 23455 0.454454454 0.023023023 1.522523
## 23456 0.455455455 0.023023023 1.521522
## 23457 0.456456456 0.023023023 1.520521
## 23458 0.457457457 0.023023023 1.519520
## 23459 0.458458458 0.023023023 1.518519
## 23460 0.459459459 0.023023023 1.517518
## 23461 0.460460460 0.023023023 1.516517
## 23462 0.461461461 0.023023023 1.515516
## 23463 0.462462462 0.023023023 1.514515
## 23464 0.463463463 0.023023023 1.513514
## 23465 0.464464464 0.023023023 1.512513
## 23466 0.465465465 0.023023023 1.511512

```

```
## 23467 0.466466466 0.023023023 1.510511
## 23468 0.467467467 0.023023023 1.509510
## 23469 0.468468468 0.023023023 1.508509
## 23470 0.469469469 0.023023023 1.507508
## 23471 0.470470470 0.023023023 1.506507
## 23472 0.471471471 0.023023023 1.505506
## 23473 0.472472472 0.023023023 1.504505
## 23474 0.473473473 0.023023023 1.503504
## 23475 0.474474474 0.023023023 1.502503
## 23476 0.475475475 0.023023023 1.501502
## 23477 0.476476476 0.023023023 1.500501
## 23478 0.477477477 0.023023023 1.499499
## 23479 0.478478478 0.023023023 1.498498
## 23480 0.479479479 0.023023023 1.497497
## 23481 0.480480480 0.023023023 1.496496
## 23482 0.481481481 0.023023023 1.495495
## 23483 0.482482482 0.023023023 1.494494
## 23484 0.483483483 0.023023023 1.493493
## 23485 0.484484484 0.023023023 1.492492
## 23486 0.485485485 0.023023023 1.491491
## 23487 0.486486486 0.023023023 1.490490
## 23488 0.487487487 0.023023023 1.489489
## 23489 0.488488488 0.023023023 1.488488
## 23490 0.489489489 0.023023023 1.487487
## 23491 0.490490490 0.023023023 1.486486
## 23492 0.491491491 0.023023023 1.485485
## 23493 0.492492492 0.023023023 1.484484
## 23494 0.493493493 0.023023023 1.483483
## 23495 0.494494494 0.023023023 1.482482
## 23496 0.495495495 0.023023023 1.481481
## 23497 0.496496496 0.023023023 1.480480
## 23498 0.497497497 0.023023023 1.479479
## 23499 0.498498498 0.023023023 1.478478
## 23500 0.499499499 0.023023023 1.477477
## 23501 0.500500501 0.023023023 1.476476
## 23502 0.501501502 0.023023023 1.475475
## 23503 0.502502503 0.023023023 1.474474
## 23504 0.503503504 0.023023023 1.473473
## 23505 0.504504505 0.023023023 1.472472
## 23506 0.505505506 0.023023023 1.471471
## 23507 0.506506507 0.023023023 1.470470
## 23508 0.507507508 0.023023023 1.469469
## 23509 0.508508509 0.023023023 1.468468
## 23510 0.509509510 0.023023023 1.467467
## 23511 0.510510511 0.023023023 1.466466
## 23512 0.511511512 0.023023023 1.465465
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 623

```

## 23513 0.512512513 0.023023023 1.464464
## 23514 0.513513514 0.023023023 1.463463
## 23515 0.514514515 0.023023023 1.462462
## 23516 0.515515516 0.023023023 1.461461
## 23517 0.516516517 0.023023023 1.460460
## 23518 0.517517518 0.023023023 1.459459
## 23519 0.518518519 0.023023023 1.458458
## 23520 0.519519520 0.023023023 1.457457
## 23521 0.520520521 0.023023023 1.456456
## 23522 0.521521522 0.023023023 1.455455
## 23523 0.522522523 0.023023023 1.454454
## 23524 0.523523524 0.023023023 1.453453
## 23525 0.524524525 0.023023023 1.452452
## 23526 0.525525526 0.023023023 1.451451
## 23527 0.526526527 0.023023023 1.450450
## 23528 0.527527528 0.023023023 1.449449
## 23529 0.528528529 0.023023023 1.448448
## 23530 0.529529530 0.023023023 1.447447
## 23531 0.530530531 0.023023023 1.446446
## 23532 0.531531532 0.023023023 1.445445
## 23533 0.532532533 0.023023023 1.444444
## 23534 0.533533534 0.023023023 1.443443
## 23535 0.534534535 0.023023023 1.442442
## 23536 0.535535536 0.023023023 1.441441
## 23537 0.536536537 0.023023023 1.440440
## 23538 0.537537538 0.023023023 1.439439
## 23539 0.538538539 0.023023023 1.438438
## 23540 0.539539540 0.023023023 1.437437
## 23541 0.540540541 0.023023023 1.436436
## 23542 0.541541542 0.023023023 1.435435
## 23543 0.542542543 0.023023023 1.434434
## 23544 0.543543544 0.023023023 1.433433
## 23545 0.544544545 0.023023023 1.432432
## 23546 0.545545546 0.023023023 1.431431
## 23547 0.546546547 0.023023023 1.430430
## 23548 0.547547548 0.023023023 1.429429
## 23549 0.548548549 0.023023023 1.428428
## 23550 0.549549550 0.023023023 1.427427
## 23551 0.550550551 0.023023023 1.426426
## 23552 0.551551552 0.023023023 1.425425
## 23553 0.552552553 0.023023023 1.424424
## 23554 0.553553554 0.023023023 1.423423
## 23555 0.554554555 0.023023023 1.422422
## 23556 0.555555556 0.023023023 1.421421
## 23557 0.556556557 0.023023023 1.420420
## 23558 0.557557558 0.023023023 1.419419

```

```
## 23559 0.558558559 0.023023023 1.418418
## 23560 0.559559560 0.023023023 1.417417
## 23561 0.560560561 0.023023023 1.416416
## 23562 0.561561562 0.023023023 1.415415
## 23563 0.562562563 0.023023023 1.414414
## 23564 0.563563564 0.023023023 1.413413
## 23565 0.564564565 0.023023023 1.412412
## 23566 0.565565566 0.023023023 1.411411
## 23567 0.566566567 0.023023023 1.410410
## 23568 0.567567568 0.023023023 1.409409
## 23569 0.568568569 0.023023023 1.408408
## 23570 0.569569570 0.023023023 1.407407
## 23571 0.570570571 0.023023023 1.406406
## 23572 0.571571572 0.023023023 1.405405
## 23573 0.572572573 0.023023023 1.404404
## 23574 0.573573574 0.023023023 1.403403
## 23575 0.574574575 0.023023023 1.402402
## 23576 0.575575576 0.023023023 1.401401
## 23577 0.576576577 0.023023023 1.400400
## 23578 0.577577578 0.023023023 1.399399
## 23579 0.578578579 0.023023023 1.398398
## 23580 0.579579580 0.023023023 1.397397
## 23581 0.580580581 0.023023023 1.396396
## 23582 0.581581582 0.023023023 1.395395
## 23583 0.582582583 0.023023023 1.394394
## 23584 0.583583584 0.023023023 1.393393
## 23585 0.584584585 0.023023023 1.392392
## 23586 0.585585586 0.023023023 1.391391
## 23587 0.586586587 0.023023023 1.390390
## 23588 0.587587588 0.023023023 1.389389
## 23589 0.588588589 0.023023023 1.388388
## 23590 0.589589590 0.023023023 1.387387
## 23591 0.590590591 0.023023023 1.386386
## 23592 0.591591592 0.023023023 1.385385
## 23593 0.592592593 0.023023023 1.384384
## 23594 0.593593594 0.023023023 1.383383
## 23595 0.594594595 0.023023023 1.382382
## 23596 0.595595596 0.023023023 1.381381
## 23597 0.596596597 0.023023023 1.380380
## 23598 0.597597598 0.023023023 1.379379
## 23599 0.598598599 0.023023023 1.378378
## 23600 0.599599600 0.023023023 1.377377
## 23601 0.600600601 0.023023023 1.376376
## 23602 0.601601602 0.023023023 1.375375
## 23603 0.602602603 0.023023023 1.374374
## 23604 0.603603604 0.023023023 1.373373
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 625

```

## 23605 0.604604605 0.023023023 1.372372
## 23606 0.605605606 0.023023023 1.371371
## 23607 0.606606607 0.023023023 1.370370
## 23608 0.607607608 0.023023023 1.369369
## 23609 0.608608609 0.023023023 1.368368
## 23610 0.609609610 0.023023023 1.367367
## 23611 0.610610611 0.023023023 1.366366
## 23612 0.611611612 0.023023023 1.365365
## 23613 0.612612613 0.023023023 1.364364
## 23614 0.613613614 0.023023023 1.363363
## 23615 0.614614615 0.023023023 1.362362
## 23616 0.615615616 0.023023023 1.361361
## 23617 0.616616617 0.023023023 1.360360
## 23618 0.617617618 0.023023023 1.359359
## 23619 0.618618619 0.023023023 1.358358
## 23620 0.619619620 0.023023023 1.357357
## 23621 0.620620621 0.023023023 1.356356
## 23622 0.621621622 0.023023023 1.355355
## 23623 0.622622623 0.023023023 1.354354
## 23624 0.623623624 0.023023023 1.353353
## 23625 0.624624625 0.023023023 1.352352
## 23626 0.625625626 0.023023023 1.351351
## 23627 0.626626627 0.023023023 1.350350
## 23628 0.627627628 0.023023023 1.349349
## 23629 0.628628629 0.023023023 1.348348
## 23630 0.629629630 0.023023023 1.347347
## 23631 0.630630631 0.023023023 1.346346
## 23632 0.631631632 0.023023023 1.345345
## 23633 0.632632633 0.023023023 1.344344
## 23634 0.6336333634 0.023023023 1.343343
## 23635 0.634634635 0.023023023 1.342342
## 23636 0.635635636 0.023023023 1.341341
## 23637 0.636636637 0.023023023 1.340340
## 23638 0.637637638 0.023023023 1.339339
## 23639 0.638638639 0.023023023 1.338338
## 23640 0.639639640 0.023023023 1.337337
## 23641 0.640640641 0.023023023 1.336336
## 23642 0.641641642 0.023023023 1.335335
## 23643 0.642642643 0.023023023 1.334334
## 23644 0.643643644 0.023023023 1.333333
## 23645 0.644644645 0.023023023 1.332332
## 23646 0.645645646 0.023023023 1.331331
## 23647 0.646646647 0.023023023 1.330330
## 23648 0.647647648 0.023023023 1.329329
## 23649 0.648648649 0.023023023 1.328328
## 23650 0.649649650 0.023023023 1.327327

```

```
## 23651 0.650650651 0.023023023 1.326326
## 23652 0.651651652 0.023023023 1.325325
## 23653 0.652652653 0.023023023 1.324324
## 23654 0.653653654 0.023023023 1.323323
## 23655 0.654654655 0.023023023 1.322322
## 23656 0.655655656 0.023023023 1.321321
## 23657 0.656656657 0.023023023 1.320320
## 23658 0.657657658 0.023023023 1.319319
## 23659 0.658658659 0.023023023 1.318318
## 23660 0.659659660 0.023023023 1.317317
## 23661 0.660660661 0.023023023 1.316316
## 23662 0.661661662 0.023023023 1.315315
## 23663 0.662662663 0.023023023 1.314314
## 23664 0.663663664 0.023023023 1.313313
## 23665 0.664664665 0.023023023 1.312312
## 23666 0.665665666 0.023023023 1.311311
## 23667 0.666666667 0.023023023 1.310310
## 23668 0.667667668 0.023023023 1.309309
## 23669 0.668668669 0.023023023 1.308308
## 23670 0.669669670 0.023023023 1.307307
## 23671 0.670670671 0.023023023 1.306306
## 23672 0.671671672 0.023023023 1.305305
## 23673 0.672672673 0.023023023 1.304304
## 23674 0.673673674 0.023023023 1.303303
## 23675 0.674674675 0.023023023 1.302302
## 23676 0.675675676 0.023023023 1.301301
## 23677 0.676676677 0.023023023 1.300300
## 23678 0.677677678 0.023023023 1.299299
## 23679 0.678678679 0.023023023 1.298298
## 23680 0.679679680 0.023023023 1.297297
## 23681 0.680680681 0.023023023 1.296296
## 23682 0.681681682 0.023023023 1.295295
## 23683 0.682682683 0.023023023 1.294294
## 23684 0.683683684 0.023023023 1.293293
## 23685 0.684684685 0.023023023 1.292292
## 23686 0.685685686 0.023023023 1.291291
## 23687 0.686686687 0.023023023 1.290290
## 23688 0.687687688 0.023023023 1.289289
## 23689 0.688688689 0.023023023 1.288288
## 23690 0.689689690 0.023023023 1.287287
## 23691 0.690690691 0.023023023 1.286286
## 23692 0.691691692 0.023023023 1.285285
## 23693 0.692692693 0.023023023 1.284284
## 23694 0.693693694 0.023023023 1.283283
## 23695 0.694694695 0.023023023 1.282282
## 23696 0.695695696 0.023023023 1.281281
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 627

```
## 23697 0.696696697 0.023023023 1.280280
## 23698 0.697697698 0.023023023 1.279279
## 23699 0.698698699 0.023023023 1.278278
## 23700 0.699699700 0.023023023 1.277277
## 23701 0.700700701 0.023023023 1.276276
## 23702 0.701701702 0.023023023 1.275275
## 23703 0.702702703 0.023023023 1.274274
## 23704 0.703703704 0.023023023 1.273273
## 23705 0.704704705 0.023023023 1.272272
## 23706 0.705705706 0.023023023 1.271271
## 23707 0.706706707 0.023023023 1.270270
## 23708 0.707707708 0.023023023 1.269269
## 23709 0.708708709 0.023023023 1.268268
## 23710 0.709709710 0.023023023 1.267267
## 23711 0.710710711 0.023023023 1.266266
## 23712 0.711711712 0.023023023 1.265265
## 23713 0.712712713 0.023023023 1.264264
## 23714 0.713713714 0.023023023 1.263263
## 23715 0.714714715 0.023023023 1.262262
## 23716 0.715715716 0.023023023 1.261261
## 23717 0.716716717 0.023023023 1.260260
## 23718 0.717717718 0.023023023 1.259259
## 23719 0.718718719 0.023023023 1.258258
## 23720 0.719719720 0.023023023 1.257257
## 23721 0.720720721 0.023023023 1.256256
## 23722 0.721721722 0.023023023 1.255255
## 23723 0.722722723 0.023023023 1.254254
## 23724 0.723723724 0.023023023 1.253253
## 23725 0.724724725 0.023023023 1.252252
## 23726 0.725725726 0.023023023 1.251251
## 23727 0.726726727 0.023023023 1.250250
## 23728 0.727727728 0.023023023 1.249249
## 23729 0.728728729 0.023023023 1.248248
## 23730 0.729729730 0.023023023 1.247247
## 23731 0.730730731 0.023023023 1.246246
## 23732 0.731731732 0.023023023 1.245245
## 23733 0.732732733 0.023023023 1.244244
## 23734 0.733733734 0.023023023 1.243243
## 23735 0.734734735 0.023023023 1.242242
## 23736 0.735735736 0.023023023 1.241241
## 23737 0.736736737 0.023023023 1.240240
## 23738 0.737737738 0.023023023 1.239239
## 23739 0.738738739 0.023023023 1.238238
## 23740 0.739739740 0.023023023 1.237237
## 23741 0.740740741 0.023023023 1.236236
## 23742 0.741741742 0.023023023 1.235235
```

```
## 23743 0.742742743 0.023023023 1.234234
## 23744 0.743743744 0.023023023 1.233233
## 23745 0.744744745 0.023023023 1.232232
## 23746 0.745745746 0.023023023 1.231231
## 23747 0.746746747 0.023023023 1.230230
## 23748 0.747747748 0.023023023 1.229229
## 23749 0.748748749 0.023023023 1.228228
## 23750 0.749749750 0.023023023 1.227227
## 23751 0.750750751 0.023023023 1.226226
## 23752 0.751751752 0.023023023 1.225225
## 23753 0.752752753 0.023023023 1.224224
## 23754 0.753753754 0.023023023 1.223223
## 23755 0.754754755 0.023023023 1.222222
## 23756 0.755755756 0.023023023 1.221221
## 23757 0.756756757 0.023023023 1.220220
## 23758 0.757757758 0.023023023 1.219219
## 23759 0.758758759 0.023023023 1.218218
## 23760 0.759759760 0.023023023 1.217217
## 23761 0.760760761 0.023023023 1.216216
## 23762 0.761761762 0.023023023 1.215215
## 23763 0.762762763 0.023023023 1.214214
## 23764 0.763763764 0.023023023 1.213213
## 23765 0.764764765 0.023023023 1.212212
## 23766 0.765765766 0.023023023 1.211211
## 23767 0.766766767 0.023023023 1.210210
## 23768 0.767767768 0.023023023 1.209209
## 23769 0.768768769 0.023023023 1.208208
## 23770 0.769769770 0.023023023 1.207207
## 23771 0.770770771 0.023023023 1.206206
## 23772 0.771771772 0.023023023 1.205205
## 23773 0.772772773 0.023023023 1.204204
## 23774 0.773773774 0.023023023 1.203203
## 23775 0.774774775 0.023023023 1.202202
## 23776 0.775775776 0.023023023 1.201201
## 23777 0.776776777 0.023023023 1.200200
## 23778 0.777777778 0.023023023 1.199199
## 23779 0.778778779 0.023023023 1.198198
## 23780 0.779779780 0.023023023 1.197197
## 23781 0.780780781 0.023023023 1.196196
## 23782 0.781781782 0.023023023 1.195195
## 23783 0.782782783 0.023023023 1.194194
## 23784 0.783783784 0.023023023 1.193193
## 23785 0.784784785 0.023023023 1.192192
## 23786 0.785785786 0.023023023 1.191191
## 23787 0.786786787 0.023023023 1.190190
## 23788 0.787787788 0.023023023 1.189189
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 629

```

## 23789 0.788788789 0.023023023 1.188188
## 23790 0.789789790 0.023023023 1.187187
## 23791 0.790790791 0.023023023 1.186186
## 23792 0.791791792 0.023023023 1.185185
## 23793 0.792792793 0.023023023 1.184184
## 23794 0.793793794 0.023023023 1.183183
## 23795 0.794794795 0.023023023 1.182182
## 23796 0.795795796 0.023023023 1.181181
## 23797 0.796796797 0.023023023 1.180180
## 23798 0.797797798 0.023023023 1.179179
## 23799 0.798798799 0.023023023 1.178178
## 23800 0.799799800 0.023023023 1.177177
## 23801 0.800800801 0.023023023 1.176176
## 23802 0.801801802 0.023023023 1.175175
## 23803 0.802802803 0.023023023 1.174174
## 23804 0.803803804 0.023023023 1.173173
## 23805 0.804804805 0.023023023 1.172172
## 23806 0.805805806 0.023023023 1.171171
## 23807 0.806806807 0.023023023 1.170170
## 23808 0.807807808 0.023023023 1.169169
## 23809 0.808808809 0.023023023 1.168168
## 23810 0.809809810 0.023023023 1.167167
## 23811 0.810810811 0.023023023 1.166166
## 23812 0.811811812 0.023023023 1.165165
## 23813 0.812812813 0.023023023 1.164164
## 23814 0.813813814 0.023023023 1.163163
## 23815 0.814814815 0.023023023 1.162162
## 23816 0.815815816 0.023023023 1.161161
## 23817 0.816816817 0.023023023 1.160160
## 23818 0.817817818 0.023023023 1.159159
## 23819 0.818818819 0.023023023 1.158158
## 23820 0.819819820 0.023023023 1.157157
## 23821 0.820820821 0.023023023 1.156156
## 23822 0.821821822 0.023023023 1.155155
## 23823 0.822822823 0.023023023 1.154154
## 23824 0.823823824 0.023023023 1.153153
## 23825 0.824824825 0.023023023 1.152152
## 23826 0.825825826 0.023023023 1.151151
## 23827 0.826826827 0.023023023 1.150150
## 23828 0.827827828 0.023023023 1.149149
## 23829 0.828828829 0.023023023 1.148148
## 23830 0.829829830 0.023023023 1.147147
## 23831 0.830830831 0.023023023 1.146146
## 23832 0.831831832 0.023023023 1.145145
## 23833 0.832832833 0.023023023 1.144144
## 23834 0.833833834 0.023023023 1.143143

```

```
## 23835 0.834834835 0.023023023 1.142142
## 23836 0.835835836 0.023023023 1.141141
## 23837 0.836836837 0.023023023 1.140140
## 23838 0.837837838 0.023023023 1.139139
## 23839 0.838838839 0.023023023 1.138138
## 23840 0.839839840 0.023023023 1.137137
## 23841 0.840840841 0.023023023 1.136136
## 23842 0.841841842 0.023023023 1.135135
## 23843 0.842842843 0.023023023 1.134134
## 23844 0.843843844 0.023023023 1.133133
## 23845 0.844844845 0.023023023 1.132132
## 23846 0.845845846 0.023023023 1.131131
## 23847 0.846846847 0.023023023 1.130130
## 23848 0.847847848 0.023023023 1.129129
## 23849 0.848848849 0.023023023 1.128128
## 23850 0.849849850 0.023023023 1.127127
## 23851 0.850850851 0.023023023 1.126126
## 23852 0.851851852 0.023023023 1.125125
## 23853 0.852852853 0.023023023 1.124124
## 23854 0.853853854 0.023023023 1.123123
## 23855 0.854854855 0.023023023 1.122122
## 23856 0.8558555856 0.023023023 1.121121
## 23857 0.856856857 0.023023023 1.120120
## 23858 0.857857858 0.023023023 1.119119
## 23859 0.858858859 0.023023023 1.118118
## 23860 0.859859860 0.023023023 1.117117
## 23861 0.860860861 0.023023023 1.116116
## 23862 0.861861862 0.023023023 1.115115
## 23863 0.862862863 0.023023023 1.114114
## 23864 0.863863864 0.023023023 1.113113
## 23865 0.864864865 0.023023023 1.112112
## 23866 0.865865866 0.023023023 1.111111
## 23867 0.866866867 0.023023023 1.110110
## 23868 0.867867868 0.023023023 1.109109
## 23869 0.868868869 0.023023023 1.108108
## 23870 0.869869870 0.023023023 1.107107
## 23871 0.870870871 0.023023023 1.106106
## 23872 0.871871872 0.023023023 1.105105
## 23873 0.872872873 0.023023023 1.104104
## 23874 0.873873874 0.023023023 1.103103
## 23875 0.874874875 0.023023023 1.102102
## 23876 0.875875876 0.023023023 1.101101
## 23877 0.876876877 0.023023023 1.100100
## 23878 0.877877878 0.023023023 1.099099
## 23879 0.878878879 0.023023023 1.098098
## 23880 0.879879880 0.023023023 1.097097
```

```

## 23881 0.880880881 0.023023023 1.096096
## 23882 0.881881882 0.023023023 1.095095
## 23883 0.882882883 0.023023023 1.094094
## 23884 0.883883884 0.023023023 1.093093
## 23885 0.884884885 0.023023023 1.092092
## 23886 0.885885886 0.023023023 1.091091
## 23887 0.886886887 0.023023023 1.090090
## 23888 0.887887888 0.023023023 1.089089
## 23889 0.888888889 0.023023023 1.088088
## 23890 0.889889890 0.023023023 1.087087
## 23891 0.890890891 0.023023023 1.086086
## 23892 0.891891892 0.023023023 1.085085
## 23893 0.892892893 0.023023023 1.084084
## 23894 0.893893894 0.023023023 1.083083
## 23895 0.894894895 0.023023023 1.082082
## 23896 0.895895896 0.023023023 1.081081
## 23897 0.896896897 0.023023023 1.080080
## 23898 0.897897898 0.023023023 1.079079
## 23899 0.898898899 0.023023023 1.078078
## 23900 0.899899900 0.023023023 1.077077
## 23901 0.900900901 0.023023023 1.076076
## 23902 0.901901902 0.023023023 1.075075
## 23903 0.902902903 0.023023023 1.074074
## 23904 0.903903904 0.023023023 1.073073
## 23905 0.904904905 0.023023023 1.072072
## 23906 0.905905906 0.023023023 1.071071
## 23907 0.906906907 0.023023023 1.070070
## 23908 0.907907908 0.023023023 1.069069
## 23909 0.908908909 0.023023023 1.068068
## 23910 0.909909910 0.023023023 1.067067
## 23911 0.910910911 0.023023023 1.066066
## 23912 0.911911912 0.023023023 1.065065
## 23913 0.912912913 0.023023023 1.064064
## 23914 0.913913914 0.023023023 1.063063
## 23915 0.914914915 0.023023023 1.062062
## 23916 0.915915916 0.023023023 1.061061
## 23917 0.916916917 0.023023023 1.060060
## 23918 0.917917918 0.023023023 1.059059
## 23919 0.918918919 0.023023023 1.058058
## 23920 0.919919920 0.023023023 1.057057
## 23921 0.920920921 0.023023023 1.056056
## 23922 0.921921922 0.023023023 1.055055
## 23923 0.922922923 0.023023023 1.054054
## 23924 0.923923924 0.023023023 1.053053
## 23925 0.924924925 0.023023023 1.052052
## 23926 0.925925926 0.023023023 1.051051

```

```
## 23927 0.926926927 0.023023023 1.050050
## 23928 0.927927928 0.023023023 1.049049
## 23929 0.928928929 0.023023023 1.048048
## 23930 0.929929930 0.023023023 1.047047
## 23931 0.930930931 0.023023023 1.046046
## 23932 0.931931932 0.023023023 1.045045
## 23933 0.932932933 0.023023023 1.044044
## 23934 0.933933934 0.023023023 1.043043
## 23935 0.934934935 0.023023023 1.042042
## 23936 0.935935936 0.023023023 1.041041
## 23937 0.936936937 0.023023023 1.040040
## 23938 0.937937938 0.023023023 1.039039
## 23939 0.938938939 0.023023023 1.038038
## 23940 0.939939940 0.023023023 1.037037
## 23941 0.940940941 0.023023023 1.036036
## 23942 0.941941942 0.023023023 1.035035
## 23943 0.942942943 0.023023023 1.034034
## 23944 0.943943944 0.023023023 1.033033
## 23945 0.944944945 0.023023023 1.032032
## 23946 0.945945946 0.023023023 1.031031
## 23947 0.946946947 0.023023023 1.030030
## 23948 0.947947948 0.023023023 1.029029
## 23949 0.948948949 0.023023023 1.028028
## 23950 0.949949950 0.023023023 1.027027
## 23951 0.950950951 0.023023023 1.026026
## 23952 0.951951952 0.023023023 1.025025
## 23953 0.952952953 0.023023023 1.024024
## 23954 0.953953954 0.023023023 1.023023
## 23955 0.954954955 0.023023023 1.022022
## 23956 0.955955956 0.023023023 1.021021
## 23957 0.956956957 0.023023023 1.020020
## 23958 0.957957958 0.023023023 1.019019
## 23959 0.958958959 0.023023023 1.018018
## 23960 0.959959960 0.023023023 1.017017
## 23961 0.960960961 0.023023023 1.016016
## 23962 0.961961962 0.023023023 1.015015
## 23963 0.962962963 0.023023023 1.014014
## 23964 0.963963964 0.023023023 1.013013
## 23965 0.964964965 0.023023023 1.012012
## 23966 0.965965966 0.023023023 1.011011
## 23967 0.966966967 0.023023023 1.010010
## 23968 0.967967968 0.023023023 1.009009
## 23969 0.968968969 0.023023023 1.008008
## 23970 0.969969970 0.023023023 1.007007
## 23971 0.970970971 0.023023023 1.006006
## 23972 0.971971972 0.023023023 1.005005
```

```

## 23973 0.972972973 0.023023023 1.004004
## 23974 0.973973974 0.023023023 1.003003
## 23975 0.974974975 0.023023023 1.002002
## 23976 0.975975976 0.023023023 1.001001
## 23977 0.976976977 0.023023023 1.000000
## 23978 0.977977978 0.023023023 0.998999
## 23979 0.978978979 0.023023023 0.997998
## 23980 0.979979980 0.023023023 0.996997
## 23981 0.980980981 0.023023023 0.995996
## 23982 0.981981982 0.023023023 0.994995
## 23983 0.982982983 0.023023023 0.993994
## 23984 0.983983984 0.023023023 0.992993
## 23985 0.984984985 0.023023023 0.991992
## 23986 0.985985986 0.023023023 0.990991
## 23987 0.986986987 0.023023023 0.989990
## 23988 0.987987988 0.023023023 0.988989
## 23989 0.988988989 0.023023023 0.987988
## 23990 0.989989990 0.023023023 0.986987
## 23991 0.990990991 0.023023023 0.985986
## 23992 0.991991992 0.023023023 0.984985
## 23993 0.992992993 0.023023023 0.983984
## 23994 0.993993994 0.023023023 0.982983
## 23995 0.994994995 0.023023023 0.981982
## 23996 0.995995996 0.023023023 0.980981
## 23997 0.996996997 0.023023023 0.979980
## 23998 0.997997998 0.023023023 0.978979
## 23999 0.998998999 0.023023023 0.977978
## 24000 1.000000000 0.023023023 0.976977
## 24001 0.000000000 0.024024024 1.975976
## 24002 0.001001001 0.024024024 1.974975
## 24003 0.002002002 0.024024024 1.973974
## 24004 0.003003003 0.024024024 1.972973
## 24005 0.004004004 0.024024024 1.971972
## 24006 0.005005005 0.024024024 1.970971
## 24007 0.006006006 0.024024024 1.969970
## 24008 0.007007007 0.024024024 1.968969
## 24009 0.008008008 0.024024024 1.967968
## 24010 0.009009009 0.024024024 1.966967
## 24011 0.010010010 0.024024024 1.965966
## 24012 0.011011011 0.024024024 1.964965
## 24013 0.012012012 0.024024024 1.963964
## 24014 0.013013013 0.024024024 1.962963
## 24015 0.014014014 0.024024024 1.961962
## 24016 0.015015015 0.024024024 1.960961
## 24017 0.016016016 0.024024024 1.959960
## 24018 0.017017017 0.024024024 1.958959

```

```
## 24019 0.018018018 0.024024024 1.957958
## 24020 0.019019019 0.024024024 1.956957
## 24021 0.020020020 0.024024024 1.955956
## 24022 0.021021021 0.024024024 1.954955
## 24023 0.022022022 0.024024024 1.953954
## 24024 0.023023023 0.024024024 1.952953
## 24025 0.024024024 0.024024024 1.951952
## 24026 0.025025025 0.024024024 1.950951
## 24027 0.026026026 0.024024024 1.949950
## 24028 0.027027027 0.024024024 1.948949
## 24029 0.028028028 0.024024024 1.947948
## 24030 0.029029029 0.024024024 1.946947
## 24031 0.030030030 0.024024024 1.945946
## 24032 0.031031031 0.024024024 1.944945
## 24033 0.032032032 0.024024024 1.943944
## 24034 0.033033033 0.024024024 1.942943
## 24035 0.034034034 0.024024024 1.941942
## 24036 0.035035035 0.024024024 1.940941
## 24037 0.036036036 0.024024024 1.939940
## 24038 0.037037037 0.024024024 1.938939
## 24039 0.038038038 0.024024024 1.937938
## 24040 0.039039039 0.024024024 1.936937
## 24041 0.040040040 0.024024024 1.935936
## 24042 0.041041041 0.024024024 1.934935
## 24043 0.042042042 0.024024024 1.933934
## 24044 0.043043043 0.024024024 1.932933
## 24045 0.044044044 0.024024024 1.931932
## 24046 0.045045045 0.024024024 1.930931
## 24047 0.046046046 0.024024024 1.929930
## 24048 0.047047047 0.024024024 1.928929
## 24049 0.048048048 0.024024024 1.927928
## 24050 0.049049049 0.024024024 1.926927
## 24051 0.050050050 0.024024024 1.925926
## 24052 0.051051051 0.024024024 1.924925
## 24053 0.052052052 0.024024024 1.923924
## 24054 0.053053053 0.024024024 1.922923
## 24055 0.054054054 0.024024024 1.921922
## 24056 0.055055055 0.024024024 1.920921
## 24057 0.056056056 0.024024024 1.919920
## 24058 0.057057057 0.024024024 1.918919
## 24059 0.058058058 0.024024024 1.917918
## 24060 0.059059059 0.024024024 1.916917
## 24061 0.060060060 0.024024024 1.915916
## 24062 0.061061061 0.024024024 1.914915
## 24063 0.062062062 0.024024024 1.913914
## 24064 0.063063063 0.024024024 1.912913
```

```

## 24065 0.064064064 0.024024024 1.911912
## 24066 0.065065065 0.024024024 1.910911
## 24067 0.066066066 0.024024024 1.909910
## 24068 0.067067067 0.024024024 1.908909
## 24069 0.068068068 0.024024024 1.907908
## 24070 0.069069069 0.024024024 1.906907
## 24071 0.070070070 0.024024024 1.905906
## 24072 0.071071071 0.024024024 1.904905
## 24073 0.072072072 0.024024024 1.903904
## 24074 0.073073073 0.024024024 1.902903
## 24075 0.074074074 0.024024024 1.901902
## 24076 0.075075075 0.024024024 1.900901
## 24077 0.076076076 0.024024024 1.899900
## 24078 0.077077077 0.024024024 1.898899
## 24079 0.078078078 0.024024024 1.897898
## 24080 0.079079079 0.024024024 1.896897
## 24081 0.080080080 0.024024024 1.895896
## 24082 0.081081081 0.024024024 1.894895
## 24083 0.082082082 0.024024024 1.893894
## 24084 0.083083083 0.024024024 1.892893
## 24085 0.084084084 0.024024024 1.891892
## 24086 0.085085085 0.024024024 1.890891
## 24087 0.086086086 0.024024024 1.889890
## 24088 0.087087087 0.024024024 1.888889
## 24089 0.088088088 0.024024024 1.887888
## 24090 0.089089089 0.024024024 1.886887
## 24091 0.090090090 0.024024024 1.885886
## 24092 0.091091091 0.024024024 1.884885
## 24093 0.092092092 0.024024024 1.883884
## 24094 0.093093093 0.024024024 1.882883
## 24095 0.094094094 0.024024024 1.881882
## 24096 0.095095095 0.024024024 1.880881
## 24097 0.096096096 0.024024024 1.879880
## 24098 0.097097097 0.024024024 1.878879
## 24099 0.098098098 0.024024024 1.877878
## 24100 0.099099099 0.024024024 1.876877
## 24101 0.100100100 0.024024024 1.875876
## 24102 0.101101101 0.024024024 1.874875
## 24103 0.102102102 0.024024024 1.873874
## 24104 0.103103103 0.024024024 1.872873
## 24105 0.104104104 0.024024024 1.871872
## 24106 0.105105105 0.024024024 1.870871
## 24107 0.106106106 0.024024024 1.869870
## 24108 0.107107107 0.024024024 1.868869
## 24109 0.108108108 0.024024024 1.867868
## 24110 0.109109109 0.024024024 1.866867

```

```
## 24111 0.110110110 0.024024024 1.865866
## 24112 0.111111111 0.024024024 1.864865
## 24113 0.112112112 0.024024024 1.863864
## 24114 0.113113113 0.024024024 1.862863
## 24115 0.114114114 0.024024024 1.861862
## 24116 0.115115115 0.024024024 1.860861
## 24117 0.116116116 0.024024024 1.859860
## 24118 0.117117117 0.024024024 1.858859
## 24119 0.118118118 0.024024024 1.857858
## 24120 0.119119119 0.024024024 1.856857
## 24121 0.120120120 0.024024024 1.855856
## 24122 0.121121121 0.024024024 1.854855
## 24123 0.122122122 0.024024024 1.853854
## 24124 0.123123123 0.024024024 1.852853
## 24125 0.124124124 0.024024024 1.851852
## 24126 0.125125125 0.024024024 1.850851
## 24127 0.126126126 0.024024024 1.849850
## 24128 0.127127127 0.024024024 1.848849
## 24129 0.128128128 0.024024024 1.847848
## 24130 0.129129129 0.024024024 1.846847
## 24131 0.130130130 0.024024024 1.845846
## 24132 0.131131131 0.024024024 1.844845
## 24133 0.132132132 0.024024024 1.843844
## 24134 0.133133133 0.024024024 1.842843
## 24135 0.134134134 0.024024024 1.841842
## 24136 0.135135135 0.024024024 1.840841
## 24137 0.136136136 0.024024024 1.839840
## 24138 0.137137137 0.024024024 1.838839
## 24139 0.138138138 0.024024024 1.837838
## 24140 0.139139139 0.024024024 1.836837
## 24141 0.140140140 0.024024024 1.835836
## 24142 0.141141141 0.024024024 1.834835
## 24143 0.142142142 0.024024024 1.833834
## 24144 0.143143143 0.024024024 1.832833
## 24145 0.144144144 0.024024024 1.831832
## 24146 0.145145145 0.024024024 1.830831
## 24147 0.146146146 0.024024024 1.829830
## 24148 0.147147147 0.024024024 1.828829
## 24149 0.148148148 0.024024024 1.827828
## 24150 0.149149149 0.024024024 1.826827
## 24151 0.150150150 0.024024024 1.825826
## 24152 0.151151151 0.024024024 1.824825
## 24153 0.152152152 0.024024024 1.823824
## 24154 0.153153153 0.024024024 1.822823
## 24155 0.154154154 0.024024024 1.821822
## 24156 0.155155155 0.024024024 1.820821
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 637

```
## 24157 0.156156156 0.024024024 1.819820
## 24158 0.157157157 0.024024024 1.818819
## 24159 0.158158158 0.024024024 1.817818
## 24160 0.159159159 0.024024024 1.816817
## 24161 0.160160160 0.024024024 1.815816
## 24162 0.161161161 0.024024024 1.814815
## 24163 0.162162162 0.024024024 1.813814
## 24164 0.163163163 0.024024024 1.812813
## 24165 0.164164164 0.024024024 1.811812
## 24166 0.165165165 0.024024024 1.810811
## 24167 0.166166166 0.024024024 1.809810
## 24168 0.167167167 0.024024024 1.808809
## 24169 0.168168168 0.024024024 1.807808
## 24170 0.169169169 0.024024024 1.806807
## 24171 0.170170170 0.024024024 1.805806
## 24172 0.171171171 0.024024024 1.804805
## 24173 0.172172172 0.024024024 1.803804
## 24174 0.173173173 0.024024024 1.802803
## 24175 0.174174174 0.024024024 1.801802
## 24176 0.175175175 0.024024024 1.800801
## 24177 0.176176176 0.024024024 1.799800
## 24178 0.177177177 0.024024024 1.798799
## 24179 0.178178178 0.024024024 1.797798
## 24180 0.179179179 0.024024024 1.796797
## 24181 0.180180180 0.024024024 1.795796
## 24182 0.181181181 0.024024024 1.794795
## 24183 0.182182182 0.024024024 1.793794
## 24184 0.183183183 0.024024024 1.792793
## 24185 0.184184184 0.024024024 1.791792
## 24186 0.185185185 0.024024024 1.790791
## 24187 0.186186186 0.024024024 1.789790
## 24188 0.187187187 0.024024024 1.788789
## 24189 0.188188188 0.024024024 1.787788
## 24190 0.189189189 0.024024024 1.786787
## 24191 0.190190190 0.024024024 1.785786
## 24192 0.191191191 0.024024024 1.784785
## 24193 0.192192192 0.024024024 1.783784
## 24194 0.193193193 0.024024024 1.782783
## 24195 0.194194194 0.024024024 1.781782
## 24196 0.195195195 0.024024024 1.780781
## 24197 0.196196196 0.024024024 1.779780
## 24198 0.197197197 0.024024024 1.778779
## 24199 0.198198198 0.024024024 1.777778
## 24200 0.199199199 0.024024024 1.776777
## 24201 0.200200200 0.024024024 1.775776
## 24202 0.201201201 0.024024024 1.774775
```

```
## 24203 0.202202202 0.024024024 1.773774
## 24204 0.203203203 0.024024024 1.772773
## 24205 0.204204204 0.024024024 1.771772
## 24206 0.205205205 0.024024024 1.770771
## 24207 0.206206206 0.024024024 1.769770
## 24208 0.207207207 0.024024024 1.768769
## 24209 0.208208208 0.024024024 1.767768
## 24210 0.209209209 0.024024024 1.766767
## 24211 0.210210210 0.024024024 1.765766
## 24212 0.211211211 0.024024024 1.764765
## 24213 0.212212212 0.024024024 1.763764
## 24214 0.213213213 0.024024024 1.762763
## 24215 0.214214214 0.024024024 1.761762
## 24216 0.215215215 0.024024024 1.760761
## 24217 0.216216216 0.024024024 1.759760
## 24218 0.217217217 0.024024024 1.758759
## 24219 0.218218218 0.024024024 1.757758
## 24220 0.219219219 0.024024024 1.756757
## 24221 0.220220220 0.024024024 1.755756
## 24222 0.221221221 0.024024024 1.754755
## 24223 0.222222222 0.024024024 1.753754
## 24224 0.223223223 0.024024024 1.752753
## 24225 0.224224224 0.024024024 1.751752
## 24226 0.225225225 0.024024024 1.750751
## 24227 0.226226226 0.024024024 1.749750
## 24228 0.227227227 0.024024024 1.748749
## 24229 0.228228228 0.024024024 1.747748
## 24230 0.229229229 0.024024024 1.746747
## 24231 0.230230230 0.024024024 1.745746
## 24232 0.231231231 0.024024024 1.744745
## 24233 0.232232232 0.024024024 1.743744
## 24234 0.233233233 0.024024024 1.742743
## 24235 0.234234234 0.024024024 1.741742
## 24236 0.235235235 0.024024024 1.740741
## 24237 0.236236236 0.024024024 1.739740
## 24238 0.237237237 0.024024024 1.738739
## 24239 0.238238238 0.024024024 1.737738
## 24240 0.239239239 0.024024024 1.736737
## 24241 0.240240240 0.024024024 1.735736
## 24242 0.241241241 0.024024024 1.734735
## 24243 0.242242242 0.024024024 1.733734
## 24244 0.243243243 0.024024024 1.732733
## 24245 0.244244244 0.024024024 1.731732
## 24246 0.245245245 0.024024024 1.730731
## 24247 0.246246246 0.024024024 1.729730
## 24248 0.247247247 0.024024024 1.728729
```

```
## 24249 0.248248248 0.024024024 1.727728
## 24250 0.249249249 0.024024024 1.726727
## 24251 0.250250250 0.024024024 1.725726
## 24252 0.251251251 0.024024024 1.724725
## 24253 0.252252252 0.024024024 1.723724
## 24254 0.253253253 0.024024024 1.722723
## 24255 0.254254254 0.024024024 1.721722
## 24256 0.255255255 0.024024024 1.720721
## 24257 0.256256256 0.024024024 1.719720
## 24258 0.257257257 0.024024024 1.718719
## 24259 0.258258258 0.024024024 1.717718
## 24260 0.259259259 0.024024024 1.716717
## 24261 0.260260260 0.024024024 1.715716
## 24262 0.261261261 0.024024024 1.714715
## 24263 0.262262262 0.024024024 1.713714
## 24264 0.263263263 0.024024024 1.712713
## 24265 0.264264264 0.024024024 1.711712
## 24266 0.265265265 0.024024024 1.710711
## 24267 0.266266266 0.024024024 1.709710
## 24268 0.267267267 0.024024024 1.708709
## 24269 0.268268268 0.024024024 1.707708
## 24270 0.269269269 0.024024024 1.706707
## 24271 0.270270270 0.024024024 1.705706
## 24272 0.271271271 0.024024024 1.704705
## 24273 0.272272272 0.024024024 1.703704
## 24274 0.273273273 0.024024024 1.702703
## 24275 0.274274274 0.024024024 1.701702
## 24276 0.275275275 0.024024024 1.700701
## 24277 0.276276276 0.024024024 1.699700
## 24278 0.277277277 0.024024024 1.698699
## 24279 0.278278278 0.024024024 1.697698
## 24280 0.279279279 0.024024024 1.696697
## 24281 0.280280280 0.024024024 1.695696
## 24282 0.281281281 0.024024024 1.694695
## 24283 0.282282282 0.024024024 1.693694
## 24284 0.283283283 0.024024024 1.692693
## 24285 0.284284284 0.024024024 1.691692
## 24286 0.285285285 0.024024024 1.690691
## 24287 0.286286286 0.024024024 1.689690
## 24288 0.287287287 0.024024024 1.688689
## 24289 0.288288288 0.024024024 1.687688
## 24290 0.289289289 0.024024024 1.686687
## 24291 0.290290290 0.024024024 1.685686
## 24292 0.291291291 0.024024024 1.684685
## 24293 0.292292292 0.024024024 1.683684
## 24294 0.293293293 0.024024024 1.682683
```

```
## 24295 0.294294294 0.024024024 1.681682
## 24296 0.295295295 0.024024024 1.680681
## 24297 0.296296296 0.024024024 1.679680
## 24298 0.297297297 0.024024024 1.678679
## 24299 0.298298298 0.024024024 1.677678
## 24300 0.299299299 0.024024024 1.676677
## 24301 0.300300300 0.024024024 1.675676
## 24302 0.301301301 0.024024024 1.674675
## 24303 0.302302302 0.024024024 1.673674
## 24304 0.303303303 0.024024024 1.672673
## 24305 0.304304304 0.024024024 1.671672
## 24306 0.305305305 0.024024024 1.670671
## 24307 0.306306306 0.024024024 1.669670
## 24308 0.307307307 0.024024024 1.668669
## 24309 0.308308308 0.024024024 1.667668
## 24310 0.309309309 0.024024024 1.666667
## 24311 0.310310310 0.024024024 1.665666
## 24312 0.311311311 0.024024024 1.664665
## 24313 0.312312312 0.024024024 1.663664
## 24314 0.313313313 0.024024024 1.662663
## 24315 0.314314314 0.024024024 1.661662
## 24316 0.315315315 0.024024024 1.660661
## 24317 0.316316316 0.024024024 1.659660
## 24318 0.317317317 0.024024024 1.658659
## 24319 0.318318318 0.024024024 1.657658
## 24320 0.319319319 0.024024024 1.656657
## 24321 0.320320320 0.024024024 1.655656
## 24322 0.321321321 0.024024024 1.654655
## 24323 0.322322322 0.024024024 1.653654
## 24324 0.323323323 0.024024024 1.652653
## 24325 0.324324324 0.024024024 1.651652
## 24326 0.325325325 0.024024024 1.650651
## 24327 0.326326326 0.024024024 1.649650
## 24328 0.327327327 0.024024024 1.648649
## 24329 0.328328328 0.024024024 1.647648
## 24330 0.329329329 0.024024024 1.646647
## 24331 0.330330330 0.024024024 1.645646
## 24332 0.331331331 0.024024024 1.644645
## 24333 0.332332332 0.024024024 1.643644
## 24334 0.333333333 0.024024024 1.642643
## 24335 0.334334334 0.024024024 1.641642
## 24336 0.335335335 0.024024024 1.640641
## 24337 0.336336336 0.024024024 1.639640
## 24338 0.337337337 0.024024024 1.638639
## 24339 0.338338338 0.024024024 1.637638
## 24340 0.339339339 0.024024024 1.636637
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 641

```

## 24341 0.340340340 0.024024024 1.635636
## 24342 0.341341341 0.024024024 1.634635
## 24343 0.342342342 0.024024024 1.633634
## 24344 0.343343343 0.024024024 1.632633
## 24345 0.344344344 0.024024024 1.631632
## 24346 0.345345345 0.024024024 1.630631
## 24347 0.346346346 0.024024024 1.629630
## 24348 0.347347347 0.024024024 1.628629
## 24349 0.348348348 0.024024024 1.627628
## 24350 0.349349349 0.024024024 1.626627
## 24351 0.350350350 0.024024024 1.625626
## 24352 0.351351351 0.024024024 1.624625
## 24353 0.352352352 0.024024024 1.623624
## 24354 0.353353353 0.024024024 1.622623
## 24355 0.354354354 0.024024024 1.621622
## 24356 0.355355355 0.024024024 1.620621
## 24357 0.356356356 0.024024024 1.619620
## 24358 0.357357357 0.024024024 1.618619
## 24359 0.358358358 0.024024024 1.617618
## 24360 0.359359359 0.024024024 1.616617
## 24361 0.360360360 0.024024024 1.615616
## 24362 0.361361361 0.024024024 1.614615
## 24363 0.362362362 0.024024024 1.613614
## 24364 0.363363363 0.024024024 1.612613
## 24365 0.364364364 0.024024024 1.611612
## 24366 0.365365365 0.024024024 1.610611
## 24367 0.366366366 0.024024024 1.609610
## 24368 0.367367367 0.024024024 1.608609
## 24369 0.368368368 0.024024024 1.607608
## 24370 0.369369369 0.024024024 1.606607
## 24371 0.370370370 0.024024024 1.605606
## 24372 0.371371371 0.024024024 1.604605
## 24373 0.372372372 0.024024024 1.603604
## 24374 0.373373373 0.024024024 1.602603
## 24375 0.374374374 0.024024024 1.601602
## 24376 0.375375375 0.024024024 1.600601
## 24377 0.376376376 0.024024024 1.599600
## 24378 0.377377377 0.024024024 1.598599
## 24379 0.378378378 0.024024024 1.597598
## 24380 0.379379379 0.024024024 1.596597
## 24381 0.380380380 0.024024024 1.595596
## 24382 0.381381381 0.024024024 1.594595
## 24383 0.382382382 0.024024024 1.593594
## 24384 0.383383383 0.024024024 1.592593
## 24385 0.384384384 0.024024024 1.591592
## 24386 0.385385385 0.024024024 1.590591

```

```
## 24387 0.386386386 0.024024024 1.589590
## 24388 0.387387387 0.024024024 1.588589
## 24389 0.388388388 0.024024024 1.587588
## 24390 0.389389389 0.024024024 1.586587
## 24391 0.390390390 0.024024024 1.585586
## 24392 0.391391391 0.024024024 1.584585
## 24393 0.392392392 0.024024024 1.583584
## 24394 0.393393393 0.024024024 1.582583
## 24395 0.394394394 0.024024024 1.581582
## 24396 0.395395395 0.024024024 1.580581
## 24397 0.396396396 0.024024024 1.579580
## 24398 0.397397397 0.024024024 1.578579
## 24399 0.398398398 0.024024024 1.577578
## 24400 0.399399399 0.024024024 1.576577
## 24401 0.400400400 0.024024024 1.575576
## 24402 0.401401401 0.024024024 1.574575
## 24403 0.402402402 0.024024024 1.573574
## 24404 0.403403403 0.024024024 1.572573
## 24405 0.404404404 0.024024024 1.571572
## 24406 0.405405405 0.024024024 1.570571
## 24407 0.406406406 0.024024024 1.569570
## 24408 0.407407407 0.024024024 1.568569
## 24409 0.408408408 0.024024024 1.567568
## 24410 0.409409409 0.024024024 1.566567
## 24411 0.410410410 0.024024024 1.565566
## 24412 0.411411411 0.024024024 1.564565
## 24413 0.412412412 0.024024024 1.563564
## 24414 0.413413413 0.024024024 1.562563
## 24415 0.414414414 0.024024024 1.561562
## 24416 0.415415415 0.024024024 1.560561
## 24417 0.416416416 0.024024024 1.559560
## 24418 0.417417417 0.024024024 1.558559
## 24419 0.418418418 0.024024024 1.557558
## 24420 0.419419419 0.024024024 1.556557
## 24421 0.420420420 0.024024024 1.555556
## 24422 0.421421421 0.024024024 1.554555
## 24423 0.422422422 0.024024024 1.553554
## 24424 0.423423423 0.024024024 1.552553
## 24425 0.424424424 0.024024024 1.551552
## 24426 0.425425425 0.024024024 1.550551
## 24427 0.426426426 0.024024024 1.549550
## 24428 0.427427427 0.024024024 1.548549
## 24429 0.428428428 0.024024024 1.547548
## 24430 0.429429429 0.024024024 1.546547
## 24431 0.430430430 0.024024024 1.545546
## 24432 0.431431431 0.024024024 1.544545
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 643

```

## 24433 0.432432432 0.024024024 1.543544
## 24434 0.433433433 0.024024024 1.542543
## 24435 0.434434434 0.024024024 1.541542
## 24436 0.435435435 0.024024024 1.540541
## 24437 0.436436436 0.024024024 1.539540
## 24438 0.437437437 0.024024024 1.538539
## 24439 0.438438438 0.024024024 1.537538
## 24440 0.439439439 0.024024024 1.536537
## 24441 0.440440440 0.024024024 1.535536
## 24442 0.441441441 0.024024024 1.534535
## 24443 0.442442442 0.024024024 1.533534
## 24444 0.443443443 0.024024024 1.532533
## 24445 0.444444444 0.024024024 1.531532
## 24446 0.445445445 0.024024024 1.530531
## 24447 0.446446446 0.024024024 1.529530
## 24448 0.447447447 0.024024024 1.528529
## 24449 0.448448448 0.024024024 1.527528
## 24450 0.449449449 0.024024024 1.526527
## 24451 0.450450450 0.024024024 1.525526
## 24452 0.451451451 0.024024024 1.524525
## 24453 0.452452452 0.024024024 1.523524
## 24454 0.453453453 0.024024024 1.522523
## 24455 0.454454454 0.024024024 1.521522
## 24456 0.455455455 0.024024024 1.520521
## 24457 0.456456456 0.024024024 1.519520
## 24458 0.457457457 0.024024024 1.518519
## 24459 0.458458458 0.024024024 1.517518
## 24460 0.459459459 0.024024024 1.516517
## 24461 0.460460460 0.024024024 1.515516
## 24462 0.461461461 0.024024024 1.514515
## 24463 0.462462462 0.024024024 1.513514
## 24464 0.463463463 0.024024024 1.512513
## 24465 0.464464464 0.024024024 1.511512
## 24466 0.465465465 0.024024024 1.510511
## 24467 0.466466466 0.024024024 1.509510
## 24468 0.467467467 0.024024024 1.508509
## 24469 0.468468468 0.024024024 1.507508
## 24470 0.469469469 0.024024024 1.506507
## 24471 0.470470470 0.024024024 1.505506
## 24472 0.471471471 0.024024024 1.504505
## 24473 0.472472472 0.024024024 1.503504
## 24474 0.473473473 0.024024024 1.502503
## 24475 0.474474474 0.024024024 1.501502
## 24476 0.475475475 0.024024024 1.500501
## 24477 0.476476476 0.024024024 1.499499
## 24478 0.477477477 0.024024024 1.498498

```

```
## 24479 0.478478478 0.024024024 1.497497
## 24480 0.479479479 0.024024024 1.496496
## 24481 0.480480480 0.024024024 1.495495
## 24482 0.481481481 0.024024024 1.494494
## 24483 0.482482482 0.024024024 1.493493
## 24484 0.483483483 0.024024024 1.492492
## 24485 0.484484484 0.024024024 1.491491
## 24486 0.485485485 0.024024024 1.490490
## 24487 0.486486486 0.024024024 1.489489
## 24488 0.487487487 0.024024024 1.488488
## 24489 0.488488488 0.024024024 1.487487
## 24490 0.489489489 0.024024024 1.486486
## 24491 0.490490490 0.024024024 1.485485
## 24492 0.491491491 0.024024024 1.484484
## 24493 0.492492492 0.024024024 1.483483
## 24494 0.493493493 0.024024024 1.482482
## 24495 0.494494494 0.024024024 1.481481
## 24496 0.495495495 0.024024024 1.480480
## 24497 0.496496496 0.024024024 1.479479
## 24498 0.497497497 0.024024024 1.478478
## 24499 0.498498498 0.024024024 1.477477
## 24500 0.499499499 0.024024024 1.476476
## 24501 0.500500501 0.024024024 1.475475
## 24502 0.501501502 0.024024024 1.474474
## 24503 0.502502503 0.024024024 1.473473
## 24504 0.503503504 0.024024024 1.472472
## 24505 0.504504505 0.024024024 1.471471
## 24506 0.505505506 0.024024024 1.470470
## 24507 0.506506507 0.024024024 1.469469
## 24508 0.507507508 0.024024024 1.468468
## 24509 0.508508509 0.024024024 1.467467
## 24510 0.509509510 0.024024024 1.466466
## 24511 0.510510511 0.024024024 1.465465
## 24512 0.511511512 0.024024024 1.464464
## 24513 0.512512513 0.024024024 1.463463
## 24514 0.513513514 0.024024024 1.462462
## 24515 0.514514515 0.024024024 1.461461
## 24516 0.515515516 0.024024024 1.460460
## 24517 0.516516517 0.024024024 1.459459
## 24518 0.517517518 0.024024024 1.458458
## 24519 0.518518519 0.024024024 1.457457
## 24520 0.519519520 0.024024024 1.456456
## 24521 0.520520521 0.024024024 1.455455
## 24522 0.521521522 0.024024024 1.454454
## 24523 0.522522523 0.024024024 1.453453
## 24524 0.523523524 0.024024024 1.452452
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 645

```

## 24525 0.524524525 0.024024024 1.451451
## 24526 0.525525526 0.024024024 1.450450
## 24527 0.526526527 0.024024024 1.449449
## 24528 0.527527528 0.024024024 1.448448
## 24529 0.528528529 0.024024024 1.447447
## 24530 0.529529530 0.024024024 1.446446
## 24531 0.530530531 0.024024024 1.445445
## 24532 0.531531532 0.024024024 1.444444
## 24533 0.532532533 0.024024024 1.443443
## 24534 0.533533534 0.024024024 1.442442
## 24535 0.534534535 0.024024024 1.441441
## 24536 0.535535536 0.024024024 1.440440
## 24537 0.536536537 0.024024024 1.439439
## 24538 0.537537538 0.024024024 1.438438
## 24539 0.538538539 0.024024024 1.437437
## 24540 0.539539540 0.024024024 1.436436
## 24541 0.540540541 0.024024024 1.435435
## 24542 0.541541542 0.024024024 1.434434
## 24543 0.542542543 0.024024024 1.433433
## 24544 0.543543544 0.024024024 1.432432
## 24545 0.544544545 0.024024024 1.431431
## 24546 0.545545546 0.024024024 1.430430
## 24547 0.546546547 0.024024024 1.429429
## 24548 0.547547548 0.024024024 1.428428
## 24549 0.548548549 0.024024024 1.427427
## 24550 0.549549550 0.024024024 1.426426
## 24551 0.550550551 0.024024024 1.425425
## 24552 0.551551552 0.024024024 1.424424
## 24553 0.552552553 0.024024024 1.423423
## 24554 0.553553554 0.024024024 1.422422
## 24555 0.554554555 0.024024024 1.421421
## 24556 0.555555556 0.024024024 1.420420
## 24557 0.556556557 0.024024024 1.419419
## 24558 0.557557558 0.024024024 1.418418
## 24559 0.558558559 0.024024024 1.417417
## 24560 0.559559560 0.024024024 1.416416
## 24561 0.560560561 0.024024024 1.415415
## 24562 0.561561562 0.024024024 1.414414
## 24563 0.562562563 0.024024024 1.413413
## 24564 0.563563564 0.024024024 1.412412
## 24565 0.564564565 0.024024024 1.411411
## 24566 0.565565566 0.024024024 1.410410
## 24567 0.566566567 0.024024024 1.409409
## 24568 0.567567568 0.024024024 1.408408
## 24569 0.568568569 0.024024024 1.407407
## 24570 0.569569570 0.024024024 1.406406

```

```
## 24571 0.570570571 0.024024024 1.405405
## 24572 0.571571572 0.024024024 1.404404
## 24573 0.572572573 0.024024024 1.403403
## 24574 0.573573574 0.024024024 1.402402
## 24575 0.574574575 0.024024024 1.401401
## 24576 0.575575576 0.024024024 1.400400
## 24577 0.576576577 0.024024024 1.399399
## 24578 0.577577578 0.024024024 1.398398
## 24579 0.578578579 0.024024024 1.397397
## 24580 0.579579580 0.024024024 1.396396
## 24581 0.580580581 0.024024024 1.395395
## 24582 0.581581582 0.024024024 1.394394
## 24583 0.582582583 0.024024024 1.393393
## 24584 0.583583584 0.024024024 1.392392
## 24585 0.584584585 0.024024024 1.391391
## 24586 0.585585586 0.024024024 1.390390
## 24587 0.586586587 0.024024024 1.389389
## 24588 0.587587588 0.024024024 1.388388
## 24589 0.588588589 0.024024024 1.387387
## 24590 0.589589590 0.024024024 1.386386
## 24591 0.590590591 0.024024024 1.385385
## 24592 0.591591592 0.024024024 1.384384
## 24593 0.592592593 0.024024024 1.383383
## 24594 0.593593594 0.024024024 1.382382
## 24595 0.594594595 0.024024024 1.381381
## 24596 0.595595596 0.024024024 1.380380
## 24597 0.596596597 0.024024024 1.379379
## 24598 0.597597598 0.024024024 1.378378
## 24599 0.598598599 0.024024024 1.377377
## 24600 0.599599600 0.024024024 1.376376
## 24601 0.600600601 0.024024024 1.375375
## 24602 0.601601602 0.024024024 1.374374
## 24603 0.602602603 0.024024024 1.373373
## 24604 0.603603604 0.024024024 1.372372
## 24605 0.604604605 0.024024024 1.371371
## 24606 0.605605606 0.024024024 1.370370
## 24607 0.606606607 0.024024024 1.369369
## 24608 0.607607608 0.024024024 1.368368
## 24609 0.608608609 0.024024024 1.367367
## 24610 0.609609610 0.024024024 1.366366
## 24611 0.610610611 0.024024024 1.365365
## 24612 0.611611612 0.024024024 1.364364
## 24613 0.612612613 0.024024024 1.363363
## 24614 0.613613614 0.024024024 1.362362
## 24615 0.614614615 0.024024024 1.361361
## 24616 0.615615616 0.024024024 1.360360
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR647

```

## 24617 0.616616617 0.024024024 1.359359
## 24618 0.617617618 0.024024024 1.358358
## 24619 0.618618619 0.024024024 1.357357
## 24620 0.619619620 0.024024024 1.356356
## 24621 0.620620621 0.024024024 1.355355
## 24622 0.621621622 0.024024024 1.354354
## 24623 0.622622623 0.024024024 1.353353
## 24624 0.623623624 0.024024024 1.352352
## 24625 0.624624625 0.024024024 1.351351
## 24626 0.625625626 0.024024024 1.350350
## 24627 0.626626627 0.024024024 1.349349
## 24628 0.627627628 0.024024024 1.348348
## 24629 0.628628629 0.024024024 1.347347
## 24630 0.629629630 0.024024024 1.346346
## 24631 0.630630631 0.024024024 1.345345
## 24632 0.631631632 0.024024024 1.344344
## 24633 0.632632633 0.024024024 1.343343
## 24634 0.633633634 0.024024024 1.342342
## 24635 0.634634635 0.024024024 1.341341
## 24636 0.635635636 0.024024024 1.340340
## 24637 0.636636637 0.024024024 1.339339
## 24638 0.637637638 0.024024024 1.338338
## 24639 0.638638639 0.024024024 1.337337
## 24640 0.639639640 0.024024024 1.336336
## 24641 0.640640641 0.024024024 1.335335
## 24642 0.641641642 0.024024024 1.334334
## 24643 0.642642643 0.024024024 1.333333
## 24644 0.643643644 0.024024024 1.332332
## 24645 0.644644645 0.024024024 1.331331
## 24646 0.645645646 0.024024024 1.330330
## 24647 0.646646647 0.024024024 1.329329
## 24648 0.647647648 0.024024024 1.328328
## 24649 0.648648649 0.024024024 1.327327
## 24650 0.649649650 0.024024024 1.326326
## 24651 0.650650651 0.024024024 1.325325
## 24652 0.651651652 0.024024024 1.324324
## 24653 0.652652653 0.024024024 1.323323
## 24654 0.653653654 0.024024024 1.322322
## 24655 0.654654655 0.024024024 1.321321
## 24656 0.655655656 0.024024024 1.320320
## 24657 0.656656657 0.024024024 1.319319
## 24658 0.657657658 0.024024024 1.318318
## 24659 0.658658659 0.024024024 1.317317
## 24660 0.659659660 0.024024024 1.316316
## 24661 0.660660661 0.024024024 1.315315
## 24662 0.661661662 0.024024024 1.314314

```

```
## 24663 0.662662663 0.024024024 1.313313
## 24664 0.663663664 0.024024024 1.312312
## 24665 0.664664665 0.024024024 1.311311
## 24666 0.665665666 0.024024024 1.310310
## 24667 0.666666667 0.024024024 1.309309
## 24668 0.667667668 0.024024024 1.308308
## 24669 0.668668669 0.024024024 1.307307
## 24670 0.669669670 0.024024024 1.306306
## 24671 0.670670671 0.024024024 1.305305
## 24672 0.671671672 0.024024024 1.304304
## 24673 0.672672673 0.024024024 1.303303
## 24674 0.673673674 0.024024024 1.302302
## 24675 0.674674675 0.024024024 1.301301
## 24676 0.675675676 0.024024024 1.300300
## 24677 0.676676677 0.024024024 1.299299
## 24678 0.677677678 0.024024024 1.298298
## 24679 0.678678679 0.024024024 1.297297
## 24680 0.679679680 0.024024024 1.296296
## 24681 0.680680681 0.024024024 1.295295
## 24682 0.681681682 0.024024024 1.294294
## 24683 0.682682683 0.024024024 1.293293
## 24684 0.683683684 0.024024024 1.292292
## 24685 0.684684685 0.024024024 1.291291
## 24686 0.685685686 0.024024024 1.290290
## 24687 0.686686687 0.024024024 1.289289
## 24688 0.687687688 0.024024024 1.288288
## 24689 0.688688689 0.024024024 1.287287
## 24690 0.689689690 0.024024024 1.286286
## 24691 0.690690691 0.024024024 1.285285
## 24692 0.691691692 0.024024024 1.284284
## 24693 0.692692693 0.024024024 1.283283
## 24694 0.693693694 0.024024024 1.282282
## 24695 0.694694695 0.024024024 1.281281
## 24696 0.695695696 0.024024024 1.280280
## 24697 0.696696697 0.024024024 1.279279
## 24698 0.697697698 0.024024024 1.278278
## 24699 0.698698699 0.024024024 1.277277
## 24700 0.699699700 0.024024024 1.276276
## 24701 0.700700701 0.024024024 1.275275
## 24702 0.701701702 0.024024024 1.274274
## 24703 0.702702703 0.024024024 1.273273
## 24704 0.703703704 0.024024024 1.272272
## 24705 0.704704705 0.024024024 1.271271
## 24706 0.705705706 0.024024024 1.270270
## 24707 0.706706707 0.024024024 1.269269
## 24708 0.707707708 0.024024024 1.268268
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 649

```

## 24709 0.708708709 0.024024024 1.267267
## 24710 0.709709710 0.024024024 1.266266
## 24711 0.710710711 0.024024024 1.265265
## 24712 0.711711712 0.024024024 1.264264
## 24713 0.712712713 0.024024024 1.263263
## 24714 0.713713714 0.024024024 1.262262
## 24715 0.714714715 0.024024024 1.261261
## 24716 0.715715716 0.024024024 1.260260
## 24717 0.716716717 0.024024024 1.259259
## 24718 0.717717718 0.024024024 1.258258
## 24719 0.718718719 0.024024024 1.257257
## 24720 0.719719720 0.024024024 1.256256
## 24721 0.720720721 0.024024024 1.255255
## 24722 0.721721722 0.024024024 1.254254
## 24723 0.722722723 0.024024024 1.253253
## 24724 0.723723724 0.024024024 1.252252
## 24725 0.724724725 0.024024024 1.251251
## 24726 0.725725726 0.024024024 1.250250
## 24727 0.726726727 0.024024024 1.249249
## 24728 0.727727728 0.024024024 1.248248
## 24729 0.728728729 0.024024024 1.247247
## 24730 0.729729730 0.024024024 1.246246
## 24731 0.730730731 0.024024024 1.245245
## 24732 0.731731732 0.024024024 1.244244
## 24733 0.732732733 0.024024024 1.243243
## 24734 0.733733734 0.024024024 1.242242
## 24735 0.734734735 0.024024024 1.241241
## 24736 0.735735736 0.024024024 1.240240
## 24737 0.736736737 0.024024024 1.239239
## 24738 0.737737738 0.024024024 1.238238
## 24739 0.738738739 0.024024024 1.237237
## 24740 0.739739740 0.024024024 1.236236
## 24741 0.740740741 0.024024024 1.235235
## 24742 0.741741742 0.024024024 1.234234
## 24743 0.742742743 0.024024024 1.233233
## 24744 0.743743744 0.024024024 1.232232
## 24745 0.744744745 0.024024024 1.231231
## 24746 0.745745746 0.024024024 1.230230
## 24747 0.746746747 0.024024024 1.229229
## 24748 0.747747748 0.024024024 1.228228
## 24749 0.748748749 0.024024024 1.227227
## 24750 0.749749750 0.024024024 1.226226
## 24751 0.750750751 0.024024024 1.225225
## 24752 0.751751752 0.024024024 1.224224
## 24753 0.752752753 0.024024024 1.223223
## 24754 0.753753754 0.024024024 1.222222

```

```
## 24755 0.754754755 0.024024024 1.221221
## 24756 0.755755756 0.024024024 1.220220
## 24757 0.756756757 0.024024024 1.219219
## 24758 0.757757758 0.024024024 1.218218
## 24759 0.758758759 0.024024024 1.217217
## 24760 0.759759760 0.024024024 1.216216
## 24761 0.760760761 0.024024024 1.215215
## 24762 0.761761762 0.024024024 1.214214
## 24763 0.762762763 0.024024024 1.213213
## 24764 0.763763764 0.024024024 1.212212
## 24765 0.764764765 0.024024024 1.211211
## 24766 0.765765766 0.024024024 1.210210
## 24767 0.766766767 0.024024024 1.209209
## 24768 0.767767768 0.024024024 1.208208
## 24769 0.768768769 0.024024024 1.207207
## 24770 0.769769770 0.024024024 1.206206
## 24771 0.770770771 0.024024024 1.205205
## 24772 0.771771772 0.024024024 1.204204
## 24773 0.772772773 0.024024024 1.203203
## 24774 0.773773774 0.024024024 1.202202
## 24775 0.774774775 0.024024024 1.201201
## 24776 0.775775776 0.024024024 1.200200
## 24777 0.776776777 0.024024024 1.199199
## 24778 0.777777778 0.024024024 1.198198
## 24779 0.778778779 0.024024024 1.197197
## 24780 0.779779780 0.024024024 1.196196
## 24781 0.780780781 0.024024024 1.195195
## 24782 0.781781782 0.024024024 1.194194
## 24783 0.782782783 0.024024024 1.193193
## 24784 0.783783784 0.024024024 1.192192
## 24785 0.784784785 0.024024024 1.191191
## 24786 0.785785786 0.024024024 1.190190
## 24787 0.786786787 0.024024024 1.189189
## 24788 0.787787788 0.024024024 1.188188
## 24789 0.788788789 0.024024024 1.187187
## 24790 0.789789790 0.024024024 1.186186
## 24791 0.790790791 0.024024024 1.185185
## 24792 0.791791792 0.024024024 1.184184
## 24793 0.792792793 0.024024024 1.183183
## 24794 0.793793794 0.024024024 1.182182
## 24795 0.794794795 0.024024024 1.181181
## 24796 0.795795796 0.024024024 1.180180
## 24797 0.796796797 0.024024024 1.179179
## 24798 0.797797798 0.024024024 1.178178
## 24799 0.798798799 0.024024024 1.177177
## 24800 0.799799800 0.024024024 1.176176
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 651

```
## 24801 0.800800801 0.024024024 1.175175
## 24802 0.801801802 0.024024024 1.174174
## 24803 0.802802803 0.024024024 1.173173
## 24804 0.803803804 0.024024024 1.172172
## 24805 0.804804805 0.024024024 1.171171
## 24806 0.805805806 0.024024024 1.170170
## 24807 0.806806807 0.024024024 1.169169
## 24808 0.807807808 0.024024024 1.168168
## 24809 0.808808809 0.024024024 1.167167
## 24810 0.809809810 0.024024024 1.166166
## 24811 0.810810811 0.024024024 1.165165
## 24812 0.811811812 0.024024024 1.164164
## 24813 0.812812813 0.024024024 1.163163
## 24814 0.813813814 0.024024024 1.162162
## 24815 0.814814815 0.024024024 1.161161
## 24816 0.815815816 0.024024024 1.160160
## 24817 0.816816817 0.024024024 1.159159
## 24818 0.817817818 0.024024024 1.158158
## 24819 0.818818819 0.024024024 1.157157
## 24820 0.819819820 0.024024024 1.156156
## 24821 0.820820821 0.024024024 1.155155
## 24822 0.821821822 0.024024024 1.154154
## 24823 0.822822823 0.024024024 1.153153
## 24824 0.823823824 0.024024024 1.152152
## 24825 0.824824825 0.024024024 1.151151
## 24826 0.825825826 0.024024024 1.150150
## 24827 0.826826827 0.024024024 1.149149
## 24828 0.827827828 0.024024024 1.148148
## 24829 0.828828829 0.024024024 1.147147
## 24830 0.829829830 0.024024024 1.146146
## 24831 0.830830831 0.024024024 1.145145
## 24832 0.831831832 0.024024024 1.144144
## 24833 0.832832833 0.024024024 1.143143
## 24834 0.833833834 0.024024024 1.142142
## 24835 0.834834835 0.024024024 1.141141
## 24836 0.835835836 0.024024024 1.140140
## 24837 0.836836837 0.024024024 1.139139
## 24838 0.837837838 0.024024024 1.138138
## 24839 0.838838839 0.024024024 1.137137
## 24840 0.839839840 0.024024024 1.136136
## 24841 0.840840841 0.024024024 1.135135
## 24842 0.841841842 0.024024024 1.134134
## 24843 0.842842843 0.024024024 1.133133
## 24844 0.843843844 0.024024024 1.132132
## 24845 0.844844845 0.024024024 1.131131
## 24846 0.845845846 0.024024024 1.130130
```

```
## 24847 0.846846847 0.024024024 1.129129
## 24848 0.847847848 0.024024024 1.128128
## 24849 0.848848849 0.024024024 1.127127
## 24850 0.849849850 0.024024024 1.126126
## 24851 0.850850851 0.024024024 1.125125
## 24852 0.851851852 0.024024024 1.124124
## 24853 0.852852853 0.024024024 1.123123
## 24854 0.853853854 0.024024024 1.122122
## 24855 0.854854855 0.024024024 1.121121
## 24856 0.855855856 0.024024024 1.120120
## 24857 0.856856857 0.024024024 1.119119
## 24858 0.857857858 0.024024024 1.118118
## 24859 0.858858859 0.024024024 1.117117
## 24860 0.859859860 0.024024024 1.116116
## 24861 0.860860861 0.024024024 1.115115
## 24862 0.861861862 0.024024024 1.114114
## 24863 0.862862863 0.024024024 1.113113
## 24864 0.863863864 0.024024024 1.112112
## 24865 0.864864865 0.024024024 1.111111
## 24866 0.865865866 0.024024024 1.110110
## 24867 0.866866867 0.024024024 1.109109
## 24868 0.867867868 0.024024024 1.108108
## 24869 0.868868869 0.024024024 1.107107
## 24870 0.869869870 0.024024024 1.106106
## 24871 0.870870871 0.024024024 1.105105
## 24872 0.871871872 0.024024024 1.104104
## 24873 0.872872873 0.024024024 1.103103
## 24874 0.873873874 0.024024024 1.102102
## 24875 0.874874875 0.024024024 1.101101
## 24876 0.875875876 0.024024024 1.100100
## 24877 0.876876877 0.024024024 1.099099
## 24878 0.877877878 0.024024024 1.098098
## 24879 0.878878879 0.024024024 1.097097
## 24880 0.879879880 0.024024024 1.096096
## 24881 0.880880881 0.024024024 1.095095
## 24882 0.881881882 0.024024024 1.094094
## 24883 0.882882883 0.024024024 1.093093
## 24884 0.883883884 0.024024024 1.092092
## 24885 0.884884885 0.024024024 1.091091
## 24886 0.885885886 0.024024024 1.090090
## 24887 0.886886887 0.024024024 1.089089
## 24888 0.887887888 0.024024024 1.088088
## 24889 0.888888889 0.024024024 1.087087
## 24890 0.889889890 0.024024024 1.086086
## 24891 0.890890891 0.024024024 1.085085
## 24892 0.891891892 0.024024024 1.084084
```

```
## 24893 0.892892893 0.024024024 1.083083
## 24894 0.893893894 0.024024024 1.082082
## 24895 0.894894895 0.024024024 1.081081
## 24896 0.895895896 0.024024024 1.080080
## 24897 0.896896897 0.024024024 1.079079
## 24898 0.897897898 0.024024024 1.078078
## 24899 0.898898899 0.024024024 1.077077
## 24900 0.899899900 0.024024024 1.076076
## 24901 0.900900901 0.024024024 1.075075
## 24902 0.901901902 0.024024024 1.074074
## 24903 0.902902903 0.024024024 1.073073
## 24904 0.903903904 0.024024024 1.072072
## 24905 0.904904905 0.024024024 1.071071
## 24906 0.905905906 0.024024024 1.070070
## 24907 0.906906907 0.024024024 1.069069
## 24908 0.907907908 0.024024024 1.068068
## 24909 0.908908909 0.024024024 1.067067
## 24910 0.909909910 0.024024024 1.066066
## 24911 0.910910911 0.024024024 1.065065
## 24912 0.911911912 0.024024024 1.064064
## 24913 0.912912913 0.024024024 1.063063
## 24914 0.913913914 0.024024024 1.062062
## 24915 0.914914915 0.024024024 1.061061
## 24916 0.915915916 0.024024024 1.060060
## 24917 0.916916917 0.024024024 1.059059
## 24918 0.917917918 0.024024024 1.058058
## 24919 0.918918919 0.024024024 1.057057
## 24920 0.919919920 0.024024024 1.056056
## 24921 0.920920921 0.024024024 1.055055
## 24922 0.921921922 0.024024024 1.054054
## 24923 0.922922923 0.024024024 1.053053
## 24924 0.923923924 0.024024024 1.052052
## 24925 0.924924925 0.024024024 1.051051
## 24926 0.925925926 0.024024024 1.050050
## 24927 0.926926927 0.024024024 1.049049
## 24928 0.927927928 0.024024024 1.048048
## 24929 0.928928929 0.024024024 1.047047
## 24930 0.929929930 0.024024024 1.046046
## 24931 0.930930931 0.024024024 1.045045
## 24932 0.931931932 0.024024024 1.044044
## 24933 0.932932933 0.024024024 1.043043
## 24934 0.933933934 0.024024024 1.042042
## 24935 0.934934935 0.024024024 1.041041
## 24936 0.935935936 0.024024024 1.040040
## 24937 0.936936937 0.024024024 1.039039
## 24938 0.937937938 0.024024024 1.038038
```

```
## 24939 0.938938939 0.024024024 1.037037
## 24940 0.939939940 0.024024024 1.036036
## 24941 0.940940941 0.024024024 1.035035
## 24942 0.941941942 0.024024024 1.034034
## 24943 0.942942943 0.024024024 1.033033
## 24944 0.943943944 0.024024024 1.032032
## 24945 0.944944945 0.024024024 1.031031
## 24946 0.945945946 0.024024024 1.030030
## 24947 0.946946947 0.024024024 1.029029
## 24948 0.947947948 0.024024024 1.028028
## 24949 0.948948949 0.024024024 1.027027
## 24950 0.949949950 0.024024024 1.026026
## 24951 0.950950951 0.024024024 1.025025
## 24952 0.951951952 0.024024024 1.024024
## 24953 0.952952953 0.024024024 1.023023
## 24954 0.953953954 0.024024024 1.022022
## 24955 0.954954955 0.024024024 1.021021
## 24956 0.955955956 0.024024024 1.020020
## 24957 0.956956957 0.024024024 1.019019
## 24958 0.957957958 0.024024024 1.018018
## 24959 0.958958959 0.024024024 1.017017
## 24960 0.959959960 0.024024024 1.016016
## 24961 0.960960961 0.024024024 1.015015
## 24962 0.961961962 0.024024024 1.014014
## 24963 0.962962963 0.024024024 1.013013
## 24964 0.963963964 0.024024024 1.012012
## 24965 0.964964965 0.024024024 1.011011
## 24966 0.965965966 0.024024024 1.010010
## 24967 0.966966967 0.024024024 1.009009
## 24968 0.967967968 0.024024024 1.008008
## 24969 0.968968969 0.024024024 1.007007
## 24970 0.969969970 0.024024024 1.006006
## 24971 0.970970971 0.024024024 1.005005
## 24972 0.971971972 0.024024024 1.004004
## 24973 0.972972973 0.024024024 1.003003
## 24974 0.973973974 0.024024024 1.002002
## 24975 0.974974975 0.024024024 1.001001
## 24976 0.975975976 0.024024024 1.000000
## 24977 0.976976977 0.024024024 0.998999
## 24978 0.977977978 0.024024024 0.997998
## 24979 0.978978979 0.024024024 0.996997
## 24980 0.979979980 0.024024024 0.995996
## 24981 0.980980981 0.024024024 0.994995
## 24982 0.981981982 0.024024024 0.993994
## 24983 0.982982983 0.024024024 0.992993
## 24984 0.983983984 0.024024024 0.991992
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 655

```
## 24985 0.984984985 0.024024024 0.990991
## 24986 0.985985986 0.024024024 0.989990
## 24987 0.986986987 0.024024024 0.988989
## 24988 0.987987988 0.024024024 0.987988
## 24989 0.988988989 0.024024024 0.986987
## 24990 0.989989990 0.024024024 0.985986
## 24991 0.990990991 0.024024024 0.984985
## 24992 0.991991992 0.024024024 0.983984
## 24993 0.992992993 0.024024024 0.982983
## 24994 0.993993994 0.024024024 0.981982
## 24995 0.994994995 0.024024024 0.980981
## 24996 0.995995996 0.024024024 0.979980
## 24997 0.996996997 0.024024024 0.978979
## 24998 0.997997998 0.024024024 0.977978
## 24999 0.998998999 0.024024024 0.976977
## 25000 1.000000000 0.024024024 0.975976
## 25001 0.000000000 0.025025025 1.974975
## 25002 0.001001001 0.025025025 1.973974
## 25003 0.002002002 0.025025025 1.972973
## 25004 0.003003003 0.025025025 1.971972
## 25005 0.004004004 0.025025025 1.970971
## 25006 0.005005005 0.025025025 1.969970
## 25007 0.006006006 0.025025025 1.968969
## 25008 0.007007007 0.025025025 1.967968
## 25009 0.008008008 0.025025025 1.966967
## 25010 0.009009009 0.025025025 1.965966
## 25011 0.010010010 0.025025025 1.964965
## 25012 0.011011011 0.025025025 1.963964
## 25013 0.012012012 0.025025025 1.962963
## 25014 0.013013013 0.025025025 1.961962
## 25015 0.014014014 0.025025025 1.960961
## 25016 0.015015015 0.025025025 1.959960
## 25017 0.016016016 0.025025025 1.958959
## 25018 0.017017017 0.025025025 1.957958
## 25019 0.018018018 0.025025025 1.956957
## 25020 0.019019019 0.025025025 1.955956
## 25021 0.020020020 0.025025025 1.954955
## 25022 0.021021021 0.025025025 1.953954
## 25023 0.022022022 0.025025025 1.952953
## 25024 0.023023023 0.025025025 1.951952
## 25025 0.024024024 0.025025025 1.950951
## 25026 0.025025025 0.025025025 1.949950
## 25027 0.026026026 0.025025025 1.948949
## 25028 0.027027027 0.025025025 1.947948
## 25029 0.028028028 0.025025025 1.946947
## 25030 0.029029029 0.025025025 1.945946
```

```
## 25031 0.030030030 0.025025025 1.944945
## 25032 0.031031031 0.025025025 1.943944
## 25033 0.032032032 0.025025025 1.942943
## 25034 0.033033033 0.025025025 1.941942
## 25035 0.034034034 0.025025025 1.940941
## 25036 0.035035035 0.025025025 1.939940
## 25037 0.036036036 0.025025025 1.938939
## 25038 0.037037037 0.025025025 1.937938
## 25039 0.038038038 0.025025025 1.936937
## 25040 0.039039039 0.025025025 1.935936
## 25041 0.040040040 0.025025025 1.934935
## 25042 0.041041041 0.025025025 1.933934
## 25043 0.042042042 0.025025025 1.932933
## 25044 0.043043043 0.025025025 1.931932
## 25045 0.044044044 0.025025025 1.930931
## 25046 0.045045045 0.025025025 1.929930
## 25047 0.046046046 0.025025025 1.928929
## 25048 0.047047047 0.025025025 1.927928
## 25049 0.048048048 0.025025025 1.926927
## 25050 0.049049049 0.025025025 1.925926
## 25051 0.050050050 0.025025025 1.924925
## 25052 0.051051051 0.025025025 1.923924
## 25053 0.052052052 0.025025025 1.922923
## 25054 0.053053053 0.025025025 1.921922
## 25055 0.054054054 0.025025025 1.920921
## 25056 0.055055055 0.025025025 1.919920
## 25057 0.056056056 0.025025025 1.918919
## 25058 0.057057057 0.025025025 1.917918
## 25059 0.058058058 0.025025025 1.916917
## 25060 0.059059059 0.025025025 1.915916
## 25061 0.060060060 0.025025025 1.914915
## 25062 0.061061061 0.025025025 1.913914
## 25063 0.062062062 0.025025025 1.912913
## 25064 0.063063063 0.025025025 1.911912
## 25065 0.064064064 0.025025025 1.910911
## 25066 0.065065065 0.025025025 1.909910
## 25067 0.066066066 0.025025025 1.908909
## 25068 0.067067067 0.025025025 1.907908
## 25069 0.068068068 0.025025025 1.906907
## 25070 0.069069069 0.025025025 1.905906
## 25071 0.070070070 0.025025025 1.904905
## 25072 0.071071071 0.025025025 1.903904
## 25073 0.072072072 0.025025025 1.902903
## 25074 0.073073073 0.025025025 1.901902
## 25075 0.074074074 0.025025025 1.900901
## 25076 0.075075075 0.025025025 1.899900
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 657

```
## 25077 0.076076076 0.025025025 1.898899
## 25078 0.077077077 0.025025025 1.897898
## 25079 0.078078078 0.025025025 1.896897
## 25080 0.079079079 0.025025025 1.895896
## 25081 0.080080080 0.025025025 1.894895
## 25082 0.081081081 0.025025025 1.893894
## 25083 0.082082082 0.025025025 1.892893
## 25084 0.083083083 0.025025025 1.891892
## 25085 0.084084084 0.025025025 1.890891
## 25086 0.085085085 0.025025025 1.889890
## 25087 0.086086086 0.025025025 1.888889
## 25088 0.087087087 0.025025025 1.887888
## 25089 0.088088088 0.025025025 1.886887
## 25090 0.089089089 0.025025025 1.885886
## 25091 0.090090090 0.025025025 1.884885
## 25092 0.091091091 0.025025025 1.883884
## 25093 0.092092092 0.025025025 1.882883
## 25094 0.093093093 0.025025025 1.881882
## 25095 0.094094094 0.025025025 1.880881
## 25096 0.095095095 0.025025025 1.879880
## 25097 0.096096096 0.025025025 1.878879
## 25098 0.097097097 0.025025025 1.877878
## 25099 0.098098098 0.025025025 1.876877
## 25100 0.099099099 0.025025025 1.875876
## 25101 0.100100100 0.025025025 1.874875
## 25102 0.101101101 0.025025025 1.873874
## 25103 0.102102102 0.025025025 1.872873
## 25104 0.103103103 0.025025025 1.871872
## 25105 0.104104104 0.025025025 1.870871
## 25106 0.105105105 0.025025025 1.869870
## 25107 0.106106106 0.025025025 1.868869
## 25108 0.107107107 0.025025025 1.867868
## 25109 0.108108108 0.025025025 1.866867
## 25110 0.109109109 0.025025025 1.865866
## 25111 0.110110110 0.025025025 1.864865
## 25112 0.111111111 0.025025025 1.863864
## 25113 0.112112112 0.025025025 1.862863
## 25114 0.113113113 0.025025025 1.861862
## 25115 0.114114114 0.025025025 1.860861
## 25116 0.115115115 0.025025025 1.859860
## 25117 0.116116116 0.025025025 1.858859
## 25118 0.117117117 0.025025025 1.857858
## 25119 0.118118118 0.025025025 1.856857
## 25120 0.119119119 0.025025025 1.855856
## 25121 0.120120120 0.025025025 1.854855
## 25122 0.121121121 0.025025025 1.853854
```

```
## 25123 0.122122122 0.025025025 1.852853
## 25124 0.123123123 0.025025025 1.851852
## 25125 0.124124124 0.025025025 1.850851
## 25126 0.125125125 0.025025025 1.849850
## 25127 0.126126126 0.025025025 1.848849
## 25128 0.127127127 0.025025025 1.847848
## 25129 0.128128128 0.025025025 1.846847
## 25130 0.129129129 0.025025025 1.845846
## 25131 0.130130130 0.025025025 1.844845
## 25132 0.131131131 0.025025025 1.843844
## 25133 0.132132132 0.025025025 1.842843
## 25134 0.133133133 0.025025025 1.841842
## 25135 0.134134134 0.025025025 1.840841
## 25136 0.135135135 0.025025025 1.839840
## 25137 0.136136136 0.025025025 1.838839
## 25138 0.137137137 0.025025025 1.837838
## 25139 0.138138138 0.025025025 1.836837
## 25140 0.139139139 0.025025025 1.835836
## 25141 0.140140140 0.025025025 1.834835
## 25142 0.141141141 0.025025025 1.833834
## 25143 0.142142142 0.025025025 1.832833
## 25144 0.143143143 0.025025025 1.831832
## 25145 0.144144144 0.025025025 1.830831
## 25146 0.145145145 0.025025025 1.829830
## 25147 0.146146146 0.025025025 1.828829
## 25148 0.147147147 0.025025025 1.827828
## 25149 0.148148148 0.025025025 1.826827
## 25150 0.149149149 0.025025025 1.825826
## 25151 0.150150150 0.025025025 1.824825
## 25152 0.151151151 0.025025025 1.823824
## 25153 0.152152152 0.025025025 1.822823
## 25154 0.153153153 0.025025025 1.821822
## 25155 0.154154154 0.025025025 1.820821
## 25156 0.155155155 0.025025025 1.819820
## 25157 0.156156156 0.025025025 1.818819
## 25158 0.157157157 0.025025025 1.817818
## 25159 0.158158158 0.025025025 1.816817
## 25160 0.159159159 0.025025025 1.815816
## 25161 0.160160160 0.025025025 1.814815
## 25162 0.161161161 0.025025025 1.813814
## 25163 0.162162162 0.025025025 1.812813
## 25164 0.163163163 0.025025025 1.811812
## 25165 0.164164164 0.025025025 1.810811
## 25166 0.165165165 0.025025025 1.809810
## 25167 0.166166166 0.025025025 1.808809
## 25168 0.167167167 0.025025025 1.807808
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 659

```
## 25169 0.168168168 0.025025025 1.806807
## 25170 0.169169169 0.025025025 1.805806
## 25171 0.170170170 0.025025025 1.804805
## 25172 0.171171171 0.025025025 1.803804
## 25173 0.172172172 0.025025025 1.802803
## 25174 0.173173173 0.025025025 1.801802
## 25175 0.174174174 0.025025025 1.800801
## 25176 0.175175175 0.025025025 1.799800
## 25177 0.176176176 0.025025025 1.798799
## 25178 0.177177177 0.025025025 1.797798
## 25179 0.178178178 0.025025025 1.796797
## 25180 0.179179179 0.025025025 1.795796
## 25181 0.180180180 0.025025025 1.794795
## 25182 0.181181181 0.025025025 1.793794
## 25183 0.182182182 0.025025025 1.792793
## 25184 0.183183183 0.025025025 1.791792
## 25185 0.184184184 0.025025025 1.790791
## 25186 0.185185185 0.025025025 1.789790
## 25187 0.186186186 0.025025025 1.788789
## 25188 0.187187187 0.025025025 1.787788
## 25189 0.188188188 0.025025025 1.786787
## 25190 0.189189189 0.025025025 1.785786
## 25191 0.190190190 0.025025025 1.784785
## 25192 0.191191191 0.025025025 1.783784
## 25193 0.192192192 0.025025025 1.782783
## 25194 0.193193193 0.025025025 1.781782
## 25195 0.194194194 0.025025025 1.780781
## 25196 0.195195195 0.025025025 1.779780
## 25197 0.196196196 0.025025025 1.778779
## 25198 0.197197197 0.025025025 1.777778
## 25199 0.198198198 0.025025025 1.776777
## 25200 0.199199199 0.025025025 1.775776
## 25201 0.200200200 0.025025025 1.774775
## 25202 0.201201201 0.025025025 1.773774
## 25203 0.202202202 0.025025025 1.772773
## 25204 0.203203203 0.025025025 1.771772
## 25205 0.204204204 0.025025025 1.770771
## 25206 0.205205205 0.025025025 1.769770
## 25207 0.206206206 0.025025025 1.768769
## 25208 0.207207207 0.025025025 1.767768
## 25209 0.208208208 0.025025025 1.766767
## 25210 0.209209209 0.025025025 1.765766
## 25211 0.210210210 0.025025025 1.764765
## 25212 0.211211211 0.025025025 1.763764
## 25213 0.212212212 0.025025025 1.762763
## 25214 0.213213213 0.025025025 1.761762
```

```
## 25215 0.214214214 0.025025025 1.760761
## 25216 0.215215215 0.025025025 1.759760
## 25217 0.216216216 0.025025025 1.758759
## 25218 0.217217217 0.025025025 1.757758
## 25219 0.218218218 0.025025025 1.756757
## 25220 0.219219219 0.025025025 1.755756
## 25221 0.220220220 0.025025025 1.754755
## 25222 0.221221221 0.025025025 1.753754
## 25223 0.222222222 0.025025025 1.752753
## 25224 0.223223223 0.025025025 1.751752
## 25225 0.224224224 0.025025025 1.750751
## 25226 0.225225225 0.025025025 1.749750
## 25227 0.226226226 0.025025025 1.748749
## 25228 0.227227227 0.025025025 1.747748
## 25229 0.228228228 0.025025025 1.746747
## 25230 0.229229229 0.025025025 1.745746
## 25231 0.230230230 0.025025025 1.744745
## 25232 0.231231231 0.025025025 1.743744
## 25233 0.232232232 0.025025025 1.742743
## 25234 0.233233233 0.025025025 1.741742
## 25235 0.234234234 0.025025025 1.740741
## 25236 0.235235235 0.025025025 1.739740
## 25237 0.236236236 0.025025025 1.738739
## 25238 0.237237237 0.025025025 1.737738
## 25239 0.238238238 0.025025025 1.736737
## 25240 0.239239239 0.025025025 1.735736
## 25241 0.240240240 0.025025025 1.734735
## 25242 0.241241241 0.025025025 1.733734
## 25243 0.242242242 0.025025025 1.732733
## 25244 0.243243243 0.025025025 1.731732
## 25245 0.244244244 0.025025025 1.730731
## 25246 0.245245245 0.025025025 1.729730
## 25247 0.246246246 0.025025025 1.728729
## 25248 0.247247247 0.025025025 1.727728
## 25249 0.248248248 0.025025025 1.726727
## 25250 0.249249249 0.025025025 1.725726
## 25251 0.250250250 0.025025025 1.724725
## 25252 0.251251251 0.025025025 1.723724
## 25253 0.252252252 0.025025025 1.722723
## 25254 0.253253253 0.025025025 1.721722
## 25255 0.254254254 0.025025025 1.720721
## 25256 0.255255255 0.025025025 1.719720
## 25257 0.256256256 0.025025025 1.718719
## 25258 0.257257257 0.025025025 1.717718
## 25259 0.258258258 0.025025025 1.716717
## 25260 0.259259259 0.025025025 1.715716
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 661

```
## 25261 0.260260260 0.025025025 1.714715
## 25262 0.261261261 0.025025025 1.713714
## 25263 0.262262262 0.025025025 1.712713
## 25264 0.263263263 0.025025025 1.711712
## 25265 0.264264264 0.025025025 1.710711
## 25266 0.265265265 0.025025025 1.709710
## 25267 0.266266266 0.025025025 1.708709
## 25268 0.267267267 0.025025025 1.707708
## 25269 0.268268268 0.025025025 1.706707
## 25270 0.269269269 0.025025025 1.705706
## 25271 0.270270270 0.025025025 1.704705
## 25272 0.271271271 0.025025025 1.703704
## 25273 0.272272272 0.025025025 1.702703
## 25274 0.273273273 0.025025025 1.701702
## 25275 0.274274274 0.025025025 1.700701
## 25276 0.275275275 0.025025025 1.699700
## 25277 0.276276276 0.025025025 1.698699
## 25278 0.277277277 0.025025025 1.697698
## 25279 0.278278278 0.025025025 1.696697
## 25280 0.279279279 0.025025025 1.695696
## 25281 0.280280280 0.025025025 1.694695
## 25282 0.281281281 0.025025025 1.693694
## 25283 0.282282282 0.025025025 1.692693
## 25284 0.283283283 0.025025025 1.691692
## 25285 0.284284284 0.025025025 1.690691
## 25286 0.285285285 0.025025025 1.689690
## 25287 0.286286286 0.025025025 1.688689
## 25288 0.287287287 0.025025025 1.687688
## 25289 0.288288288 0.025025025 1.686687
## 25290 0.289289289 0.025025025 1.685686
## 25291 0.290290290 0.025025025 1.684685
## 25292 0.291291291 0.025025025 1.683684
## 25293 0.292292292 0.025025025 1.682683
## 25294 0.293293293 0.025025025 1.681682
## 25295 0.294294294 0.025025025 1.680681
## 25296 0.295295295 0.025025025 1.679680
## 25297 0.296296296 0.025025025 1.678679
## 25298 0.297297297 0.025025025 1.677678
## 25299 0.298298298 0.025025025 1.676677
## 25300 0.299299299 0.025025025 1.675676
## 25301 0.300300300 0.025025025 1.674675
## 25302 0.301301301 0.025025025 1.673674
## 25303 0.302302302 0.025025025 1.672673
## 25304 0.303303303 0.025025025 1.671672
## 25305 0.304304304 0.025025025 1.670671
## 25306 0.305305305 0.025025025 1.669670
```

```
## 25307 0.306306306 0.025025025 1.668669
## 25308 0.307307307 0.025025025 1.667668
## 25309 0.308308308 0.025025025 1.666667
## 25310 0.309309309 0.025025025 1.665666
## 25311 0.310310310 0.025025025 1.664665
## 25312 0.311311311 0.025025025 1.663664
## 25313 0.312312312 0.025025025 1.662663
## 25314 0.313313313 0.025025025 1.661662
## 25315 0.314314314 0.025025025 1.660661
## 25316 0.315315315 0.025025025 1.659660
## 25317 0.316316316 0.025025025 1.658659
## 25318 0.317317317 0.025025025 1.657658
## 25319 0.318318318 0.025025025 1.656657
## 25320 0.319319319 0.025025025 1.655656
## 25321 0.320320320 0.025025025 1.654655
## 25322 0.321321321 0.025025025 1.653654
## 25323 0.322322322 0.025025025 1.652653
## 25324 0.323323323 0.025025025 1.651652
## 25325 0.324324324 0.025025025 1.650651
## 25326 0.325325325 0.025025025 1.649650
## 25327 0.326326326 0.025025025 1.648649
## 25328 0.327327327 0.025025025 1.647648
## 25329 0.328328328 0.025025025 1.646647
## 25330 0.329329329 0.025025025 1.645646
## 25331 0.330330330 0.025025025 1.644645
## 25332 0.331331331 0.025025025 1.643644
## 25333 0.332332332 0.025025025 1.642643
## 25334 0.333333333 0.025025025 1.641642
## 25335 0.334334334 0.025025025 1.640641
## 25336 0.335335335 0.025025025 1.639640
## 25337 0.336336336 0.025025025 1.638639
## 25338 0.337337337 0.025025025 1.637638
## 25339 0.338338338 0.025025025 1.636637
## 25340 0.339339339 0.025025025 1.635636
## 25341 0.340340340 0.025025025 1.634635
## 25342 0.341341341 0.025025025 1.633634
## 25343 0.342342342 0.025025025 1.632633
## 25344 0.343343343 0.025025025 1.631632
## 25345 0.344344344 0.025025025 1.630631
## 25346 0.345345345 0.025025025 1.629630
## 25347 0.346346346 0.025025025 1.628629
## 25348 0.347347347 0.025025025 1.627628
## 25349 0.348348348 0.025025025 1.626627
## 25350 0.349349349 0.025025025 1.625626
## 25351 0.350350350 0.025025025 1.624625
## 25352 0.351351351 0.025025025 1.623624
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 663

```
## 25353 0.352352352 0.025025025 1.622623
## 25354 0.353353353 0.025025025 1.621622
## 25355 0.354354354 0.025025025 1.620621
## 25356 0.355355355 0.025025025 1.619620
## 25357 0.356356356 0.025025025 1.618619
## 25358 0.357357357 0.025025025 1.617618
## 25359 0.358358358 0.025025025 1.616617
## 25360 0.359359359 0.025025025 1.615616
## 25361 0.360360360 0.025025025 1.614615
## 25362 0.361361361 0.025025025 1.613614
## 25363 0.362362362 0.025025025 1.612613
## 25364 0.363363363 0.025025025 1.611612
## 25365 0.364364364 0.025025025 1.610611
## 25366 0.365365365 0.025025025 1.609610
## 25367 0.366366366 0.025025025 1.608609
## 25368 0.367367367 0.025025025 1.607608
## 25369 0.368368368 0.025025025 1.606607
## 25370 0.369369369 0.025025025 1.605606
## 25371 0.370370370 0.025025025 1.604605
## 25372 0.371371371 0.025025025 1.603604
## 25373 0.372372372 0.025025025 1.602603
## 25374 0.373373373 0.025025025 1.601602
## 25375 0.374374374 0.025025025 1.600601
## 25376 0.375375375 0.025025025 1.599600
## 25377 0.376376376 0.025025025 1.598599
## 25378 0.377377377 0.025025025 1.597598
## 25379 0.378378378 0.025025025 1.596597
## 25380 0.379379379 0.025025025 1.595596
## 25381 0.380380380 0.025025025 1.594595
## 25382 0.381381381 0.025025025 1.593594
## 25383 0.382382382 0.025025025 1.592593
## 25384 0.383383383 0.025025025 1.591592
## 25385 0.384384384 0.025025025 1.590591
## 25386 0.385385385 0.025025025 1.589590
## 25387 0.386386386 0.025025025 1.588589
## 25388 0.387387387 0.025025025 1.587588
## 25389 0.388388388 0.025025025 1.586587
## 25390 0.389389389 0.025025025 1.585586
## 25391 0.390390390 0.025025025 1.584585
## 25392 0.391391391 0.025025025 1.583584
## 25393 0.392392392 0.025025025 1.582583
## 25394 0.393393393 0.025025025 1.581582
## 25395 0.394394394 0.025025025 1.580581
## 25396 0.395395395 0.025025025 1.579580
## 25397 0.396396396 0.025025025 1.578579
## 25398 0.397397397 0.025025025 1.577578
```

```
## 25399 0.398398398 0.025025025 1.576577
## 25400 0.399399399 0.025025025 1.575576
## 25401 0.400400400 0.025025025 1.574575
## 25402 0.401401401 0.025025025 1.573574
## 25403 0.402402402 0.025025025 1.572573
## 25404 0.403403403 0.025025025 1.571572
## 25405 0.404404404 0.025025025 1.570571
## 25406 0.405405405 0.025025025 1.569570
## 25407 0.406406406 0.025025025 1.568569
## 25408 0.407407407 0.025025025 1.567568
## 25409 0.408408408 0.025025025 1.566567
## 25410 0.409409409 0.025025025 1.565566
## 25411 0.410410410 0.025025025 1.564565
## 25412 0.411411411 0.025025025 1.563564
## 25413 0.412412412 0.025025025 1.562563
## 25414 0.413413413 0.025025025 1.561562
## 25415 0.414414414 0.025025025 1.560561
## 25416 0.415415415 0.025025025 1.559560
## 25417 0.416416416 0.025025025 1.558559
## 25418 0.417417417 0.025025025 1.557558
## 25419 0.418418418 0.025025025 1.556557
## 25420 0.419419419 0.025025025 1.555556
## 25421 0.420420420 0.025025025 1.554555
## 25422 0.421421421 0.025025025 1.553554
## 25423 0.422422422 0.025025025 1.552553
## 25424 0.423423423 0.025025025 1.551552
## 25425 0.424424424 0.025025025 1.550551
## 25426 0.425425425 0.025025025 1.549550
## 25427 0.426426426 0.025025025 1.548549
## 25428 0.427427427 0.025025025 1.547548
## 25429 0.428428428 0.025025025 1.546547
## 25430 0.429429429 0.025025025 1.545546
## 25431 0.430430430 0.025025025 1.544545
## 25432 0.431431431 0.025025025 1.543544
## 25433 0.432432432 0.025025025 1.542543
## 25434 0.433433433 0.025025025 1.541542
## 25435 0.434434434 0.025025025 1.540541
## 25436 0.435435435 0.025025025 1.539540
## 25437 0.436436436 0.025025025 1.538539
## 25438 0.437437437 0.025025025 1.537538
## 25439 0.438438438 0.025025025 1.536537
## 25440 0.439439439 0.025025025 1.535536
## 25441 0.440440440 0.025025025 1.534535
## 25442 0.441441441 0.025025025 1.533534
## 25443 0.442442442 0.025025025 1.532533
## 25444 0.443443443 0.025025025 1.531532
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 665

```

## 25445 0.444444444 0.025025025 1.530531
## 25446 0.445445445 0.025025025 1.529530
## 25447 0.446446446 0.025025025 1.528529
## 25448 0.447447447 0.025025025 1.527528
## 25449 0.448448448 0.025025025 1.526527
## 25450 0.449449449 0.025025025 1.525526
## 25451 0.450450450 0.025025025 1.524525
## 25452 0.451451451 0.025025025 1.523524
## 25453 0.452452452 0.025025025 1.522523
## 25454 0.453453453 0.025025025 1.521522
## 25455 0.454454454 0.025025025 1.520521
## 25456 0.455455455 0.025025025 1.519520
## 25457 0.456456456 0.025025025 1.518519
## 25458 0.457457457 0.025025025 1.517518
## 25459 0.458458458 0.025025025 1.516517
## 25460 0.459459459 0.025025025 1.515516
## 25461 0.460460460 0.025025025 1.514515
## 25462 0.461461461 0.025025025 1.513514
## 25463 0.462462462 0.025025025 1.512513
## 25464 0.463463463 0.025025025 1.511512
## 25465 0.464464464 0.025025025 1.510511
## 25466 0.465465465 0.025025025 1.509510
## 25467 0.466466466 0.025025025 1.508509
## 25468 0.467467467 0.025025025 1.507508
## 25469 0.468468468 0.025025025 1.506507
## 25470 0.469469469 0.025025025 1.505506
## 25471 0.470470470 0.025025025 1.504505
## 25472 0.471471471 0.025025025 1.503504
## 25473 0.472472472 0.025025025 1.502503
## 25474 0.473473473 0.025025025 1.501502
## 25475 0.474474474 0.025025025 1.500501
## 25476 0.475475475 0.025025025 1.499499
## 25477 0.476476476 0.025025025 1.498498
## 25478 0.477477477 0.025025025 1.497497
## 25479 0.478478478 0.025025025 1.496496
## 25480 0.479479479 0.025025025 1.495495
## 25481 0.480480480 0.025025025 1.494494
## 25482 0.481481481 0.025025025 1.493493
## 25483 0.482482482 0.025025025 1.492492
## 25484 0.483483483 0.025025025 1.491491
## 25485 0.484484484 0.025025025 1.490490
## 25486 0.485485485 0.025025025 1.489489
## 25487 0.486486486 0.025025025 1.488488
## 25488 0.487487487 0.025025025 1.487487
## 25489 0.488488488 0.025025025 1.486486
## 25490 0.489489489 0.025025025 1.485485

```

```
## 25491 0.490490490 0.025025025 1.484484
## 25492 0.491491491 0.025025025 1.483483
## 25493 0.492492492 0.025025025 1.482482
## 25494 0.493493493 0.025025025 1.481481
## 25495 0.494494494 0.025025025 1.480480
## 25496 0.495495495 0.025025025 1.479479
## 25497 0.496496496 0.025025025 1.478478
## 25498 0.497497497 0.025025025 1.477477
## 25499 0.498498498 0.025025025 1.476476
## 25500 0.499499499 0.025025025 1.475475
## 25501 0.500500501 0.025025025 1.474474
## 25502 0.501501502 0.025025025 1.473473
## 25503 0.502502503 0.025025025 1.472472
## 25504 0.503503504 0.025025025 1.471471
## 25505 0.504504505 0.025025025 1.470470
## 25506 0.505505506 0.025025025 1.469469
## 25507 0.506506507 0.025025025 1.468468
## 25508 0.507507508 0.025025025 1.467467
## 25509 0.508508509 0.025025025 1.466466
## 25510 0.509509510 0.025025025 1.465465
## 25511 0.510510511 0.025025025 1.464464
## 25512 0.511511512 0.025025025 1.463463
## 25513 0.512512513 0.025025025 1.462462
## 25514 0.513513514 0.025025025 1.461461
## 25515 0.514514515 0.025025025 1.460460
## 25516 0.515515516 0.025025025 1.459459
## 25517 0.516516517 0.025025025 1.458458
## 25518 0.517517518 0.025025025 1.457457
## 25519 0.518518519 0.025025025 1.456456
## 25520 0.519519520 0.025025025 1.455455
## 25521 0.520520521 0.025025025 1.454454
## 25522 0.521521522 0.025025025 1.453453
## 25523 0.522522523 0.025025025 1.452452
## 25524 0.523523524 0.025025025 1.451451
## 25525 0.524524525 0.025025025 1.450450
## 25526 0.525525526 0.025025025 1.449449
## 25527 0.526526527 0.025025025 1.448448
## 25528 0.527527528 0.025025025 1.447447
## 25529 0.528528529 0.025025025 1.446446
## 25530 0.529529530 0.025025025 1.445445
## 25531 0.530530531 0.025025025 1.444444
## 25532 0.531531532 0.025025025 1.443443
## 25533 0.532532533 0.025025025 1.442442
## 25534 0.533533534 0.025025025 1.441441
## 25535 0.534534535 0.025025025 1.440440
## 25536 0.535535536 0.025025025 1.439439
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 667

```

## 25537 0.536536537 0.025025025 1.438438
## 25538 0.537537538 0.025025025 1.437437
## 25539 0.538538539 0.025025025 1.436436
## 25540 0.539539540 0.025025025 1.435435
## 25541 0.540540541 0.025025025 1.434434
## 25542 0.541541542 0.025025025 1.433433
## 25543 0.542542543 0.025025025 1.432432
## 25544 0.543543544 0.025025025 1.431431
## 25545 0.544544545 0.025025025 1.430430
## 25546 0.545545546 0.025025025 1.429429
## 25547 0.546546547 0.025025025 1.428428
## 25548 0.547547548 0.025025025 1.427427
## 25549 0.548548549 0.025025025 1.426426
## 25550 0.549549550 0.025025025 1.425425
## 25551 0.550550551 0.025025025 1.424424
## 25552 0.551551552 0.025025025 1.423423
## 25553 0.552552553 0.025025025 1.422422
## 25554 0.553553554 0.025025025 1.421421
## 25555 0.554554555 0.025025025 1.420420
## 25556 0.555555556 0.025025025 1.419419
## 25557 0.556556557 0.025025025 1.418418
## 25558 0.557557558 0.025025025 1.417417
## 25559 0.558558559 0.025025025 1.416416
## 25560 0.559559560 0.025025025 1.415415
## 25561 0.560560561 0.025025025 1.414414
## 25562 0.561561562 0.025025025 1.413413
## 25563 0.562562563 0.025025025 1.412412
## 25564 0.563563564 0.025025025 1.411411
## 25565 0.564564565 0.025025025 1.410410
## 25566 0.565565566 0.025025025 1.409409
## 25567 0.566566567 0.025025025 1.408408
## 25568 0.567567568 0.025025025 1.407407
## 25569 0.568568569 0.025025025 1.406406
## 25570 0.569569570 0.025025025 1.405405
## 25571 0.570570571 0.025025025 1.404404
## 25572 0.571571572 0.025025025 1.403403
## 25573 0.572572573 0.025025025 1.402402
## 25574 0.573573574 0.025025025 1.401401
## 25575 0.574574575 0.025025025 1.400400
## 25576 0.575575576 0.025025025 1.399399
## 25577 0.576576577 0.025025025 1.398398
## 25578 0.577577578 0.025025025 1.397397
## 25579 0.578578579 0.025025025 1.396396
## 25580 0.579579580 0.025025025 1.395395
## 25581 0.580580581 0.025025025 1.394394
## 25582 0.581581582 0.025025025 1.393393

```

```
## 25583 0.582582583 0.025025025 1.392392
## 25584 0.583583584 0.025025025 1.391391
## 25585 0.584584585 0.025025025 1.390390
## 25586 0.585585586 0.025025025 1.389389
## 25587 0.586586587 0.025025025 1.388388
## 25588 0.587587588 0.025025025 1.387387
## 25589 0.588588589 0.025025025 1.386386
## 25590 0.589589590 0.025025025 1.385385
## 25591 0.590590591 0.025025025 1.384384
## 25592 0.591591592 0.025025025 1.383383
## 25593 0.592592593 0.025025025 1.382382
## 25594 0.593593594 0.025025025 1.381381
## 25595 0.594594595 0.025025025 1.380380
## 25596 0.595595596 0.025025025 1.379379
## 25597 0.596596597 0.025025025 1.378378
## 25598 0.597597598 0.025025025 1.377377
## 25599 0.598598599 0.025025025 1.376376
## 25600 0.599599600 0.025025025 1.375375
## 25601 0.600600601 0.025025025 1.374374
## 25602 0.601601602 0.025025025 1.373373
## 25603 0.602602603 0.025025025 1.372372
## 25604 0.603603604 0.025025025 1.371371
## 25605 0.604604605 0.025025025 1.370370
## 25606 0.605605606 0.025025025 1.369369
## 25607 0.606606607 0.025025025 1.368368
## 25608 0.607607608 0.025025025 1.367367
## 25609 0.608608609 0.025025025 1.366366
## 25610 0.609609610 0.025025025 1.365365
## 25611 0.610610611 0.025025025 1.364364
## 25612 0.611611612 0.025025025 1.363363
## 25613 0.612612613 0.025025025 1.362362
## 25614 0.613613614 0.025025025 1.361361
## 25615 0.614614615 0.025025025 1.360360
## 25616 0.615615616 0.025025025 1.359359
## 25617 0.616616617 0.025025025 1.358358
## 25618 0.617617618 0.025025025 1.357357
## 25619 0.618618619 0.025025025 1.356356
## 25620 0.619619620 0.025025025 1.355355
## 25621 0.620620621 0.025025025 1.354354
## 25622 0.621621622 0.025025025 1.353353
## 25623 0.622622623 0.025025025 1.352352
## 25624 0.623623624 0.025025025 1.351351
## 25625 0.624624625 0.025025025 1.350350
## 25626 0.625625626 0.025025025 1.349349
## 25627 0.626626627 0.025025025 1.348348
## 25628 0.627627628 0.025025025 1.347347
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 669

```

## 25629 0.628628629 0.025025025 1.346346
## 25630 0.629629630 0.025025025 1.345345
## 25631 0.630630631 0.025025025 1.344344
## 25632 0.631631632 0.025025025 1.343343
## 25633 0.632632633 0.025025025 1.342342
## 25634 0.633633634 0.025025025 1.341341
## 25635 0.634634635 0.025025025 1.340340
## 25636 0.635635636 0.025025025 1.339339
## 25637 0.636636637 0.025025025 1.338338
## 25638 0.637637638 0.025025025 1.337337
## 25639 0.638638639 0.025025025 1.336336
## 25640 0.639639640 0.025025025 1.335335
## 25641 0.640640641 0.025025025 1.334334
## 25642 0.641641642 0.025025025 1.333333
## 25643 0.642642643 0.025025025 1.332332
## 25644 0.643643644 0.025025025 1.331331
## 25645 0.644644645 0.025025025 1.330330
## 25646 0.645645646 0.025025025 1.329329
## 25647 0.646646647 0.025025025 1.328328
## 25648 0.647647648 0.025025025 1.327327
## 25649 0.648648649 0.025025025 1.326326
## 25650 0.649649650 0.025025025 1.325325
## 25651 0.650650651 0.025025025 1.324324
## 25652 0.651651652 0.025025025 1.323323
## 25653 0.652652653 0.025025025 1.322322
## 25654 0.653653654 0.025025025 1.321321
## 25655 0.654654655 0.025025025 1.320320
## 25656 0.655655656 0.025025025 1.319319
## 25657 0.656656657 0.025025025 1.318318
## 25658 0.657657658 0.025025025 1.317317
## 25659 0.658658659 0.025025025 1.316316
## 25660 0.659659660 0.025025025 1.315315
## 25661 0.660660661 0.025025025 1.314314
## 25662 0.661661662 0.025025025 1.313313
## 25663 0.662662663 0.025025025 1.312312
## 25664 0.663663664 0.025025025 1.311311
## 25665 0.664664665 0.025025025 1.310310
## 25666 0.665665666 0.025025025 1.309309
## 25667 0.666666667 0.025025025 1.308308
## 25668 0.667667668 0.025025025 1.307307
## 25669 0.668668669 0.025025025 1.306306
## 25670 0.669669670 0.025025025 1.305305
## 25671 0.670670671 0.025025025 1.304304
## 25672 0.671671672 0.025025025 1.303303
## 25673 0.672672673 0.025025025 1.302302
## 25674 0.673673674 0.025025025 1.301301

```

```
## 25675 0.674674675 0.025025025 1.300300
## 25676 0.675675676 0.025025025 1.299299
## 25677 0.676676677 0.025025025 1.298298
## 25678 0.677677678 0.025025025 1.297297
## 25679 0.678678679 0.025025025 1.296296
## 25680 0.679679680 0.025025025 1.295295
## 25681 0.680680681 0.025025025 1.294294
## 25682 0.681681682 0.025025025 1.293293
## 25683 0.682682683 0.025025025 1.292292
## 25684 0.683683684 0.025025025 1.291291
## 25685 0.684684685 0.025025025 1.290290
## 25686 0.685685686 0.025025025 1.289289
## 25687 0.686686687 0.025025025 1.288288
## 25688 0.687687688 0.025025025 1.287287
## 25689 0.688688689 0.025025025 1.286286
## 25690 0.689689690 0.025025025 1.285285
## 25691 0.690690691 0.025025025 1.284284
## 25692 0.691691692 0.025025025 1.283283
## 25693 0.692692693 0.025025025 1.282282
## 25694 0.693693694 0.025025025 1.281281
## 25695 0.694694695 0.025025025 1.280280
## 25696 0.695695696 0.025025025 1.279279
## 25697 0.696696697 0.025025025 1.278278
## 25698 0.697697698 0.025025025 1.277277
## 25699 0.698698699 0.025025025 1.276276
## 25700 0.699699700 0.025025025 1.275275
## 25701 0.700700701 0.025025025 1.274274
## 25702 0.701701702 0.025025025 1.273273
## 25703 0.702702703 0.025025025 1.272272
## 25704 0.703703704 0.025025025 1.271271
## 25705 0.704704705 0.025025025 1.270270
## 25706 0.705705706 0.025025025 1.269269
## 25707 0.706706707 0.025025025 1.268268
## 25708 0.707707708 0.025025025 1.267267
## 25709 0.708708709 0.025025025 1.266266
## 25710 0.709709710 0.025025025 1.265265
## 25711 0.710710711 0.025025025 1.264264
## 25712 0.711711712 0.025025025 1.263263
## 25713 0.712712713 0.025025025 1.262262
## 25714 0.713713714 0.025025025 1.261261
## 25715 0.714714715 0.025025025 1.260260
## 25716 0.715715716 0.025025025 1.259259
## 25717 0.716716717 0.025025025 1.258258
## 25718 0.717717718 0.025025025 1.257257
## 25719 0.718718719 0.025025025 1.256256
## 25720 0.719719720 0.025025025 1.255255
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 671

```
## 25721 0.720720721 0.025025025 1.254254
## 25722 0.721721722 0.025025025 1.253253
## 25723 0.722722723 0.025025025 1.252252
## 25724 0.723723724 0.025025025 1.251251
## 25725 0.724724725 0.025025025 1.250250
## 25726 0.725725726 0.025025025 1.249249
## 25727 0.726726727 0.025025025 1.248248
## 25728 0.727727728 0.025025025 1.247247
## 25729 0.728728729 0.025025025 1.246246
## 25730 0.729729730 0.025025025 1.245245
## 25731 0.730730731 0.025025025 1.244244
## 25732 0.731731732 0.025025025 1.243243
## 25733 0.732732733 0.025025025 1.242242
## 25734 0.733733734 0.025025025 1.241241
## 25735 0.734734735 0.025025025 1.240240
## 25736 0.735735736 0.025025025 1.239239
## 25737 0.736736737 0.025025025 1.238238
## 25738 0.737737738 0.025025025 1.237237
## 25739 0.738738739 0.025025025 1.236236
## 25740 0.739739740 0.025025025 1.235235
## 25741 0.740740741 0.025025025 1.234234
## 25742 0.741741742 0.025025025 1.233233
## 25743 0.742742743 0.025025025 1.232232
## 25744 0.743743744 0.025025025 1.231231
## 25745 0.744744745 0.025025025 1.230230
## 25746 0.745745746 0.025025025 1.229229
## 25747 0.746746747 0.025025025 1.228228
## 25748 0.747747748 0.025025025 1.227227
## 25749 0.748748749 0.025025025 1.226226
## 25750 0.749749750 0.025025025 1.225225
## 25751 0.750750751 0.025025025 1.224224
## 25752 0.751751752 0.025025025 1.223223
## 25753 0.752752753 0.025025025 1.222222
## 25754 0.753753754 0.025025025 1.221221
## 25755 0.754754755 0.025025025 1.220220
## 25756 0.755755756 0.025025025 1.219219
## 25757 0.756756757 0.025025025 1.218218
## 25758 0.757757758 0.025025025 1.217217
## 25759 0.758758759 0.025025025 1.216216
## 25760 0.759759760 0.025025025 1.215215
## 25761 0.760760761 0.025025025 1.214214
## 25762 0.761761762 0.025025025 1.213213
## 25763 0.762762763 0.025025025 1.212212
## 25764 0.763763764 0.025025025 1.211211
## 25765 0.764764765 0.025025025 1.210210
## 25766 0.765765766 0.025025025 1.209209
```

```
## 25767 0.766766767 0.025025025 1.208208
## 25768 0.767767768 0.025025025 1.207207
## 25769 0.768768769 0.025025025 1.206206
## 25770 0.769769770 0.025025025 1.205205
## 25771 0.770770771 0.025025025 1.204204
## 25772 0.771771772 0.025025025 1.203203
## 25773 0.772772773 0.025025025 1.202202
## 25774 0.773773774 0.025025025 1.201201
## 25775 0.774774775 0.025025025 1.200200
## 25776 0.775775776 0.025025025 1.199199
## 25777 0.776776777 0.025025025 1.198198
## 25778 0.777777778 0.025025025 1.197197
## 25779 0.778778779 0.025025025 1.196196
## 25780 0.779779780 0.025025025 1.195195
## 25781 0.780780781 0.025025025 1.194194
## 25782 0.781781782 0.025025025 1.193193
## 25783 0.782782783 0.025025025 1.192192
## 25784 0.783783784 0.025025025 1.191191
## 25785 0.784784785 0.025025025 1.190190
## 25786 0.785785786 0.025025025 1.189189
## 25787 0.786786787 0.025025025 1.188188
## 25788 0.787787788 0.025025025 1.187187
## 25789 0.788788789 0.025025025 1.186186
## 25790 0.789789790 0.025025025 1.185185
## 25791 0.790790791 0.025025025 1.184184
## 25792 0.791791792 0.025025025 1.183183
## 25793 0.792792793 0.025025025 1.182182
## 25794 0.793793794 0.025025025 1.181181
## 25795 0.794794795 0.025025025 1.180180
## 25796 0.795795796 0.025025025 1.179179
## 25797 0.796796797 0.025025025 1.178178
## 25798 0.797797798 0.025025025 1.177177
## 25799 0.798798799 0.025025025 1.176176
## 25800 0.799799800 0.025025025 1.175175
## 25801 0.800800801 0.025025025 1.174174
## 25802 0.801801802 0.025025025 1.173173
## 25803 0.802802803 0.025025025 1.172172
## 25804 0.803803804 0.025025025 1.171171
## 25805 0.804804805 0.025025025 1.170170
## 25806 0.805805806 0.025025025 1.169169
## 25807 0.806806807 0.025025025 1.168168
## 25808 0.807807808 0.025025025 1.167167
## 25809 0.808808809 0.025025025 1.166166
## 25810 0.809809810 0.025025025 1.165165
## 25811 0.810810811 0.025025025 1.164164
## 25812 0.811811812 0.025025025 1.163163
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 673

```
## 25813 0.812812813 0.025025025 1.162162
## 25814 0.813813814 0.025025025 1.161161
## 25815 0.814814815 0.025025025 1.160160
## 25816 0.815815816 0.025025025 1.159159
## 25817 0.816816817 0.025025025 1.158158
## 25818 0.817817818 0.025025025 1.157157
## 25819 0.818818819 0.025025025 1.156156
## 25820 0.819819820 0.025025025 1.155155
## 25821 0.820820821 0.025025025 1.154154
## 25822 0.821821822 0.025025025 1.153153
## 25823 0.822822823 0.025025025 1.152152
## 25824 0.823823824 0.025025025 1.151151
## 25825 0.824824825 0.025025025 1.150150
## 25826 0.825825826 0.025025025 1.149149
## 25827 0.826826827 0.025025025 1.148148
## 25828 0.827827828 0.025025025 1.147147
## 25829 0.828828829 0.025025025 1.146146
## 25830 0.829829830 0.025025025 1.145145
## 25831 0.830830831 0.025025025 1.144144
## 25832 0.831831832 0.025025025 1.143143
## 25833 0.832832833 0.025025025 1.142142
## 25834 0.833833834 0.025025025 1.141141
## 25835 0.834834835 0.025025025 1.140140
## 25836 0.835835836 0.025025025 1.139139
## 25837 0.836836837 0.025025025 1.138138
## 25838 0.837837838 0.025025025 1.137137
## 25839 0.838838839 0.025025025 1.136136
## 25840 0.839839840 0.025025025 1.135135
## 25841 0.840840841 0.025025025 1.134134
## 25842 0.841841842 0.025025025 1.133133
## 25843 0.842842843 0.025025025 1.132132
## 25844 0.843843844 0.025025025 1.131131
## 25845 0.844844845 0.025025025 1.130130
## 25846 0.845845846 0.025025025 1.129129
## 25847 0.846846847 0.025025025 1.128128
## 25848 0.847847848 0.025025025 1.127127
## 25849 0.848848849 0.025025025 1.126126
## 25850 0.849849850 0.025025025 1.125125
## 25851 0.850850851 0.025025025 1.124124
## 25852 0.851851852 0.025025025 1.123123
## 25853 0.852852853 0.025025025 1.122122
## 25854 0.853853854 0.025025025 1.121121
## 25855 0.854854855 0.025025025 1.120120
## 25856 0.855855856 0.025025025 1.119119
## 25857 0.856856857 0.025025025 1.118118
## 25858 0.857857858 0.025025025 1.117117
```

```
## 25859 0.858858859 0.025025025 1.116116
## 25860 0.859859860 0.025025025 1.115115
## 25861 0.860860861 0.025025025 1.114114
## 25862 0.861861862 0.025025025 1.113113
## 25863 0.862862863 0.025025025 1.112112
## 25864 0.863863864 0.025025025 1.111111
## 25865 0.864864865 0.025025025 1.110110
## 25866 0.865865866 0.025025025 1.109109
## 25867 0.866866867 0.025025025 1.108108
## 25868 0.867867868 0.025025025 1.107107
## 25869 0.868868869 0.025025025 1.106106
## 25870 0.869869870 0.025025025 1.105105
## 25871 0.870870871 0.025025025 1.104104
## 25872 0.871871872 0.025025025 1.103103
## 25873 0.872872873 0.025025025 1.102102
## 25874 0.873873874 0.025025025 1.101101
## 25875 0.874874875 0.025025025 1.100100
## 25876 0.875875876 0.025025025 1.099099
## 25877 0.876876877 0.025025025 1.098098
## 25878 0.877877878 0.025025025 1.097097
## 25879 0.878878879 0.025025025 1.096096
## 25880 0.879879880 0.025025025 1.095095
## 25881 0.880880881 0.025025025 1.094094
## 25882 0.881881882 0.025025025 1.093093
## 25883 0.882882883 0.025025025 1.092092
## 25884 0.883883884 0.025025025 1.091091
## 25885 0.884884885 0.025025025 1.090090
## 25886 0.885885886 0.025025025 1.089089
## 25887 0.886886887 0.025025025 1.088088
## 25888 0.887887888 0.025025025 1.087087
## 25889 0.888888889 0.025025025 1.086086
## 25890 0.889889890 0.025025025 1.085085
## 25891 0.890890891 0.025025025 1.084084
## 25892 0.891891892 0.025025025 1.083083
## 25893 0.892892893 0.025025025 1.082082
## 25894 0.893893894 0.025025025 1.081081
## 25895 0.894894895 0.025025025 1.080080
## 25896 0.895895896 0.025025025 1.079079
## 25897 0.896896897 0.025025025 1.078078
## 25898 0.897897898 0.025025025 1.077077
## 25899 0.898898899 0.025025025 1.076076
## 25900 0.899899900 0.025025025 1.075075
## 25901 0.900900901 0.025025025 1.074074
## 25902 0.901901902 0.025025025 1.073073
## 25903 0.902902903 0.025025025 1.072072
## 25904 0.903903904 0.025025025 1.071071
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 675

```
## 25905 0.904904905 0.025025025 1.070070
## 25906 0.905905906 0.025025025 1.069069
## 25907 0.906906907 0.025025025 1.068068
## 25908 0.907907908 0.025025025 1.067067
## 25909 0.908908909 0.025025025 1.066066
## 25910 0.909909910 0.025025025 1.065065
## 25911 0.910910911 0.025025025 1.064064
## 25912 0.911911912 0.025025025 1.063063
## 25913 0.912912913 0.025025025 1.062062
## 25914 0.913913914 0.025025025 1.061061
## 25915 0.914914915 0.025025025 1.060060
## 25916 0.915915916 0.025025025 1.059059
## 25917 0.916916917 0.025025025 1.058058
## 25918 0.917917918 0.025025025 1.057057
## 25919 0.918918919 0.025025025 1.056056
## 25920 0.919919920 0.025025025 1.055055
## 25921 0.920920921 0.025025025 1.054054
## 25922 0.921921922 0.025025025 1.053053
## 25923 0.922922923 0.025025025 1.052052
## 25924 0.923923924 0.025025025 1.051051
## 25925 0.924924925 0.025025025 1.050050
## 25926 0.925925926 0.025025025 1.049049
## 25927 0.926926927 0.025025025 1.048048
## 25928 0.927927928 0.025025025 1.047047
## 25929 0.928928929 0.025025025 1.046046
## 25930 0.929929930 0.025025025 1.045045
## 25931 0.930930931 0.025025025 1.044044
## 25932 0.931931932 0.025025025 1.043043
## 25933 0.932932933 0.025025025 1.042042
## 25934 0.933933934 0.025025025 1.041041
## 25935 0.934934935 0.025025025 1.040040
## 25936 0.935935936 0.025025025 1.039039
## 25937 0.936936937 0.025025025 1.038038
## 25938 0.937937938 0.025025025 1.037037
## 25939 0.938938939 0.025025025 1.036036
## 25940 0.939939940 0.025025025 1.035035
## 25941 0.940940941 0.025025025 1.034034
## 25942 0.941941942 0.025025025 1.033033
## 25943 0.942942943 0.025025025 1.032032
## 25944 0.943943944 0.025025025 1.031031
## 25945 0.944944945 0.025025025 1.030030
## 25946 0.945945946 0.025025025 1.029029
## 25947 0.946946947 0.025025025 1.028028
## 25948 0.947947948 0.025025025 1.027027
## 25949 0.948948949 0.025025025 1.026026
## 25950 0.949949950 0.025025025 1.025025
```

```
## 25951 0.950950951 0.025025025 1.024024
## 25952 0.951951952 0.025025025 1.023023
## 25953 0.952952953 0.025025025 1.022022
## 25954 0.953953954 0.025025025 1.021021
## 25955 0.954954955 0.025025025 1.020020
## 25956 0.955955956 0.025025025 1.019019
## 25957 0.956956957 0.025025025 1.018018
## 25958 0.957957958 0.025025025 1.017017
## 25959 0.958958959 0.025025025 1.016016
## 25960 0.959959960 0.025025025 1.015015
## 25961 0.960960961 0.025025025 1.014014
## 25962 0.961961962 0.025025025 1.013013
## 25963 0.962962963 0.025025025 1.012012
## 25964 0.963963964 0.025025025 1.011011
## 25965 0.964964965 0.025025025 1.010010
## 25966 0.965965966 0.025025025 1.009009
## 25967 0.966966967 0.025025025 1.008008
## 25968 0.967967968 0.025025025 1.007007
## 25969 0.968968969 0.025025025 1.006006
## 25970 0.969969970 0.025025025 1.005005
## 25971 0.970970971 0.025025025 1.004004
## 25972 0.971971972 0.025025025 1.003003
## 25973 0.972972973 0.025025025 1.002002
## 25974 0.973973974 0.025025025 1.001001
## 25975 0.974974975 0.025025025 1.000000
## 25976 0.975975976 0.025025025 0.998999
## 25977 0.976976977 0.025025025 0.997998
## 25978 0.977977978 0.025025025 0.996997
## 25979 0.978978979 0.025025025 0.995996
## 25980 0.979979980 0.025025025 0.994995
## 25981 0.980980981 0.025025025 0.993994
## 25982 0.981981982 0.025025025 0.992993
## 25983 0.982982983 0.025025025 0.991992
## 25984 0.983983984 0.025025025 0.990991
## 25985 0.984984985 0.025025025 0.989990
## 25986 0.985985986 0.025025025 0.988989
## 25987 0.986986987 0.025025025 0.987988
## 25988 0.987987988 0.025025025 0.986987
## 25989 0.988988989 0.025025025 0.985986
## 25990 0.989989990 0.025025025 0.984985
## 25991 0.990990991 0.025025025 0.983984
## 25992 0.991991992 0.025025025 0.982983
## 25993 0.992992993 0.025025025 0.981982
## 25994 0.993993994 0.025025025 0.980981
## 25995 0.994994995 0.025025025 0.979980
## 25996 0.995995996 0.025025025 0.978979
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 677

```
## 25997 0.996996997 0.025025025 0.977978
## 25998 0.997997998 0.025025025 0.976977
## 25999 0.998998999 0.025025025 0.975976
## 26000 1.000000000 0.025025025 0.974975
## 26001 0.000000000 0.026026026 1.973974
## 26002 0.001001001 0.026026026 1.972973
## 26003 0.002002002 0.026026026 1.971972
## 26004 0.003003003 0.026026026 1.970971
## 26005 0.004004004 0.026026026 1.969970
## 26006 0.005005005 0.026026026 1.968969
## 26007 0.006006006 0.026026026 1.967968
## 26008 0.007007007 0.026026026 1.966967
## 26009 0.008008008 0.026026026 1.965966
## 26010 0.009009009 0.026026026 1.964965
## 26011 0.010010010 0.026026026 1.963964
## 26012 0.011011011 0.026026026 1.962963
## 26013 0.012012012 0.026026026 1.961962
## 26014 0.013013013 0.026026026 1.960961
## 26015 0.014014014 0.026026026 1.959960
## 26016 0.015015015 0.026026026 1.958959
## 26017 0.016016016 0.026026026 1.957958
## 26018 0.017017017 0.026026026 1.956957
## 26019 0.018018018 0.026026026 1.955956
## 26020 0.019019019 0.026026026 1.954955
## 26021 0.020020020 0.026026026 1.953954
## 26022 0.021021021 0.026026026 1.952953
## 26023 0.022022022 0.026026026 1.951952
## 26024 0.023023023 0.026026026 1.950951
## 26025 0.024024024 0.026026026 1.949950
## 26026 0.025025025 0.026026026 1.948949
## 26027 0.026026026 0.026026026 1.947948
## 26028 0.027027027 0.026026026 1.946947
## 26029 0.028028028 0.026026026 1.945946
## 26030 0.029029029 0.026026026 1.944945
## 26031 0.030030030 0.026026026 1.943944
## 26032 0.031031031 0.026026026 1.942943
## 26033 0.032032032 0.026026026 1.941942
## 26034 0.033033033 0.026026026 1.940941
## 26035 0.034034034 0.026026026 1.939940
## 26036 0.035035035 0.026026026 1.938939
## 26037 0.036036036 0.026026026 1.937938
## 26038 0.037037037 0.026026026 1.936937
## 26039 0.038038038 0.026026026 1.935936
## 26040 0.039039039 0.026026026 1.934935
## 26041 0.040040040 0.026026026 1.933934
## 26042 0.041041041 0.026026026 1.932933
```

```
## 26043 0.042042042 0.026026026 1.931932
## 26044 0.043043043 0.026026026 1.930931
## 26045 0.044044044 0.026026026 1.929930
## 26046 0.045045045 0.026026026 1.928929
## 26047 0.046046046 0.026026026 1.927928
## 26048 0.047047047 0.026026026 1.926927
## 26049 0.048048048 0.026026026 1.925926
## 26050 0.049049049 0.026026026 1.924925
## 26051 0.050050050 0.026026026 1.923924
## 26052 0.051051051 0.026026026 1.922923
## 26053 0.052052052 0.026026026 1.921922
## 26054 0.053053053 0.026026026 1.920921
## 26055 0.054054054 0.026026026 1.919920
## 26056 0.055055055 0.026026026 1.918919
## 26057 0.056056056 0.026026026 1.917918
## 26058 0.057057057 0.026026026 1.916917
## 26059 0.058058058 0.026026026 1.915916
## 26060 0.059059059 0.026026026 1.914915
## 26061 0.060060060 0.026026026 1.913914
## 26062 0.061061061 0.026026026 1.912913
## 26063 0.062062062 0.026026026 1.911912
## 26064 0.063063063 0.026026026 1.910911
## 26065 0.064064064 0.026026026 1.909910
## 26066 0.065065065 0.026026026 1.908909
## 26067 0.066066066 0.026026026 1.907908
## 26068 0.067067067 0.026026026 1.906907
## 26069 0.068068068 0.026026026 1.905906
## 26070 0.069069069 0.026026026 1.904905
## 26071 0.070070070 0.026026026 1.903904
## 26072 0.071071071 0.026026026 1.902903
## 26073 0.072072072 0.026026026 1.901902
## 26074 0.073073073 0.026026026 1.900901
## 26075 0.074074074 0.026026026 1.899900
## 26076 0.075075075 0.026026026 1.898899
## 26077 0.076076076 0.026026026 1.897898
## 26078 0.077077077 0.026026026 1.896897
## 26079 0.078078078 0.026026026 1.895896
## 26080 0.079079079 0.026026026 1.894895
## 26081 0.080080080 0.026026026 1.893894
## 26082 0.081081081 0.026026026 1.892893
## 26083 0.082082082 0.026026026 1.891892
## 26084 0.083083083 0.026026026 1.890891
## 26085 0.084084084 0.026026026 1.889890
## 26086 0.085085085 0.026026026 1.888889
## 26087 0.086086086 0.026026026 1.887888
## 26088 0.087087087 0.026026026 1.886887
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 679

```
## 26089 0.088088088 0.026026026 1.885886
## 26090 0.089089089 0.026026026 1.884885
## 26091 0.090090090 0.026026026 1.883884
## 26092 0.091091091 0.026026026 1.882883
## 26093 0.092092092 0.026026026 1.881882
## 26094 0.093093093 0.026026026 1.880881
## 26095 0.094094094 0.026026026 1.879880
## 26096 0.095095095 0.026026026 1.878879
## 26097 0.096096096 0.026026026 1.877878
## 26098 0.097097097 0.026026026 1.876877
## 26099 0.098098098 0.026026026 1.875876
## 26100 0.099099099 0.026026026 1.874875
## 26101 0.100100100 0.026026026 1.873874
## 26102 0.101101101 0.026026026 1.872873
## 26103 0.102102102 0.026026026 1.871872
## 26104 0.103103103 0.026026026 1.870871
## 26105 0.104104104 0.026026026 1.869870
## 26106 0.105105105 0.026026026 1.868869
## 26107 0.106106106 0.026026026 1.867868
## 26108 0.107107107 0.026026026 1.866867
## 26109 0.108108108 0.026026026 1.865866
## 26110 0.109109109 0.026026026 1.864865
## 26111 0.110110110 0.026026026 1.863864
## 26112 0.111111111 0.026026026 1.862863
## 26113 0.112112112 0.026026026 1.861862
## 26114 0.113113113 0.026026026 1.860861
## 26115 0.114114114 0.026026026 1.859860
## 26116 0.115115115 0.026026026 1.858859
## 26117 0.116116116 0.026026026 1.857858
## 26118 0.117117117 0.026026026 1.856857
## 26119 0.118118118 0.026026026 1.855856
## 26120 0.119119119 0.026026026 1.854855
## 26121 0.120120120 0.026026026 1.853854
## 26122 0.121121121 0.026026026 1.852853
## 26123 0.122122122 0.026026026 1.851852
## 26124 0.123123123 0.026026026 1.850851
## 26125 0.124124124 0.026026026 1.849850
## 26126 0.125125125 0.026026026 1.848849
## 26127 0.126126126 0.026026026 1.847848
## 26128 0.127127127 0.026026026 1.846847
## 26129 0.128128128 0.026026026 1.845846
## 26130 0.129129129 0.026026026 1.844845
## 26131 0.130130130 0.026026026 1.843844
## 26132 0.131131131 0.026026026 1.842843
## 26133 0.132132132 0.026026026 1.841842
## 26134 0.133133133 0.026026026 1.840841
```

```
## 26135 0.134134134 0.026026026 1.839840
## 26136 0.135135135 0.026026026 1.838839
## 26137 0.136136136 0.026026026 1.837838
## 26138 0.137137137 0.026026026 1.836837
## 26139 0.138138138 0.026026026 1.835836
## 26140 0.139139139 0.026026026 1.834835
## 26141 0.140140140 0.026026026 1.833834
## 26142 0.141141141 0.026026026 1.832833
## 26143 0.142142142 0.026026026 1.831832
## 26144 0.143143143 0.026026026 1.830831
## 26145 0.144144144 0.026026026 1.829830
## 26146 0.145145145 0.026026026 1.828829
## 26147 0.146146146 0.026026026 1.827828
## 26148 0.147147147 0.026026026 1.826827
## 26149 0.148148148 0.026026026 1.825826
## 26150 0.149149149 0.026026026 1.824825
## 26151 0.150150150 0.026026026 1.823824
## 26152 0.151151151 0.026026026 1.822823
## 26153 0.152152152 0.026026026 1.821822
## 26154 0.153153153 0.026026026 1.820821
## 26155 0.154154154 0.026026026 1.819820
## 26156 0.155155155 0.026026026 1.818819
## 26157 0.156156156 0.026026026 1.817818
## 26158 0.157157157 0.026026026 1.816817
## 26159 0.158158158 0.026026026 1.815816
## 26160 0.159159159 0.026026026 1.814815
## 26161 0.160160160 0.026026026 1.813814
## 26162 0.161161161 0.026026026 1.812813
## 26163 0.162162162 0.026026026 1.811812
## 26164 0.163163163 0.026026026 1.810811
## 26165 0.164164164 0.026026026 1.809810
## 26166 0.165165165 0.026026026 1.808809
## 26167 0.166166166 0.026026026 1.807808
## 26168 0.167167167 0.026026026 1.806807
## 26169 0.168168168 0.026026026 1.805806
## 26170 0.169169169 0.026026026 1.804805
## 26171 0.170170170 0.026026026 1.803804
## 26172 0.171171171 0.026026026 1.802803
## 26173 0.172172172 0.026026026 1.801802
## 26174 0.173173173 0.026026026 1.800801
## 26175 0.174174174 0.026026026 1.799800
## 26176 0.175175175 0.026026026 1.798799
## 26177 0.176176176 0.026026026 1.797798
## 26178 0.177177177 0.026026026 1.796797
## 26179 0.178178178 0.026026026 1.795796
## 26180 0.179179179 0.026026026 1.794795
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 681

```
## 26181 0.180180180 0.026026026 1.793794
## 26182 0.181181181 0.026026026 1.792793
## 26183 0.182182182 0.026026026 1.791792
## 26184 0.183183183 0.026026026 1.790791
## 26185 0.184184184 0.026026026 1.789790
## 26186 0.185185185 0.026026026 1.788789
## 26187 0.186186186 0.026026026 1.787788
## 26188 0.187187187 0.026026026 1.786787
## 26189 0.188188188 0.026026026 1.785786
## 26190 0.189189189 0.026026026 1.784785
## 26191 0.190190190 0.026026026 1.783784
## 26192 0.191191191 0.026026026 1.782783
## 26193 0.192192192 0.026026026 1.781782
## 26194 0.193193193 0.026026026 1.780781
## 26195 0.194194194 0.026026026 1.779780
## 26196 0.195195195 0.026026026 1.778779
## 26197 0.196196196 0.026026026 1.777778
## 26198 0.197197197 0.026026026 1.776777
## 26199 0.198198198 0.026026026 1.775776
## 26200 0.199199199 0.026026026 1.774775
## 26201 0.200200200 0.026026026 1.773774
## 26202 0.201201201 0.026026026 1.772773
## 26203 0.202202202 0.026026026 1.771772
## 26204 0.203203203 0.026026026 1.770771
## 26205 0.204204204 0.026026026 1.769770
## 26206 0.205205205 0.026026026 1.768769
## 26207 0.206206206 0.026026026 1.767768
## 26208 0.207207207 0.026026026 1.766767
## 26209 0.208208208 0.026026026 1.765766
## 26210 0.209209209 0.026026026 1.764765
## 26211 0.210210210 0.026026026 1.763764
## 26212 0.211211211 0.026026026 1.762763
## 26213 0.212212212 0.026026026 1.761762
## 26214 0.213213213 0.026026026 1.760761
## 26215 0.214214214 0.026026026 1.759760
## 26216 0.215215215 0.026026026 1.758759
## 26217 0.216216216 0.026026026 1.757758
## 26218 0.217217217 0.026026026 1.756757
## 26219 0.218218218 0.026026026 1.755756
## 26220 0.219219219 0.026026026 1.754755
## 26221 0.220220220 0.026026026 1.753754
## 26222 0.221221221 0.026026026 1.752753
## 26223 0.222222222 0.026026026 1.751752
## 26224 0.223223223 0.026026026 1.750751
## 26225 0.224224224 0.026026026 1.749750
## 26226 0.225225225 0.026026026 1.748749
```

```
## 26227 0.226226226 0.026026026 1.747748
## 26228 0.227227227 0.026026026 1.746747
## 26229 0.228228228 0.026026026 1.745746
## 26230 0.229229229 0.026026026 1.744745
## 26231 0.230230230 0.026026026 1.743744
## 26232 0.231231231 0.026026026 1.742743
## 26233 0.232232232 0.026026026 1.741742
## 26234 0.233233233 0.026026026 1.740741
## 26235 0.234234234 0.026026026 1.739740
## 26236 0.235235235 0.026026026 1.738739
## 26237 0.236236236 0.026026026 1.737738
## 26238 0.237237237 0.026026026 1.736737
## 26239 0.238238238 0.026026026 1.735736
## 26240 0.239239239 0.026026026 1.734735
## 26241 0.240240240 0.026026026 1.733734
## 26242 0.241241241 0.026026026 1.732733
## 26243 0.242242242 0.026026026 1.731732
## 26244 0.243243243 0.026026026 1.730731
## 26245 0.244244244 0.026026026 1.729730
## 26246 0.245245245 0.026026026 1.728729
## 26247 0.246246246 0.026026026 1.727728
## 26248 0.247247247 0.026026026 1.726727
## 26249 0.248248248 0.026026026 1.725726
## 26250 0.249249249 0.026026026 1.724725
## 26251 0.250250250 0.026026026 1.723724
## 26252 0.251251251 0.026026026 1.722723
## 26253 0.252252252 0.026026026 1.721722
## 26254 0.253253253 0.026026026 1.720721
## 26255 0.254254254 0.026026026 1.719720
## 26256 0.255255255 0.026026026 1.718719
## 26257 0.256256256 0.026026026 1.717718
## 26258 0.257257257 0.026026026 1.716717
## 26259 0.258258258 0.026026026 1.715716
## 26260 0.259259259 0.026026026 1.714715
## 26261 0.260260260 0.026026026 1.713714
## 26262 0.261261261 0.026026026 1.712713
## 26263 0.262262262 0.026026026 1.711712
## 26264 0.263263263 0.026026026 1.710711
## 26265 0.264264264 0.026026026 1.709710
## 26266 0.265265265 0.026026026 1.708709
## 26267 0.266266266 0.026026026 1.707708
## 26268 0.267267267 0.026026026 1.706707
## 26269 0.268268268 0.026026026 1.705706
## 26270 0.269269269 0.026026026 1.704705
## 26271 0.270270270 0.026026026 1.703704
## 26272 0.271271271 0.026026026 1.702703
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR683

```

## 26273 0.272272272 0.026026026 1.701702
## 26274 0.273273273 0.026026026 1.700701
## 26275 0.274274274 0.026026026 1.699700
## 26276 0.275275275 0.026026026 1.698699
## 26277 0.276276276 0.026026026 1.697698
## 26278 0.277277277 0.026026026 1.696697
## 26279 0.278278278 0.026026026 1.695696
## 26280 0.279279279 0.026026026 1.694695
## 26281 0.280280280 0.026026026 1.693694
## 26282 0.281281281 0.026026026 1.692693
## 26283 0.282282282 0.026026026 1.691692
## 26284 0.283283283 0.026026026 1.690691
## 26285 0.284284284 0.026026026 1.689690
## 26286 0.285285285 0.026026026 1.688689
## 26287 0.286286286 0.026026026 1.687688
## 26288 0.287287287 0.026026026 1.686687
## 26289 0.288288288 0.026026026 1.685686
## 26290 0.289289289 0.026026026 1.684685
## 26291 0.290290290 0.026026026 1.683684
## 26292 0.291291291 0.026026026 1.682683
## 26293 0.292292292 0.026026026 1.681682
## 26294 0.293293293 0.026026026 1.680681
## 26295 0.294294294 0.026026026 1.679680
## 26296 0.295295295 0.026026026 1.678679
## 26297 0.296296296 0.026026026 1.677678
## 26298 0.297297297 0.026026026 1.676677
## 26299 0.298298298 0.026026026 1.675676
## 26300 0.299299299 0.026026026 1.674675
## 26301 0.300300300 0.026026026 1.673674
## 26302 0.301301301 0.026026026 1.672673
## 26303 0.302302302 0.026026026 1.671672
## 26304 0.303303303 0.026026026 1.670671
## 26305 0.304304304 0.026026026 1.669670
## 26306 0.305305305 0.026026026 1.668669
## 26307 0.306306306 0.026026026 1.667668
## 26308 0.307307307 0.026026026 1.666667
## 26309 0.308308308 0.026026026 1.665666
## 26310 0.309309309 0.026026026 1.664665
## 26311 0.310310310 0.026026026 1.663664
## 26312 0.311311311 0.026026026 1.662663
## 26313 0.312312312 0.026026026 1.661662
## 26314 0.313313313 0.026026026 1.660661
## 26315 0.314314314 0.026026026 1.659660
## 26316 0.315315315 0.026026026 1.658659
## 26317 0.316316316 0.026026026 1.657658
## 26318 0.317317317 0.026026026 1.656657

```

```
## 26319 0.318318318 0.026026026 1.655656
## 26320 0.319319319 0.026026026 1.654655
## 26321 0.320320320 0.026026026 1.653654
## 26322 0.321321321 0.026026026 1.652653
## 26323 0.322322322 0.026026026 1.651652
## 26324 0.323323323 0.026026026 1.650651
## 26325 0.324324324 0.026026026 1.649650
## 26326 0.325325325 0.026026026 1.648649
## 26327 0.326326326 0.026026026 1.647648
## 26328 0.327327327 0.026026026 1.646647
## 26329 0.328328328 0.026026026 1.645646
## 26330 0.329329329 0.026026026 1.644645
## 26331 0.330330330 0.026026026 1.643644
## 26332 0.331331331 0.026026026 1.642643
## 26333 0.332332332 0.026026026 1.641642
## 26334 0.333333333 0.026026026 1.640641
## 26335 0.334334334 0.026026026 1.639640
## 26336 0.335335335 0.026026026 1.638639
## 26337 0.336336336 0.026026026 1.637638
## 26338 0.337337337 0.026026026 1.636637
## 26339 0.338338338 0.026026026 1.635636
## 26340 0.339339339 0.026026026 1.634635
## 26341 0.340340340 0.026026026 1.633634
## 26342 0.341341341 0.026026026 1.632633
## 26343 0.342342342 0.026026026 1.631632
## 26344 0.343343343 0.026026026 1.630631
## 26345 0.344344344 0.026026026 1.629630
## 26346 0.345345345 0.026026026 1.628629
## 26347 0.346346346 0.026026026 1.627628
## 26348 0.347347347 0.026026026 1.626627
## 26349 0.348348348 0.026026026 1.625626
## 26350 0.349349349 0.026026026 1.624625
## 26351 0.350350350 0.026026026 1.623624
## 26352 0.351351351 0.026026026 1.622623
## 26353 0.352352352 0.026026026 1.621622
## 26354 0.353353353 0.026026026 1.620621
## 26355 0.354354354 0.026026026 1.619620
## 26356 0.355355355 0.026026026 1.618619
## 26357 0.356356356 0.026026026 1.617618
## 26358 0.357357357 0.026026026 1.616617
## 26359 0.358358358 0.026026026 1.615616
## 26360 0.359359359 0.026026026 1.614615
## 26361 0.360360360 0.026026026 1.613614
## 26362 0.361361361 0.026026026 1.612613
## 26363 0.362362362 0.026026026 1.611612
## 26364 0.363363363 0.026026026 1.610611
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR685

```
## 26365 0.364364364 0.026026026 1.609610
## 26366 0.365365365 0.026026026 1.608609
## 26367 0.366366366 0.026026026 1.607608
## 26368 0.367367367 0.026026026 1.606607
## 26369 0.368368368 0.026026026 1.605606
## 26370 0.369369369 0.026026026 1.604605
## 26371 0.370370370 0.026026026 1.603604
## 26372 0.371371371 0.026026026 1.602603
## 26373 0.372372372 0.026026026 1.601602
## 26374 0.373373373 0.026026026 1.600601
## 26375 0.374374374 0.026026026 1.599600
## 26376 0.375375375 0.026026026 1.598599
## 26377 0.376376376 0.026026026 1.597598
## 26378 0.377377377 0.026026026 1.596597
## 26379 0.378378378 0.026026026 1.595596
## 26380 0.379379379 0.026026026 1.594595
## 26381 0.380380380 0.026026026 1.593594
## 26382 0.381381381 0.026026026 1.592593
## 26383 0.382382382 0.026026026 1.591592
## 26384 0.383383383 0.026026026 1.590591
## 26385 0.384384384 0.026026026 1.589590
## 26386 0.385385385 0.026026026 1.588589
## 26387 0.386386386 0.026026026 1.587588
## 26388 0.387387387 0.026026026 1.586587
## 26389 0.388388388 0.026026026 1.585586
## 26390 0.389389389 0.026026026 1.584585
## 26391 0.390390390 0.026026026 1.583584
## 26392 0.391391391 0.026026026 1.582583
## 26393 0.392392392 0.026026026 1.581582
## 26394 0.393393393 0.026026026 1.580581
## 26395 0.394394394 0.026026026 1.579580
## 26396 0.395395395 0.026026026 1.578579
## 26397 0.396396396 0.026026026 1.577578
## 26398 0.397397397 0.026026026 1.576577
## 26399 0.398398398 0.026026026 1.575576
## 26400 0.399399399 0.026026026 1.574575
## 26401 0.400400400 0.026026026 1.573574
## 26402 0.401401401 0.026026026 1.572573
## 26403 0.402402402 0.026026026 1.571572
## 26404 0.403403403 0.026026026 1.570571
## 26405 0.404404404 0.026026026 1.569570
## 26406 0.405405405 0.026026026 1.568569
## 26407 0.406406406 0.026026026 1.567568
## 26408 0.407407407 0.026026026 1.566567
## 26409 0.408408408 0.026026026 1.565566
## 26410 0.409409409 0.026026026 1.564565
```

```
## 26411 0.410410410 0.026026026 1.563564
## 26412 0.411411411 0.026026026 1.562563
## 26413 0.412412412 0.026026026 1.561562
## 26414 0.413413413 0.026026026 1.560561
## 26415 0.414414414 0.026026026 1.559560
## 26416 0.415415415 0.026026026 1.558559
## 26417 0.416416416 0.026026026 1.557558
## 26418 0.417417417 0.026026026 1.556557
## 26419 0.418418418 0.026026026 1.555556
## 26420 0.419419419 0.026026026 1.554555
## 26421 0.420420420 0.026026026 1.553554
## 26422 0.421421421 0.026026026 1.552553
## 26423 0.422422422 0.026026026 1.551552
## 26424 0.423423423 0.026026026 1.550551
## 26425 0.424424424 0.026026026 1.549550
## 26426 0.425425425 0.026026026 1.548549
## 26427 0.426426426 0.026026026 1.547548
## 26428 0.427427427 0.026026026 1.546547
## 26429 0.428428428 0.026026026 1.545546
## 26430 0.429429429 0.026026026 1.544545
## 26431 0.430430430 0.026026026 1.543544
## 26432 0.431431431 0.026026026 1.542543
## 26433 0.432432432 0.026026026 1.541542
## 26434 0.433433433 0.026026026 1.540541
## 26435 0.434434434 0.026026026 1.539540
## 26436 0.435435435 0.026026026 1.538539
## 26437 0.436436436 0.026026026 1.537538
## 26438 0.437437437 0.026026026 1.536537
## 26439 0.438438438 0.026026026 1.535536
## 26440 0.439439439 0.026026026 1.534535
## 26441 0.440440440 0.026026026 1.533534
## 26442 0.441441441 0.026026026 1.532533
## 26443 0.442442442 0.026026026 1.531532
## 26444 0.443443443 0.026026026 1.530531
## 26445 0.444444444 0.026026026 1.529530
## 26446 0.445445445 0.026026026 1.528529
## 26447 0.446446446 0.026026026 1.527528
## 26448 0.447447447 0.026026026 1.526527
## 26449 0.448448448 0.026026026 1.525526
## 26450 0.449449449 0.026026026 1.524525
## 26451 0.450450450 0.026026026 1.523524
## 26452 0.451451451 0.026026026 1.522523
## 26453 0.452452452 0.026026026 1.521522
## 26454 0.453453453 0.026026026 1.520521
## 26455 0.454454454 0.026026026 1.519520
## 26456 0.455455455 0.026026026 1.518519
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 687

```
## 26457 0.456456456 0.026026026 1.517518
## 26458 0.457457457 0.026026026 1.516517
## 26459 0.458458458 0.026026026 1.515516
## 26460 0.459459459 0.026026026 1.514515
## 26461 0.460460460 0.026026026 1.513514
## 26462 0.461461461 0.026026026 1.512513
## 26463 0.462462462 0.026026026 1.511512
## 26464 0.463463463 0.026026026 1.510511
## 26465 0.464464464 0.026026026 1.509510
## 26466 0.465465465 0.026026026 1.508509
## 26467 0.466466466 0.026026026 1.507508
## 26468 0.467467467 0.026026026 1.506507
## 26469 0.468468468 0.026026026 1.505506
## 26470 0.469469469 0.026026026 1.504505
## 26471 0.470470470 0.026026026 1.503504
## 26472 0.471471471 0.026026026 1.502503
## 26473 0.472472472 0.026026026 1.501502
## 26474 0.473473473 0.026026026 1.500501
## 26475 0.474474474 0.026026026 1.499499
## 26476 0.475475475 0.026026026 1.498498
## 26477 0.476476476 0.026026026 1.497497
## 26478 0.477477477 0.026026026 1.496496
## 26479 0.478478478 0.026026026 1.495495
## 26480 0.479479479 0.026026026 1.494494
## 26481 0.480480480 0.026026026 1.493493
## 26482 0.481481481 0.026026026 1.492492
## 26483 0.482482482 0.026026026 1.491491
## 26484 0.483483483 0.026026026 1.490490
## 26485 0.484484484 0.026026026 1.489489
## 26486 0.485485485 0.026026026 1.488488
## 26487 0.486486486 0.026026026 1.487487
## 26488 0.487487487 0.026026026 1.486486
## 26489 0.488488488 0.026026026 1.485485
## 26490 0.489489489 0.026026026 1.484484
## 26491 0.490490490 0.026026026 1.483483
## 26492 0.491491491 0.026026026 1.482482
## 26493 0.492492492 0.026026026 1.481481
## 26494 0.493493493 0.026026026 1.480480
## 26495 0.494494494 0.026026026 1.479479
## 26496 0.495495495 0.026026026 1.478478
## 26497 0.496496496 0.026026026 1.477477
## 26498 0.497497497 0.026026026 1.476476
## 26499 0.498498498 0.026026026 1.475475
## 26500 0.499499499 0.026026026 1.474474
## 26501 0.500500501 0.026026026 1.473473
## 26502 0.501501502 0.026026026 1.472472
```

```
## 26503 0.502502503 0.026026026 1.471471
## 26504 0.503503504 0.026026026 1.470470
## 26505 0.504504505 0.026026026 1.469469
## 26506 0.505505506 0.026026026 1.468468
## 26507 0.506506507 0.026026026 1.467467
## 26508 0.507507508 0.026026026 1.466466
## 26509 0.508508509 0.026026026 1.465465
## 26510 0.509509510 0.026026026 1.464464
## 26511 0.510510511 0.026026026 1.463463
## 26512 0.511511512 0.026026026 1.462462
## 26513 0.512512513 0.026026026 1.461461
## 26514 0.513513514 0.026026026 1.460460
## 26515 0.514514515 0.026026026 1.459459
## 26516 0.515515516 0.026026026 1.458458
## 26517 0.516516517 0.026026026 1.457457
## 26518 0.517517518 0.026026026 1.456456
## 26519 0.518518519 0.026026026 1.455455
## 26520 0.519519520 0.026026026 1.454454
## 26521 0.520520521 0.026026026 1.453453
## 26522 0.521521522 0.026026026 1.452452
## 26523 0.522522523 0.026026026 1.451451
## 26524 0.523523524 0.026026026 1.450450
## 26525 0.524524525 0.026026026 1.449449
## 26526 0.525525526 0.026026026 1.448448
## 26527 0.526526527 0.026026026 1.447447
## 26528 0.527527528 0.026026026 1.446446
## 26529 0.528528529 0.026026026 1.445445
## 26530 0.529529530 0.026026026 1.444444
## 26531 0.530530531 0.026026026 1.443443
## 26532 0.531531532 0.026026026 1.442442
## 26533 0.532532533 0.026026026 1.441441
## 26534 0.533533534 0.026026026 1.440440
## 26535 0.534534535 0.026026026 1.439439
## 26536 0.535535536 0.026026026 1.438438
## 26537 0.536536537 0.026026026 1.437437
## 26538 0.537537538 0.026026026 1.436436
## 26539 0.538538539 0.026026026 1.435435
## 26540 0.539539540 0.026026026 1.434434
## 26541 0.540540541 0.026026026 1.433433
## 26542 0.541541542 0.026026026 1.432432
## 26543 0.542542543 0.026026026 1.431431
## 26544 0.543543544 0.026026026 1.430430
## 26545 0.544544545 0.026026026 1.429429
## 26546 0.545545546 0.026026026 1.428428
## 26547 0.546546547 0.026026026 1.427427
## 26548 0.547547548 0.026026026 1.426426
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 689

```
## 26549 0.548548549 0.026026026 1.425425
## 26550 0.549549550 0.026026026 1.424424
## 26551 0.550550551 0.026026026 1.423423
## 26552 0.551551552 0.026026026 1.422422
## 26553 0.552552553 0.026026026 1.421421
## 26554 0.553553554 0.026026026 1.420420
## 26555 0.554554555 0.026026026 1.419419
## 26556 0.555555556 0.026026026 1.418418
## 26557 0.556556557 0.026026026 1.417417
## 26558 0.557557558 0.026026026 1.416416
## 26559 0.558558559 0.026026026 1.415415
## 26560 0.559559560 0.026026026 1.414414
## 26561 0.560560561 0.026026026 1.413413
## 26562 0.561561562 0.026026026 1.412412
## 26563 0.562562563 0.026026026 1.411411
## 26564 0.563563564 0.026026026 1.410410
## 26565 0.564564565 0.026026026 1.409409
## 26566 0.565565566 0.026026026 1.408408
## 26567 0.566566567 0.026026026 1.407407
## 26568 0.567567568 0.026026026 1.406406
## 26569 0.568568569 0.026026026 1.405405
## 26570 0.569569570 0.026026026 1.404404
## 26571 0.570570571 0.026026026 1.403403
## 26572 0.571571572 0.026026026 1.402402
## 26573 0.572572573 0.026026026 1.401401
## 26574 0.573573574 0.026026026 1.400400
## 26575 0.574574575 0.026026026 1.399399
## 26576 0.575575576 0.026026026 1.398398
## 26577 0.576576577 0.026026026 1.397397
## 26578 0.577577578 0.026026026 1.396396
## 26579 0.578578579 0.026026026 1.395395
## 26580 0.579579580 0.026026026 1.394394
## 26581 0.580580581 0.026026026 1.393393
## 26582 0.581581582 0.026026026 1.392392
## 26583 0.582582583 0.026026026 1.391391
## 26584 0.583583584 0.026026026 1.390390
## 26585 0.584584585 0.026026026 1.389389
## 26586 0.585585586 0.026026026 1.388388
## 26587 0.586586587 0.026026026 1.387387
## 26588 0.587587588 0.026026026 1.386386
## 26589 0.588588589 0.026026026 1.385385
## 26590 0.589589590 0.026026026 1.384384
## 26591 0.590590591 0.026026026 1.383383
## 26592 0.591591592 0.026026026 1.382382
## 26593 0.592592593 0.026026026 1.381381
## 26594 0.593593594 0.026026026 1.380380
```

```
## 26595 0.594594595 0.026026026 1.379379
## 26596 0.595595596 0.026026026 1.378378
## 26597 0.596596597 0.026026026 1.377377
## 26598 0.597597598 0.026026026 1.376376
## 26599 0.598598599 0.026026026 1.375375
## 26600 0.599599600 0.026026026 1.374374
## 26601 0.600600601 0.026026026 1.373373
## 26602 0.601601602 0.026026026 1.372372
## 26603 0.602602603 0.026026026 1.371371
## 26604 0.603603604 0.026026026 1.370370
## 26605 0.604604605 0.026026026 1.369369
## 26606 0.605605606 0.026026026 1.368368
## 26607 0.606606607 0.026026026 1.367367
## 26608 0.607607608 0.026026026 1.366366
## 26609 0.608608609 0.026026026 1.365365
## 26610 0.609609610 0.026026026 1.364364
## 26611 0.610610611 0.026026026 1.363363
## 26612 0.611611612 0.026026026 1.362362
## 26613 0.612612613 0.026026026 1.361361
## 26614 0.613613614 0.026026026 1.360360
## 26615 0.614614615 0.026026026 1.359359
## 26616 0.615615616 0.026026026 1.358358
## 26617 0.616616617 0.026026026 1.357357
## 26618 0.617617618 0.026026026 1.356356
## 26619 0.618618619 0.026026026 1.355355
## 26620 0.619619620 0.026026026 1.354354
## 26621 0.620620621 0.026026026 1.353353
## 26622 0.621621622 0.026026026 1.352352
## 26623 0.622622623 0.026026026 1.351351
## 26624 0.623623624 0.026026026 1.350350
## 26625 0.624624625 0.026026026 1.349349
## 26626 0.625625626 0.026026026 1.348348
## 26627 0.626626627 0.026026026 1.347347
## 26628 0.627627628 0.026026026 1.346346
## 26629 0.628628629 0.026026026 1.345345
## 26630 0.629629630 0.026026026 1.344344
## 26631 0.630630631 0.026026026 1.343343
## 26632 0.631631632 0.026026026 1.342342
## 26633 0.632632633 0.026026026 1.341341
## 26634 0.633633634 0.026026026 1.340340
## 26635 0.634634635 0.026026026 1.339339
## 26636 0.635635636 0.026026026 1.338338
## 26637 0.636636637 0.026026026 1.337337
## 26638 0.637637638 0.026026026 1.336336
## 26639 0.638638639 0.026026026 1.335335
## 26640 0.639639640 0.026026026 1.334334
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 691

```
## 26641 0.640640641 0.026026026 1.333333
## 26642 0.641641642 0.026026026 1.332332
## 26643 0.642642643 0.026026026 1.331331
## 26644 0.643643644 0.026026026 1.330330
## 26645 0.644644645 0.026026026 1.329329
## 26646 0.645645646 0.026026026 1.328328
## 26647 0.646646647 0.026026026 1.327327
## 26648 0.647647648 0.026026026 1.326326
## 26649 0.648648649 0.026026026 1.325325
## 26650 0.649649650 0.026026026 1.324324
## 26651 0.650650651 0.026026026 1.323323
## 26652 0.651651652 0.026026026 1.322322
## 26653 0.652652653 0.026026026 1.321321
## 26654 0.653653654 0.026026026 1.320320
## 26655 0.654654655 0.026026026 1.319319
## 26656 0.6556555656 0.026026026 1.318318
## 26657 0.656656657 0.026026026 1.317317
## 26658 0.657657658 0.026026026 1.316316
## 26659 0.658658659 0.026026026 1.315315
## 26660 0.659659660 0.026026026 1.314314
## 26661 0.660660661 0.026026026 1.313313
## 26662 0.661661662 0.026026026 1.312312
## 26663 0.662662663 0.026026026 1.311311
## 26664 0.663663664 0.026026026 1.310310
## 26665 0.664664665 0.026026026 1.309309
## 26666 0.665665666 0.026026026 1.308308
## 26667 0.666666667 0.026026026 1.307307
## 26668 0.667667668 0.026026026 1.306306
## 26669 0.668668669 0.026026026 1.305305
## 26670 0.669669670 0.026026026 1.304304
## 26671 0.670670671 0.026026026 1.303303
## 26672 0.671671672 0.026026026 1.302302
## 26673 0.672672673 0.026026026 1.301301
## 26674 0.673673674 0.026026026 1.300300
## 26675 0.674674675 0.026026026 1.299299
## 26676 0.675675676 0.026026026 1.298298
## 26677 0.676676677 0.026026026 1.297297
## 26678 0.677677678 0.026026026 1.296296
## 26679 0.678678679 0.026026026 1.295295
## 26680 0.679679680 0.026026026 1.294294
## 26681 0.680680681 0.026026026 1.293293
## 26682 0.681681682 0.026026026 1.292292
## 26683 0.682682683 0.026026026 1.291291
## 26684 0.683683684 0.026026026 1.290290
## 26685 0.684684685 0.026026026 1.289289
## 26686 0.685685686 0.026026026 1.288288
```

```
## 26687 0.686686687 0.026026026 1.287287
## 26688 0.687687688 0.026026026 1.286286
## 26689 0.688688689 0.026026026 1.285285
## 26690 0.689689690 0.026026026 1.284284
## 26691 0.690690691 0.026026026 1.283283
## 26692 0.691691692 0.026026026 1.282282
## 26693 0.692692693 0.026026026 1.281281
## 26694 0.693693694 0.026026026 1.280280
## 26695 0.694694695 0.026026026 1.279279
## 26696 0.695695696 0.026026026 1.278278
## 26697 0.696696697 0.026026026 1.277277
## 26698 0.697697698 0.026026026 1.276276
## 26699 0.698698699 0.026026026 1.275275
## 26700 0.699699700 0.026026026 1.274274
## 26701 0.700700701 0.026026026 1.273273
## 26702 0.701701702 0.026026026 1.272272
## 26703 0.702702703 0.026026026 1.271271
## 26704 0.703703704 0.026026026 1.270270
## 26705 0.704704705 0.026026026 1.269269
## 26706 0.705705706 0.026026026 1.268268
## 26707 0.706706707 0.026026026 1.267267
## 26708 0.707707708 0.026026026 1.266266
## 26709 0.708708709 0.026026026 1.265265
## 26710 0.709709710 0.026026026 1.264264
## 26711 0.710710711 0.026026026 1.263263
## 26712 0.711711712 0.026026026 1.262262
## 26713 0.712712713 0.026026026 1.261261
## 26714 0.713713714 0.026026026 1.260260
## 26715 0.714714715 0.026026026 1.259259
## 26716 0.715715716 0.026026026 1.258258
## 26717 0.716716717 0.026026026 1.257257
## 26718 0.717717718 0.026026026 1.256256
## 26719 0.718718719 0.026026026 1.255255
## 26720 0.719719720 0.026026026 1.254254
## 26721 0.720720721 0.026026026 1.253253
## 26722 0.721721722 0.026026026 1.252252
## 26723 0.722722723 0.026026026 1.251251
## 26724 0.723723724 0.026026026 1.250250
## 26725 0.724724725 0.026026026 1.249249
## 26726 0.725725726 0.026026026 1.248248
## 26727 0.726726727 0.026026026 1.247247
## 26728 0.727727728 0.026026026 1.246246
## 26729 0.728728729 0.026026026 1.245245
## 26730 0.729729730 0.026026026 1.244244
## 26731 0.730730731 0.026026026 1.243243
## 26732 0.731731732 0.026026026 1.242242
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 693

```
## 26733 0.732732733 0.026026026 1.241241
## 26734 0.733733734 0.026026026 1.240240
## 26735 0.734734735 0.026026026 1.239239
## 26736 0.735735736 0.026026026 1.238238
## 26737 0.736736737 0.026026026 1.237237
## 26738 0.737737738 0.026026026 1.236236
## 26739 0.738738739 0.026026026 1.235235
## 26740 0.739739740 0.026026026 1.234234
## 26741 0.740740741 0.026026026 1.233233
## 26742 0.741741742 0.026026026 1.232232
## 26743 0.742742743 0.026026026 1.231231
## 26744 0.743743744 0.026026026 1.230230
## 26745 0.744744745 0.026026026 1.229229
## 26746 0.745745746 0.026026026 1.228228
## 26747 0.746746747 0.026026026 1.227227
## 26748 0.747747748 0.026026026 1.226226
## 26749 0.748748749 0.026026026 1.225225
## 26750 0.749749750 0.026026026 1.224224
## 26751 0.750750751 0.026026026 1.223223
## 26752 0.751751752 0.026026026 1.222222
## 26753 0.752752753 0.026026026 1.221221
## 26754 0.753753754 0.026026026 1.220220
## 26755 0.754754755 0.026026026 1.219219
## 26756 0.755755756 0.026026026 1.218218
## 26757 0.756756757 0.026026026 1.217217
## 26758 0.757757758 0.026026026 1.216216
## 26759 0.758758759 0.026026026 1.215215
## 26760 0.759759760 0.026026026 1.214214
## 26761 0.760760761 0.026026026 1.213213
## 26762 0.761761762 0.026026026 1.212212
## 26763 0.762762763 0.026026026 1.211211
## 26764 0.763763764 0.026026026 1.210210
## 26765 0.764764765 0.026026026 1.209209
## 26766 0.765765766 0.026026026 1.208208
## 26767 0.766766767 0.026026026 1.207207
## 26768 0.767767768 0.026026026 1.206206
## 26769 0.768768769 0.026026026 1.205205
## 26770 0.769769770 0.026026026 1.204204
## 26771 0.770770771 0.026026026 1.203203
## 26772 0.771771772 0.026026026 1.202202
## 26773 0.772772773 0.026026026 1.201201
## 26774 0.773773774 0.026026026 1.200200
## 26775 0.774774775 0.026026026 1.199199
## 26776 0.775775776 0.026026026 1.198198
## 26777 0.776776777 0.026026026 1.197197
## 26778 0.777777778 0.026026026 1.196196
```

```
## 26779 0.778778779 0.026026026 1.195195
## 26780 0.779779780 0.026026026 1.194194
## 26781 0.780780781 0.026026026 1.193193
## 26782 0.781781782 0.026026026 1.192192
## 26783 0.782782783 0.026026026 1.191191
## 26784 0.783783784 0.026026026 1.190190
## 26785 0.784784785 0.026026026 1.189189
## 26786 0.785785786 0.026026026 1.188188
## 26787 0.786786787 0.026026026 1.187187
## 26788 0.787787788 0.026026026 1.186186
## 26789 0.788788789 0.026026026 1.185185
## 26790 0.789789790 0.026026026 1.184184
## 26791 0.790790791 0.026026026 1.183183
## 26792 0.791791792 0.026026026 1.182182
## 26793 0.792792793 0.026026026 1.181181
## 26794 0.793793794 0.026026026 1.180180
## 26795 0.794794795 0.026026026 1.179179
## 26796 0.795795796 0.026026026 1.178178
## 26797 0.796796797 0.026026026 1.177177
## 26798 0.797797798 0.026026026 1.176176
## 26799 0.798798799 0.026026026 1.175175
## 26800 0.799799800 0.026026026 1.174174
## 26801 0.800800801 0.026026026 1.173173
## 26802 0.801801802 0.026026026 1.172172
## 26803 0.802802803 0.026026026 1.171171
## 26804 0.803803804 0.026026026 1.170170
## 26805 0.804804805 0.026026026 1.169169
## 26806 0.805805806 0.026026026 1.168168
## 26807 0.806806807 0.026026026 1.167167
## 26808 0.807807808 0.026026026 1.166166
## 26809 0.808808809 0.026026026 1.165165
## 26810 0.809809810 0.026026026 1.164164
## 26811 0.810810811 0.026026026 1.163163
## 26812 0.811811812 0.026026026 1.162162
## 26813 0.812812813 0.026026026 1.161161
## 26814 0.813813814 0.026026026 1.160160
## 26815 0.814814815 0.026026026 1.159159
## 26816 0.815815816 0.026026026 1.158158
## 26817 0.816816817 0.026026026 1.157157
## 26818 0.817817818 0.026026026 1.156156
## 26819 0.818818819 0.026026026 1.155155
## 26820 0.819819820 0.026026026 1.154154
## 26821 0.820820821 0.026026026 1.153153
## 26822 0.821821822 0.026026026 1.152152
## 26823 0.822822823 0.026026026 1.151151
## 26824 0.823823824 0.026026026 1.150150
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 695

```
## 26825 0.824824825 0.026026026 1.149149
## 26826 0.825825826 0.026026026 1.148148
## 26827 0.826826827 0.026026026 1.147147
## 26828 0.827827828 0.026026026 1.146146
## 26829 0.828828829 0.026026026 1.145145
## 26830 0.829829830 0.026026026 1.144144
## 26831 0.830830831 0.026026026 1.143143
## 26832 0.831831832 0.026026026 1.142142
## 26833 0.832832833 0.026026026 1.141141
## 26834 0.833833834 0.026026026 1.140140
## 26835 0.834834835 0.026026026 1.139139
## 26836 0.835835836 0.026026026 1.138138
## 26837 0.836836837 0.026026026 1.137137
## 26838 0.837837838 0.026026026 1.136136
## 26839 0.838838839 0.026026026 1.135135
## 26840 0.839839840 0.026026026 1.134134
## 26841 0.840840841 0.026026026 1.133133
## 26842 0.841841842 0.026026026 1.132132
## 26843 0.842842843 0.026026026 1.131131
## 26844 0.843843844 0.026026026 1.130130
## 26845 0.844844845 0.026026026 1.129129
## 26846 0.845845846 0.026026026 1.128128
## 26847 0.846846847 0.026026026 1.127127
## 26848 0.847847848 0.026026026 1.126126
## 26849 0.848848849 0.026026026 1.125125
## 26850 0.849849850 0.026026026 1.124124
## 26851 0.850850851 0.026026026 1.123123
## 26852 0.851851852 0.026026026 1.122122
## 26853 0.852852853 0.026026026 1.121121
## 26854 0.853853854 0.026026026 1.120120
## 26855 0.854854855 0.026026026 1.119119
## 26856 0.855855856 0.026026026 1.118118
## 26857 0.856856857 0.026026026 1.117117
## 26858 0.857857858 0.026026026 1.116116
## 26859 0.858858859 0.026026026 1.115115
## 26860 0.859859860 0.026026026 1.114114
## 26861 0.860860861 0.026026026 1.113113
## 26862 0.861861862 0.026026026 1.112112
## 26863 0.862862863 0.026026026 1.111111
## 26864 0.863863864 0.026026026 1.110110
## 26865 0.864864865 0.026026026 1.109109
## 26866 0.865865866 0.026026026 1.108108
## 26867 0.866866867 0.026026026 1.107107
## 26868 0.867867868 0.026026026 1.106106
## 26869 0.868868869 0.026026026 1.105105
## 26870 0.869869870 0.026026026 1.104104
```

```
## 26871 0.870870871 0.026026026 1.103103
## 26872 0.871871872 0.026026026 1.102102
## 26873 0.872872873 0.026026026 1.101101
## 26874 0.873873874 0.026026026 1.100100
## 26875 0.874874875 0.026026026 1.099099
## 26876 0.875875876 0.026026026 1.098098
## 26877 0.876876877 0.026026026 1.097097
## 26878 0.877877878 0.026026026 1.096096
## 26879 0.878878879 0.026026026 1.095095
## 26880 0.879879880 0.026026026 1.094094
## 26881 0.880880881 0.026026026 1.093093
## 26882 0.881881882 0.026026026 1.092092
## 26883 0.882882883 0.026026026 1.091091
## 26884 0.883883884 0.026026026 1.090090
## 26885 0.884884885 0.026026026 1.089089
## 26886 0.885885886 0.026026026 1.088088
## 26887 0.886886887 0.026026026 1.087087
## 26888 0.887887888 0.026026026 1.086086
## 26889 0.888888889 0.026026026 1.085085
## 26890 0.889889890 0.026026026 1.084084
## 26891 0.890890891 0.026026026 1.083083
## 26892 0.891891892 0.026026026 1.082082
## 26893 0.892892893 0.026026026 1.081081
## 26894 0.893893894 0.026026026 1.080080
## 26895 0.894894895 0.026026026 1.079079
## 26896 0.895895896 0.026026026 1.078078
## 26897 0.896896897 0.026026026 1.077077
## 26898 0.897897898 0.026026026 1.076076
## 26899 0.898898899 0.026026026 1.075075
## 26900 0.899899900 0.026026026 1.074074
## 26901 0.900900901 0.026026026 1.073073
## 26902 0.901901902 0.026026026 1.072072
## 26903 0.902902903 0.026026026 1.071071
## 26904 0.903903904 0.026026026 1.070070
## 26905 0.904904905 0.026026026 1.069069
## 26906 0.905905906 0.026026026 1.068068
## 26907 0.906906907 0.026026026 1.067067
## 26908 0.907907908 0.026026026 1.066066
## 26909 0.908908909 0.026026026 1.065065
## 26910 0.909909910 0.026026026 1.064064
## 26911 0.910910911 0.026026026 1.063063
## 26912 0.911911912 0.026026026 1.062062
## 26913 0.912912913 0.026026026 1.061061
## 26914 0.913913914 0.026026026 1.060060
## 26915 0.914914915 0.026026026 1.059059
## 26916 0.915915916 0.026026026 1.058058
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 697

```

## 26917 0.916916917 0.026026026 1.057057
## 26918 0.917917918 0.026026026 1.056056
## 26919 0.918918919 0.026026026 1.055055
## 26920 0.919919920 0.026026026 1.054054
## 26921 0.920920921 0.026026026 1.053053
## 26922 0.921921922 0.026026026 1.052052
## 26923 0.922922923 0.026026026 1.051051
## 26924 0.923923924 0.026026026 1.050050
## 26925 0.924924925 0.026026026 1.049049
## 26926 0.925925926 0.026026026 1.048048
## 26927 0.926926927 0.026026026 1.047047
## 26928 0.927927928 0.026026026 1.046046
## 26929 0.928928929 0.026026026 1.045045
## 26930 0.929929930 0.026026026 1.044044
## 26931 0.930930931 0.026026026 1.043043
## 26932 0.931931932 0.026026026 1.042042
## 26933 0.932932933 0.026026026 1.041041
## 26934 0.933933934 0.026026026 1.040040
## 26935 0.934934935 0.026026026 1.039039
## 26936 0.935935936 0.026026026 1.038038
## 26937 0.936936937 0.026026026 1.037037
## 26938 0.937937938 0.026026026 1.036036
## 26939 0.938938939 0.026026026 1.035035
## 26940 0.939939940 0.026026026 1.034034
## 26941 0.940940941 0.026026026 1.033033
## 26942 0.941941942 0.026026026 1.032032
## 26943 0.942942943 0.026026026 1.031031
## 26944 0.943943944 0.026026026 1.030030
## 26945 0.944944945 0.026026026 1.029029
## 26946 0.945945946 0.026026026 1.028028
## 26947 0.946946947 0.026026026 1.027027
## 26948 0.947947948 0.026026026 1.026026
## 26949 0.948948949 0.026026026 1.025025
## 26950 0.949949950 0.026026026 1.024024
## 26951 0.950950951 0.026026026 1.023023
## 26952 0.951951952 0.026026026 1.022022
## 26953 0.952952953 0.026026026 1.021021
## 26954 0.953953954 0.026026026 1.020020
## 26955 0.954954955 0.026026026 1.019019
## 26956 0.955955956 0.026026026 1.018018
## 26957 0.956956957 0.026026026 1.017017
## 26958 0.957957958 0.026026026 1.016016
## 26959 0.958958959 0.026026026 1.015015
## 26960 0.959959960 0.026026026 1.014014
## 26961 0.960960961 0.026026026 1.013013
## 26962 0.961961962 0.026026026 1.012012

```

```
## 26963 0.962962963 0.026026026 1.011011
## 26964 0.963963964 0.026026026 1.010010
## 26965 0.964964965 0.026026026 1.009009
## 26966 0.965965966 0.026026026 1.008008
## 26967 0.966966967 0.026026026 1.007007
## 26968 0.967967968 0.026026026 1.006006
## 26969 0.968968969 0.026026026 1.005005
## 26970 0.969969970 0.026026026 1.004004
## 26971 0.970970971 0.026026026 1.003003
## 26972 0.971971972 0.026026026 1.002002
## 26973 0.972972973 0.026026026 1.001001
## 26974 0.973973974 0.026026026 1.000000
## 26975 0.974974975 0.026026026 0.998999
## 26976 0.975975976 0.026026026 0.997998
## 26977 0.976976977 0.026026026 0.996997
## 26978 0.977977978 0.026026026 0.995996
## 26979 0.978978979 0.026026026 0.994995
## 26980 0.979979980 0.026026026 0.993994
## 26981 0.980980981 0.026026026 0.992993
## 26982 0.981981982 0.026026026 0.991992
## 26983 0.982982983 0.026026026 0.990991
## 26984 0.983983984 0.026026026 0.989990
## 26985 0.984984985 0.026026026 0.988989
## 26986 0.985985986 0.026026026 0.987988
## 26987 0.986986987 0.026026026 0.986987
## 26988 0.987987988 0.026026026 0.985986
## 26989 0.988988989 0.026026026 0.984985
## 26990 0.989989990 0.026026026 0.983984
## 26991 0.990990991 0.026026026 0.982983
## 26992 0.991991992 0.026026026 0.981982
## 26993 0.992992993 0.026026026 0.980981
## 26994 0.993993994 0.026026026 0.979980
## 26995 0.994994995 0.026026026 0.978979
## 26996 0.995995996 0.026026026 0.977978
## 26997 0.996996997 0.026026026 0.976977
## 26998 0.997997998 0.026026026 0.975976
## 26999 0.998998999 0.026026026 0.974975
## 27000 1.000000000 0.026026026 0.973974
## 27001 0.000000000 0.027027027 1.972973
## 27002 0.001001001 0.027027027 1.971972
## 27003 0.002002002 0.027027027 1.970971
## 27004 0.003003003 0.027027027 1.969970
## 27005 0.004004004 0.027027027 1.968969
## 27006 0.005005005 0.027027027 1.967968
## 27007 0.006006006 0.027027027 1.966967
## 27008 0.007007007 0.027027027 1.965966
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 699

```

## 27009 0.008008008 0.027027027 1.964965
## 27010 0.009009009 0.027027027 1.963964
## 27011 0.010010010 0.027027027 1.962963
## 27012 0.011011011 0.027027027 1.961962
## 27013 0.012012012 0.027027027 1.960961
## 27014 0.013013013 0.027027027 1.959960
## 27015 0.014014014 0.027027027 1.958959
## 27016 0.015015015 0.027027027 1.957958
## 27017 0.016016016 0.027027027 1.956957
## 27018 0.017017017 0.027027027 1.955956
## 27019 0.018018018 0.027027027 1.954955
## 27020 0.019019019 0.027027027 1.953954
## 27021 0.020020020 0.027027027 1.952953
## 27022 0.021021021 0.027027027 1.951952
## 27023 0.022022022 0.027027027 1.950951
## 27024 0.023023023 0.027027027 1.949950
## 27025 0.024024024 0.027027027 1.948949
## 27026 0.025025025 0.027027027 1.947948
## 27027 0.026026026 0.027027027 1.946947
## 27028 0.027027027 0.027027027 1.945946
## 27029 0.028028028 0.027027027 1.944945
## 27030 0.029029029 0.027027027 1.943944
## 27031 0.030030030 0.027027027 1.942943
## 27032 0.031031031 0.027027027 1.941942
## 27033 0.032032032 0.027027027 1.940941
## 27034 0.033033033 0.027027027 1.939940
## 27035 0.034034034 0.027027027 1.938939
## 27036 0.035035035 0.027027027 1.937938
## 27037 0.036036036 0.027027027 1.936937
## 27038 0.037037037 0.027027027 1.935936
## 27039 0.038038038 0.027027027 1.934935
## 27040 0.039039039 0.027027027 1.933934
## 27041 0.040040040 0.027027027 1.932933
## 27042 0.041041041 0.027027027 1.931932
## 27043 0.042042042 0.027027027 1.930931
## 27044 0.043043043 0.027027027 1.929930
## 27045 0.044044044 0.027027027 1.928929
## 27046 0.045045045 0.027027027 1.927928
## 27047 0.046046046 0.027027027 1.926927
## 27048 0.047047047 0.027027027 1.925926
## 27049 0.048048048 0.027027027 1.924925
## 27050 0.049049049 0.027027027 1.923924
## 27051 0.050050050 0.027027027 1.922923
## 27052 0.051051051 0.027027027 1.921922
## 27053 0.052052052 0.027027027 1.920921
## 27054 0.053053053 0.027027027 1.919920

```

```
## 27055 0.054054054 0.027027027 1.918919
## 27056 0.055055055 0.027027027 1.917918
## 27057 0.056056056 0.027027027 1.916917
## 27058 0.057057057 0.027027027 1.915916
## 27059 0.058058058 0.027027027 1.914915
## 27060 0.059059059 0.027027027 1.913914
## 27061 0.060060060 0.027027027 1.912913
## 27062 0.061061061 0.027027027 1.911912
## 27063 0.062062062 0.027027027 1.910911
## 27064 0.063063063 0.027027027 1.909910
## 27065 0.064064064 0.027027027 1.908909
## 27066 0.065065065 0.027027027 1.907908
## 27067 0.066066066 0.027027027 1.906907
## 27068 0.067067067 0.027027027 1.905906
## 27069 0.068068068 0.027027027 1.904905
## 27070 0.069069069 0.027027027 1.903904
## 27071 0.070070070 0.027027027 1.902903
## 27072 0.071071071 0.027027027 1.901902
## 27073 0.072072072 0.027027027 1.900901
## 27074 0.073073073 0.027027027 1.899900
## 27075 0.074074074 0.027027027 1.898899
## 27076 0.075075075 0.027027027 1.897898
## 27077 0.076076076 0.027027027 1.896897
## 27078 0.077077077 0.027027027 1.895896
## 27079 0.078078078 0.027027027 1.894895
## 27080 0.079079079 0.027027027 1.893894
## 27081 0.080080080 0.027027027 1.892893
## 27082 0.081081081 0.027027027 1.891892
## 27083 0.082082082 0.027027027 1.890891
## 27084 0.083083083 0.027027027 1.889890
## 27085 0.084084084 0.027027027 1.888889
## 27086 0.085085085 0.027027027 1.887888
## 27087 0.086086086 0.027027027 1.886887
## 27088 0.087087087 0.027027027 1.885886
## 27089 0.088088088 0.027027027 1.884885
## 27090 0.089089089 0.027027027 1.883884
## 27091 0.090090090 0.027027027 1.882883
## 27092 0.091091091 0.027027027 1.881882
## 27093 0.092092092 0.027027027 1.880881
## 27094 0.093093093 0.027027027 1.879880
## 27095 0.094094094 0.027027027 1.878879
## 27096 0.095095095 0.027027027 1.877878
## 27097 0.096096096 0.027027027 1.876877
## 27098 0.097097097 0.027027027 1.875876
## 27099 0.098098098 0.027027027 1.874875
## 27100 0.099099099 0.027027027 1.873874
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR701

```
## 27101 0.100100100 0.027027027 1.872873
## 27102 0.101101101 0.027027027 1.871872
## 27103 0.102102102 0.027027027 1.870871
## 27104 0.103103103 0.027027027 1.869870
## 27105 0.104104104 0.027027027 1.868869
## 27106 0.105105105 0.027027027 1.867868
## 27107 0.106106106 0.027027027 1.866867
## 27108 0.107107107 0.027027027 1.865866
## 27109 0.108108108 0.027027027 1.864865
## 27110 0.109109109 0.027027027 1.863864
## 27111 0.110110110 0.027027027 1.862863
## 27112 0.111111111 0.027027027 1.861862
## 27113 0.112112112 0.027027027 1.860861
## 27114 0.113113113 0.027027027 1.859860
## 27115 0.114114114 0.027027027 1.858859
## 27116 0.115115115 0.027027027 1.857858
## 27117 0.116116116 0.027027027 1.856857
## 27118 0.117117117 0.027027027 1.855856
## 27119 0.118118118 0.027027027 1.854855
## 27120 0.119119119 0.027027027 1.853854
## 27121 0.120120120 0.027027027 1.852853
## 27122 0.121121121 0.027027027 1.851852
## 27123 0.122122122 0.027027027 1.850851
## 27124 0.123123123 0.027027027 1.849850
## 27125 0.124124124 0.027027027 1.848849
## 27126 0.125125125 0.027027027 1.847848
## 27127 0.126126126 0.027027027 1.846847
## 27128 0.127127127 0.027027027 1.845846
## 27129 0.128128128 0.027027027 1.844845
## 27130 0.129129129 0.027027027 1.843844
## 27131 0.130130130 0.027027027 1.842843
## 27132 0.131131131 0.027027027 1.841842
## 27133 0.132132132 0.027027027 1.840841
## 27134 0.133133133 0.027027027 1.839840
## 27135 0.134134134 0.027027027 1.838839
## 27136 0.135135135 0.027027027 1.837838
## 27137 0.136136136 0.027027027 1.836837
## 27138 0.137137137 0.027027027 1.835836
## 27139 0.138138138 0.027027027 1.834835
## 27140 0.139139139 0.027027027 1.833834
## 27141 0.140140140 0.027027027 1.832833
## 27142 0.141141141 0.027027027 1.831832
## 27143 0.142142142 0.027027027 1.830831
## 27144 0.143143143 0.027027027 1.829830
## 27145 0.144144144 0.027027027 1.828829
## 27146 0.145145145 0.027027027 1.827828
```

```
## 27147 0.146146146 0.027027027 1.826827
## 27148 0.147147147 0.027027027 1.825826
## 27149 0.148148148 0.027027027 1.824825
## 27150 0.149149149 0.027027027 1.823824
## 27151 0.150150150 0.027027027 1.822823
## 27152 0.151151151 0.027027027 1.821822
## 27153 0.152152152 0.027027027 1.820821
## 27154 0.153153153 0.027027027 1.819820
## 27155 0.154154154 0.027027027 1.818819
## 27156 0.155155155 0.027027027 1.817818
## 27157 0.156156156 0.027027027 1.816817
## 27158 0.157157157 0.027027027 1.815816
## 27159 0.158158158 0.027027027 1.814815
## 27160 0.159159159 0.027027027 1.813814
## 27161 0.160160160 0.027027027 1.812813
## 27162 0.161161161 0.027027027 1.811812
## 27163 0.162162162 0.027027027 1.810811
## 27164 0.163163163 0.027027027 1.809810
## 27165 0.164164164 0.027027027 1.808809
## 27166 0.165165165 0.027027027 1.807808
## 27167 0.166166166 0.027027027 1.806807
## 27168 0.167167167 0.027027027 1.805806
## 27169 0.168168168 0.027027027 1.804805
## 27170 0.169169169 0.027027027 1.803804
## 27171 0.170170170 0.027027027 1.802803
## 27172 0.171171171 0.027027027 1.801802
## 27173 0.172172172 0.027027027 1.800801
## 27174 0.173173173 0.027027027 1.799800
## 27175 0.174174174 0.027027027 1.798799
## 27176 0.175175175 0.027027027 1.797798
## 27177 0.176176176 0.027027027 1.796797
## 27178 0.177177177 0.027027027 1.795796
## 27179 0.178178178 0.027027027 1.794795
## 27180 0.179179179 0.027027027 1.793794
## 27181 0.180180180 0.027027027 1.792793
## 27182 0.181181181 0.027027027 1.791792
## 27183 0.182182182 0.027027027 1.790791
## 27184 0.183183183 0.027027027 1.789790
## 27185 0.184184184 0.027027027 1.788789
## 27186 0.185185185 0.027027027 1.787788
## 27187 0.186186186 0.027027027 1.786787
## 27188 0.187187187 0.027027027 1.785786
## 27189 0.188188188 0.027027027 1.784785
## 27190 0.189189189 0.027027027 1.783784
## 27191 0.190190190 0.027027027 1.782783
## 27192 0.191191191 0.027027027 1.781782
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR703

```
## 27193 0.192192192 0.027027027 1.780781
## 27194 0.193193193 0.027027027 1.779780
## 27195 0.194194194 0.027027027 1.778779
## 27196 0.195195195 0.027027027 1.777778
## 27197 0.196196196 0.027027027 1.776777
## 27198 0.197197197 0.027027027 1.775776
## 27199 0.198198198 0.027027027 1.774775
## 27200 0.199199199 0.027027027 1.773774
## 27201 0.200200200 0.027027027 1.772773
## 27202 0.201201201 0.027027027 1.771772
## 27203 0.202202202 0.027027027 1.770771
## 27204 0.203203203 0.027027027 1.769770
## 27205 0.204204204 0.027027027 1.768769
## 27206 0.205205205 0.027027027 1.767768
## 27207 0.206206206 0.027027027 1.766767
## 27208 0.207207207 0.027027027 1.765766
## 27209 0.208208208 0.027027027 1.764765
## 27210 0.209209209 0.027027027 1.763764
## 27211 0.210210210 0.027027027 1.762763
## 27212 0.211211211 0.027027027 1.761762
## 27213 0.212212212 0.027027027 1.760761
## 27214 0.213213213 0.027027027 1.759760
## 27215 0.214214214 0.027027027 1.758759
## 27216 0.215215215 0.027027027 1.757758
## 27217 0.216216216 0.027027027 1.756757
## 27218 0.217217217 0.027027027 1.755756
## 27219 0.218218218 0.027027027 1.754755
## 27220 0.219219219 0.027027027 1.753754
## 27221 0.220220220 0.027027027 1.752753
## 27222 0.221221221 0.027027027 1.751752
## 27223 0.222222222 0.027027027 1.750751
## 27224 0.223223223 0.027027027 1.749750
## 27225 0.224224224 0.027027027 1.748749
## 27226 0.225225225 0.027027027 1.747748
## 27227 0.226226226 0.027027027 1.746747
## 27228 0.227227227 0.027027027 1.745746
## 27229 0.228228228 0.027027027 1.744745
## 27230 0.229229229 0.027027027 1.743744
## 27231 0.230230230 0.027027027 1.742743
## 27232 0.231231231 0.027027027 1.741742
## 27233 0.232232232 0.027027027 1.740741
## 27234 0.233233233 0.027027027 1.739740
## 27235 0.234234234 0.027027027 1.738739
## 27236 0.235235235 0.027027027 1.737738
## 27237 0.236236236 0.027027027 1.736737
## 27238 0.237237237 0.027027027 1.735736
```

```
## 27239 0.238238238 0.027027027 1.734735
## 27240 0.239239239 0.027027027 1.733734
## 27241 0.240240240 0.027027027 1.732733
## 27242 0.241241241 0.027027027 1.731732
## 27243 0.242242242 0.027027027 1.730731
## 27244 0.243243243 0.027027027 1.729730
## 27245 0.244244244 0.027027027 1.728729
## 27246 0.245245245 0.027027027 1.727728
## 27247 0.246246246 0.027027027 1.726727
## 27248 0.247247247 0.027027027 1.725726
## 27249 0.248248248 0.027027027 1.724725
## 27250 0.249249249 0.027027027 1.723724
## 27251 0.250250250 0.027027027 1.722723
## 27252 0.251251251 0.027027027 1.721722
## 27253 0.252252252 0.027027027 1.720721
## 27254 0.253253253 0.027027027 1.719720
## 27255 0.254254254 0.027027027 1.718719
## 27256 0.255255255 0.027027027 1.717718
## 27257 0.256256256 0.027027027 1.716717
## 27258 0.257257257 0.027027027 1.715716
## 27259 0.258258258 0.027027027 1.714715
## 27260 0.259259259 0.027027027 1.713714
## 27261 0.260260260 0.027027027 1.712713
## 27262 0.261261261 0.027027027 1.711712
## 27263 0.262262262 0.027027027 1.710711
## 27264 0.263263263 0.027027027 1.709710
## 27265 0.264264264 0.027027027 1.708709
## 27266 0.265265265 0.027027027 1.707708
## 27267 0.266266266 0.027027027 1.706707
## 27268 0.267267267 0.027027027 1.705706
## 27269 0.268268268 0.027027027 1.704705
## 27270 0.269269269 0.027027027 1.703704
## 27271 0.270270270 0.027027027 1.702703
## 27272 0.271271271 0.027027027 1.701702
## 27273 0.272272272 0.027027027 1.700701
## 27274 0.273273273 0.027027027 1.699700
## 27275 0.274274274 0.027027027 1.698699
## 27276 0.275275275 0.027027027 1.697698
## 27277 0.276276276 0.027027027 1.696697
## 27278 0.277277277 0.027027027 1.695696
## 27279 0.278278278 0.027027027 1.694695
## 27280 0.279279279 0.027027027 1.693694
## 27281 0.280280280 0.027027027 1.692693
## 27282 0.281281281 0.027027027 1.691692
## 27283 0.282282282 0.027027027 1.690691
## 27284 0.283283283 0.027027027 1.689690
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR705

```
## 27285 0.284284284 0.027027027 1.688689
## 27286 0.285285285 0.027027027 1.687688
## 27287 0.286286286 0.027027027 1.686687
## 27288 0.287287287 0.027027027 1.685686
## 27289 0.288288288 0.027027027 1.684685
## 27290 0.289289289 0.027027027 1.683684
## 27291 0.290290290 0.027027027 1.682683
## 27292 0.291291291 0.027027027 1.681682
## 27293 0.292292292 0.027027027 1.680681
## 27294 0.293293293 0.027027027 1.679680
## 27295 0.294294294 0.027027027 1.678679
## 27296 0.295295295 0.027027027 1.677678
## 27297 0.296296296 0.027027027 1.676677
## 27298 0.297297297 0.027027027 1.675676
## 27299 0.298298298 0.027027027 1.674675
## 27300 0.299299299 0.027027027 1.673674
## 27301 0.300300300 0.027027027 1.672673
## 27302 0.301301301 0.027027027 1.671672
## 27303 0.302302302 0.027027027 1.670671
## 27304 0.303303303 0.027027027 1.669670
## 27305 0.304304304 0.027027027 1.668669
## 27306 0.305305305 0.027027027 1.667668
## 27307 0.306306306 0.027027027 1.666667
## 27308 0.307307307 0.027027027 1.665666
## 27309 0.308308308 0.027027027 1.664665
## 27310 0.309309309 0.027027027 1.663664
## 27311 0.310310310 0.027027027 1.662663
## 27312 0.311311311 0.027027027 1.661662
## 27313 0.312312312 0.027027027 1.660661
## 27314 0.313313313 0.027027027 1.659660
## 27315 0.314314314 0.027027027 1.658659
## 27316 0.315315315 0.027027027 1.657658
## 27317 0.316316316 0.027027027 1.656657
## 27318 0.317317317 0.027027027 1.655656
## 27319 0.318318318 0.027027027 1.654655
## 27320 0.319319319 0.027027027 1.653654
## 27321 0.320320320 0.027027027 1.652653
## 27322 0.321321321 0.027027027 1.651652
## 27323 0.322322322 0.027027027 1.650651
## 27324 0.323323323 0.027027027 1.649650
## 27325 0.324324324 0.027027027 1.648649
## 27326 0.325325325 0.027027027 1.647648
## 27327 0.326326326 0.027027027 1.646647
## 27328 0.327327327 0.027027027 1.645646
## 27329 0.328328328 0.027027027 1.644645
## 27330 0.329329329 0.027027027 1.643644
```

```
## 27331 0.330330330 0.027027027 1.642643
## 27332 0.331331331 0.027027027 1.641642
## 27333 0.332332332 0.027027027 1.640641
## 27334 0.333333333 0.027027027 1.639640
## 27335 0.334334334 0.027027027 1.638639
## 27336 0.335335335 0.027027027 1.637638
## 27337 0.336336336 0.027027027 1.636637
## 27338 0.337337337 0.027027027 1.635636
## 27339 0.338338338 0.027027027 1.634635
## 27340 0.339339339 0.027027027 1.633634
## 27341 0.340340340 0.027027027 1.632633
## 27342 0.341341341 0.027027027 1.631632
## 27343 0.342342342 0.027027027 1.630631
## 27344 0.343343343 0.027027027 1.629630
## 27345 0.344344344 0.027027027 1.628629
## 27346 0.345345345 0.027027027 1.627628
## 27347 0.346346346 0.027027027 1.626627
## 27348 0.347347347 0.027027027 1.625626
## 27349 0.348348348 0.027027027 1.624625
## 27350 0.349349349 0.027027027 1.623624
## 27351 0.350350350 0.027027027 1.622623
## 27352 0.351351351 0.027027027 1.621622
## 27353 0.352352352 0.027027027 1.620621
## 27354 0.353353353 0.027027027 1.619620
## 27355 0.354354354 0.027027027 1.618619
## 27356 0.355355355 0.027027027 1.617618
## 27357 0.356356356 0.027027027 1.616617
## 27358 0.357357357 0.027027027 1.615616
## 27359 0.358358358 0.027027027 1.614615
## 27360 0.359359359 0.027027027 1.613614
## 27361 0.360360360 0.027027027 1.612613
## 27362 0.361361361 0.027027027 1.611612
## 27363 0.362362362 0.027027027 1.610611
## 27364 0.363363363 0.027027027 1.609610
## 27365 0.364364364 0.027027027 1.608609
## 27366 0.365365365 0.027027027 1.607608
## 27367 0.366366366 0.027027027 1.606607
## 27368 0.367367367 0.027027027 1.605606
## 27369 0.368368368 0.027027027 1.604605
## 27370 0.369369369 0.027027027 1.603604
## 27371 0.370370370 0.027027027 1.602603
## 27372 0.371371371 0.027027027 1.601602
## 27373 0.372372372 0.027027027 1.600601
## 27374 0.373373373 0.027027027 1.599600
## 27375 0.374374374 0.027027027 1.598599
## 27376 0.375375375 0.027027027 1.597598
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR707

```
## 27377 0.376376376 0.027027027 1.596597
## 27378 0.377377377 0.027027027 1.595596
## 27379 0.378378378 0.027027027 1.594595
## 27380 0.379379379 0.027027027 1.593594
## 27381 0.380380380 0.027027027 1.592593
## 27382 0.381381381 0.027027027 1.591592
## 27383 0.382382382 0.027027027 1.590591
## 27384 0.383383383 0.027027027 1.589590
## 27385 0.384384384 0.027027027 1.588589
## 27386 0.385385385 0.027027027 1.587588
## 27387 0.386386386 0.027027027 1.586587
## 27388 0.387387387 0.027027027 1.585586
## 27389 0.388388388 0.027027027 1.584585
## 27390 0.389389389 0.027027027 1.583584
## 27391 0.390390390 0.027027027 1.582583
## 27392 0.391391391 0.027027027 1.581582
## 27393 0.392392392 0.027027027 1.580581
## 27394 0.393393393 0.027027027 1.579580
## 27395 0.394394394 0.027027027 1.578579
## 27396 0.395395395 0.027027027 1.577578
## 27397 0.396396396 0.027027027 1.576577
## 27398 0.397397397 0.027027027 1.575576
## 27399 0.398398398 0.027027027 1.574575
## 27400 0.399399399 0.027027027 1.573574
## 27401 0.400400400 0.027027027 1.572573
## 27402 0.401401401 0.027027027 1.571572
## 27403 0.402402402 0.027027027 1.570571
## 27404 0.403403403 0.027027027 1.569570
## 27405 0.404404404 0.027027027 1.568569
## 27406 0.405405405 0.027027027 1.567568
## 27407 0.406406406 0.027027027 1.566567
## 27408 0.407407407 0.027027027 1.565566
## 27409 0.408408408 0.027027027 1.564565
## 27410 0.409409409 0.027027027 1.563564
## 27411 0.410410410 0.027027027 1.562563
## 27412 0.411411411 0.027027027 1.561562
## 27413 0.412412412 0.027027027 1.560561
## 27414 0.413413413 0.027027027 1.559560
## 27415 0.414414414 0.027027027 1.558559
## 27416 0.415415415 0.027027027 1.557558
## 27417 0.416416416 0.027027027 1.556557
## 27418 0.417417417 0.027027027 1.555556
## 27419 0.418418418 0.027027027 1.554555
## 27420 0.419419419 0.027027027 1.553554
## 27421 0.420420420 0.027027027 1.552553
## 27422 0.421421421 0.027027027 1.551552
```

```
## 27423 0.422422422 0.027027027 1.550551
## 27424 0.423423423 0.027027027 1.549550
## 27425 0.424424424 0.027027027 1.548549
## 27426 0.425425425 0.027027027 1.547548
## 27427 0.426426426 0.027027027 1.546547
## 27428 0.427427427 0.027027027 1.545546
## 27429 0.428428428 0.027027027 1.544545
## 27430 0.429429429 0.027027027 1.543544
## 27431 0.430430430 0.027027027 1.542543
## 27432 0.431431431 0.027027027 1.541542
## 27433 0.432432432 0.027027027 1.540541
## 27434 0.433433433 0.027027027 1.539540
## 27435 0.434434434 0.027027027 1.538539
## 27436 0.435435435 0.027027027 1.537538
## 27437 0.436436436 0.027027027 1.536537
## 27438 0.437437437 0.027027027 1.535536
## 27439 0.438438438 0.027027027 1.534535
## 27440 0.439439439 0.027027027 1.533534
## 27441 0.440440440 0.027027027 1.532533
## 27442 0.441441441 0.027027027 1.531532
## 27443 0.442442442 0.027027027 1.530531
## 27444 0.443443443 0.027027027 1.529530
## 27445 0.444444444 0.027027027 1.528529
## 27446 0.445445445 0.027027027 1.527528
## 27447 0.446446446 0.027027027 1.526527
## 27448 0.447447447 0.027027027 1.525526
## 27449 0.448448448 0.027027027 1.524525
## 27450 0.449449449 0.027027027 1.523524
## 27451 0.450450450 0.027027027 1.522523
## 27452 0.451451451 0.027027027 1.521522
## 27453 0.452452452 0.027027027 1.520521
## 27454 0.453453453 0.027027027 1.519520
## 27455 0.454454454 0.027027027 1.518519
## 27456 0.455455455 0.027027027 1.517518
## 27457 0.456456456 0.027027027 1.516517
## 27458 0.457457457 0.027027027 1.515516
## 27459 0.458458458 0.027027027 1.514515
## 27460 0.459459459 0.027027027 1.513514
## 27461 0.460460460 0.027027027 1.512513
## 27462 0.461461461 0.027027027 1.511512
## 27463 0.462462462 0.027027027 1.510511
## 27464 0.463463463 0.027027027 1.509510
## 27465 0.464464464 0.027027027 1.508509
## 27466 0.465465465 0.027027027 1.507508
## 27467 0.466466466 0.027027027 1.506507
## 27468 0.467467467 0.027027027 1.505506
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR709

```
## 27469 0.468468468 0.027027027 1.504505
## 27470 0.469469469 0.027027027 1.503504
## 27471 0.470470470 0.027027027 1.502503
## 27472 0.471471471 0.027027027 1.501502
## 27473 0.472472472 0.027027027 1.500501
## 27474 0.473473473 0.027027027 1.499499
## 27475 0.474474474 0.027027027 1.498498
## 27476 0.475475475 0.027027027 1.497497
## 27477 0.476476476 0.027027027 1.496496
## 27478 0.477477477 0.027027027 1.495495
## 27479 0.478478478 0.027027027 1.494494
## 27480 0.479479479 0.027027027 1.493493
## 27481 0.480480480 0.027027027 1.492492
## 27482 0.481481481 0.027027027 1.491491
## 27483 0.482482482 0.027027027 1.490490
## 27484 0.483483483 0.027027027 1.489489
## 27485 0.484484484 0.027027027 1.488488
## 27486 0.485485485 0.027027027 1.487487
## 27487 0.486486486 0.027027027 1.486486
## 27488 0.487487487 0.027027027 1.485485
## 27489 0.488488488 0.027027027 1.484484
## 27490 0.489489489 0.027027027 1.483483
## 27491 0.490490490 0.027027027 1.482482
## 27492 0.491491491 0.027027027 1.481481
## 27493 0.492492492 0.027027027 1.480480
## 27494 0.493493493 0.027027027 1.479479
## 27495 0.494494494 0.027027027 1.478478
## 27496 0.495495495 0.027027027 1.477477
## 27497 0.496496496 0.027027027 1.476476
## 27498 0.497497497 0.027027027 1.475475
## 27499 0.498498498 0.027027027 1.474474
## 27500 0.499499499 0.027027027 1.473473
## 27501 0.500500501 0.027027027 1.472472
## 27502 0.501501502 0.027027027 1.471471
## 27503 0.502502503 0.027027027 1.470470
## 27504 0.503503504 0.027027027 1.469469
## 27505 0.504504505 0.027027027 1.468468
## 27506 0.505505506 0.027027027 1.467467
## 27507 0.506506507 0.027027027 1.466466
## 27508 0.507507508 0.027027027 1.465465
## 27509 0.508508509 0.027027027 1.464464
## 27510 0.509509510 0.027027027 1.463463
## 27511 0.510510511 0.027027027 1.462462
## 27512 0.511511512 0.027027027 1.461461
## 27513 0.512512513 0.027027027 1.460460
## 27514 0.513513514 0.027027027 1.459459
```

```
## 27515 0.514514515 0.027027027 1.458458
## 27516 0.515515516 0.027027027 1.457457
## 27517 0.516516517 0.027027027 1.456456
## 27518 0.517517518 0.027027027 1.455455
## 27519 0.518518519 0.027027027 1.454454
## 27520 0.519519520 0.027027027 1.453453
## 27521 0.520520521 0.027027027 1.452452
## 27522 0.521521522 0.027027027 1.451451
## 27523 0.522522523 0.027027027 1.450450
## 27524 0.523523524 0.027027027 1.449449
## 27525 0.524524525 0.027027027 1.448448
## 27526 0.525525526 0.027027027 1.447447
## 27527 0.526526527 0.027027027 1.446446
## 27528 0.527527528 0.027027027 1.445445
## 27529 0.528528529 0.027027027 1.444444
## 27530 0.529529530 0.027027027 1.443443
## 27531 0.530530531 0.027027027 1.442442
## 27532 0.531531532 0.027027027 1.441441
## 27533 0.532532533 0.027027027 1.440440
## 27534 0.533533534 0.027027027 1.439439
## 27535 0.534534535 0.027027027 1.438438
## 27536 0.535535536 0.027027027 1.437437
## 27537 0.536536537 0.027027027 1.436436
## 27538 0.537537538 0.027027027 1.435435
## 27539 0.538538539 0.027027027 1.434434
## 27540 0.539539540 0.027027027 1.433433
## 27541 0.540540541 0.027027027 1.432432
## 27542 0.541541542 0.027027027 1.431431
## 27543 0.542542543 0.027027027 1.430430
## 27544 0.543543544 0.027027027 1.429429
## 27545 0.544544545 0.027027027 1.428428
## 27546 0.545545546 0.027027027 1.427427
## 27547 0.546546547 0.027027027 1.426426
## 27548 0.547547548 0.027027027 1.425425
## 27549 0.548548549 0.027027027 1.424424
## 27550 0.549549550 0.027027027 1.423423
## 27551 0.550550551 0.027027027 1.422422
## 27552 0.551551552 0.027027027 1.421421
## 27553 0.552552553 0.027027027 1.420420
## 27554 0.553553554 0.027027027 1.419419
## 27555 0.554554555 0.027027027 1.418418
## 27556 0.555555556 0.027027027 1.417417
## 27557 0.556556557 0.027027027 1.416416
## 27558 0.557557558 0.027027027 1.415415
## 27559 0.558558559 0.027027027 1.414414
## 27560 0.559559560 0.027027027 1.413413
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 711

```
## 27561 0.560560561 0.027027027 1.412412
## 27562 0.561561562 0.027027027 1.411411
## 27563 0.562562563 0.027027027 1.410410
## 27564 0.563563564 0.027027027 1.409409
## 27565 0.564564565 0.027027027 1.408408
## 27566 0.565565566 0.027027027 1.407407
## 27567 0.566566567 0.027027027 1.406406
## 27568 0.567567568 0.027027027 1.405405
## 27569 0.568568569 0.027027027 1.404404
## 27570 0.569569570 0.027027027 1.403403
## 27571 0.570570571 0.027027027 1.402402
## 27572 0.571571572 0.027027027 1.401401
## 27573 0.572572573 0.027027027 1.400400
## 27574 0.573573574 0.027027027 1.399399
## 27575 0.574574575 0.027027027 1.398398
## 27576 0.575575576 0.027027027 1.397397
## 27577 0.576576577 0.027027027 1.396396
## 27578 0.577577578 0.027027027 1.395395
## 27579 0.578578579 0.027027027 1.394394
## 27580 0.579579580 0.027027027 1.393393
## 27581 0.580580581 0.027027027 1.392392
## 27582 0.581581582 0.027027027 1.391391
## 27583 0.582582583 0.027027027 1.390390
## 27584 0.583583584 0.027027027 1.389389
## 27585 0.584584585 0.027027027 1.388388
## 27586 0.585585586 0.027027027 1.387387
## 27587 0.586586587 0.027027027 1.386386
## 27588 0.587587588 0.027027027 1.385385
## 27589 0.588588589 0.027027027 1.384384
## 27590 0.589589590 0.027027027 1.383383
## 27591 0.590590591 0.027027027 1.382382
## 27592 0.591591592 0.027027027 1.381381
## 27593 0.592592593 0.027027027 1.380380
## 27594 0.593593594 0.027027027 1.379379
## 27595 0.594594595 0.027027027 1.378378
## 27596 0.595595596 0.027027027 1.377377
## 27597 0.596596597 0.027027027 1.376376
## 27598 0.597597598 0.027027027 1.375375
## 27599 0.598598599 0.027027027 1.374374
## 27600 0.599599600 0.027027027 1.373373
## 27601 0.600600601 0.027027027 1.372372
## 27602 0.601601602 0.027027027 1.371371
## 27603 0.602602603 0.027027027 1.370370
## 27604 0.603603604 0.027027027 1.369369
## 27605 0.604604605 0.027027027 1.368368
## 27606 0.605605606 0.027027027 1.367367
```

```
## 27607 0.606606607 0.027027027 1.366366
## 27608 0.607607608 0.027027027 1.365365
## 27609 0.608608609 0.027027027 1.364364
## 27610 0.609609610 0.027027027 1.363363
## 27611 0.610610611 0.027027027 1.362362
## 27612 0.611611612 0.027027027 1.361361
## 27613 0.612612613 0.027027027 1.360360
## 27614 0.613613614 0.027027027 1.359359
## 27615 0.614614615 0.027027027 1.358358
## 27616 0.615615616 0.027027027 1.357357
## 27617 0.616616617 0.027027027 1.356356
## 27618 0.617617618 0.027027027 1.355355
## 27619 0.618618619 0.027027027 1.354354
## 27620 0.619619620 0.027027027 1.353353
## 27621 0.620620621 0.027027027 1.352352
## 27622 0.621621622 0.027027027 1.351351
## 27623 0.622622623 0.027027027 1.350350
## 27624 0.623623624 0.027027027 1.349349
## 27625 0.624624625 0.027027027 1.348348
## 27626 0.625625626 0.027027027 1.347347
## 27627 0.626626627 0.027027027 1.346346
## 27628 0.627627628 0.027027027 1.345345
## 27629 0.628628629 0.027027027 1.344344
## 27630 0.629629630 0.027027027 1.343343
## 27631 0.630630631 0.027027027 1.342342
## 27632 0.631631632 0.027027027 1.341341
## 27633 0.632632633 0.027027027 1.340340
## 27634 0.633633634 0.027027027 1.339339
## 27635 0.634634635 0.027027027 1.338338
## 27636 0.635635636 0.027027027 1.337337
## 27637 0.636636637 0.027027027 1.336336
## 27638 0.637637638 0.027027027 1.335335
## 27639 0.638638639 0.027027027 1.334334
## 27640 0.639639640 0.027027027 1.333333
## 27641 0.640640641 0.027027027 1.332332
## 27642 0.641641642 0.027027027 1.331331
## 27643 0.642642643 0.027027027 1.330330
## 27644 0.643643644 0.027027027 1.329329
## 27645 0.644644645 0.027027027 1.328328
## 27646 0.645645646 0.027027027 1.327327
## 27647 0.646646647 0.027027027 1.326326
## 27648 0.647647648 0.027027027 1.325325
## 27649 0.648648649 0.027027027 1.324324
## 27650 0.649649650 0.027027027 1.323323
## 27651 0.650650651 0.027027027 1.322322
## 27652 0.651651652 0.027027027 1.321321
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 713

```

## 27653 0.652652653 0.027027027 1.320320
## 27654 0.653653654 0.027027027 1.319319
## 27655 0.654654655 0.027027027 1.318318
## 27656 0.655655656 0.027027027 1.317317
## 27657 0.656656657 0.027027027 1.316316
## 27658 0.657657658 0.027027027 1.315315
## 27659 0.658658659 0.027027027 1.314314
## 27660 0.659659660 0.027027027 1.313313
## 27661 0.660660661 0.027027027 1.312312
## 27662 0.661661662 0.027027027 1.311311
## 27663 0.662662663 0.027027027 1.310310
## 27664 0.663663664 0.027027027 1.309309
## 27665 0.664664665 0.027027027 1.308308
## 27666 0.665665666 0.027027027 1.307307
## 27667 0.666666667 0.027027027 1.306306
## 27668 0.667667668 0.027027027 1.305305
## 27669 0.668668669 0.027027027 1.304304
## 27670 0.669669670 0.027027027 1.303303
## 27671 0.670670671 0.027027027 1.302302
## 27672 0.671671672 0.027027027 1.301301
## 27673 0.672672673 0.027027027 1.300300
## 27674 0.673673674 0.027027027 1.299299
## 27675 0.674674675 0.027027027 1.298298
## 27676 0.675675676 0.027027027 1.297297
## 27677 0.676676677 0.027027027 1.296296
## 27678 0.677677678 0.027027027 1.295295
## 27679 0.678678679 0.027027027 1.294294
## 27680 0.679679680 0.027027027 1.293293
## 27681 0.680680681 0.027027027 1.292292
## 27682 0.681681682 0.027027027 1.291291
## 27683 0.682682683 0.027027027 1.290290
## 27684 0.683683684 0.027027027 1.289289
## 27685 0.684684685 0.027027027 1.288288
## 27686 0.685685686 0.027027027 1.287287
## 27687 0.686686687 0.027027027 1.286286
## 27688 0.687687688 0.027027027 1.285285
## 27689 0.688688689 0.027027027 1.284284
## 27690 0.689689690 0.027027027 1.283283
## 27691 0.690690691 0.027027027 1.282282
## 27692 0.691691692 0.027027027 1.281281
## 27693 0.692692693 0.027027027 1.280280
## 27694 0.693693694 0.027027027 1.279279
## 27695 0.694694695 0.027027027 1.278278
## 27696 0.695695696 0.027027027 1.277277
## 27697 0.696696697 0.027027027 1.276276
## 27698 0.697697698 0.027027027 1.275275

```

```
## 27699 0.698698699 0.027027027 1.274274
## 27700 0.699699700 0.027027027 1.273273
## 27701 0.700700701 0.027027027 1.272272
## 27702 0.701701702 0.027027027 1.271271
## 27703 0.702702703 0.027027027 1.270270
## 27704 0.703703704 0.027027027 1.269269
## 27705 0.704704705 0.027027027 1.268268
## 27706 0.705705706 0.027027027 1.267267
## 27707 0.706706707 0.027027027 1.266266
## 27708 0.707707708 0.027027027 1.265265
## 27709 0.708708709 0.027027027 1.264264
## 27710 0.709709710 0.027027027 1.263263
## 27711 0.710710711 0.027027027 1.262262
## 27712 0.711711712 0.027027027 1.261261
## 27713 0.712712713 0.027027027 1.260260
## 27714 0.713713714 0.027027027 1.259259
## 27715 0.714714715 0.027027027 1.258258
## 27716 0.715715716 0.027027027 1.257257
## 27717 0.716716717 0.027027027 1.256256
## 27718 0.717717718 0.027027027 1.255255
## 27719 0.718718719 0.027027027 1.254254
## 27720 0.719719720 0.027027027 1.253253
## 27721 0.720720721 0.027027027 1.252252
## 27722 0.721721722 0.027027027 1.251251
## 27723 0.722722723 0.027027027 1.250250
## 27724 0.723723724 0.027027027 1.249249
## 27725 0.724724725 0.027027027 1.248248
## 27726 0.725725726 0.027027027 1.247247
## 27727 0.726726727 0.027027027 1.246246
## 27728 0.727727728 0.027027027 1.245245
## 27729 0.728728729 0.027027027 1.244244
## 27730 0.729729730 0.027027027 1.243243
## 27731 0.730730731 0.027027027 1.242242
## 27732 0.731731732 0.027027027 1.241241
## 27733 0.732732733 0.027027027 1.240240
## 27734 0.733733734 0.027027027 1.239239
## 27735 0.734734735 0.027027027 1.238238
## 27736 0.735735736 0.027027027 1.237237
## 27737 0.736736737 0.027027027 1.236236
## 27738 0.737737738 0.027027027 1.235235
## 27739 0.738738739 0.027027027 1.234234
## 27740 0.739739740 0.027027027 1.233233
## 27741 0.740740741 0.027027027 1.232232
## 27742 0.741741742 0.027027027 1.231231
## 27743 0.742742743 0.027027027 1.230230
## 27744 0.743743744 0.027027027 1.229229
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 715

```

## 27745 0.744744745 0.027027027 1.228228
## 27746 0.745745746 0.027027027 1.227227
## 27747 0.746746747 0.027027027 1.226226
## 27748 0.747747748 0.027027027 1.225225
## 27749 0.748748749 0.027027027 1.224224
## 27750 0.749749750 0.027027027 1.223223
## 27751 0.750750751 0.027027027 1.222222
## 27752 0.751751752 0.027027027 1.221221
## 27753 0.752752753 0.027027027 1.220220
## 27754 0.753753754 0.027027027 1.219219
## 27755 0.754754755 0.027027027 1.218218
## 27756 0.755755756 0.027027027 1.217217
## 27757 0.756756757 0.027027027 1.216216
## 27758 0.757757758 0.027027027 1.215215
## 27759 0.758758759 0.027027027 1.214214
## 27760 0.759759760 0.027027027 1.213213
## 27761 0.760760761 0.027027027 1.212212
## 27762 0.761761762 0.027027027 1.211211
## 27763 0.762762763 0.027027027 1.210210
## 27764 0.763763764 0.027027027 1.209209
## 27765 0.764764765 0.027027027 1.208208
## 27766 0.765765766 0.027027027 1.207207
## 27767 0.766766767 0.027027027 1.206206
## 27768 0.767767768 0.027027027 1.205205
## 27769 0.768768769 0.027027027 1.204204
## 27770 0.769769770 0.027027027 1.203203
## 27771 0.770770771 0.027027027 1.202202
## 27772 0.771771772 0.027027027 1.201201
## 27773 0.772772773 0.027027027 1.200200
## 27774 0.773773774 0.027027027 1.199199
## 27775 0.774774775 0.027027027 1.198198
## 27776 0.775775776 0.027027027 1.197197
## 27777 0.776776777 0.027027027 1.196196
## 27778 0.777777778 0.027027027 1.195195
## 27779 0.778778779 0.027027027 1.194194
## 27780 0.779779780 0.027027027 1.193193
## 27781 0.780780781 0.027027027 1.192192
## 27782 0.781781782 0.027027027 1.191191
## 27783 0.782782783 0.027027027 1.190190
## 27784 0.783783784 0.027027027 1.189189
## 27785 0.784784785 0.027027027 1.188188
## 27786 0.785785786 0.027027027 1.187187
## 27787 0.786786787 0.027027027 1.186186
## 27788 0.787787788 0.027027027 1.185185
## 27789 0.788788789 0.027027027 1.184184
## 27790 0.789789790 0.027027027 1.183183

```

```
## 27791 0.790790791 0.027027027 1.182182
## 27792 0.791791792 0.027027027 1.181181
## 27793 0.792792793 0.027027027 1.180180
## 27794 0.793793794 0.027027027 1.179179
## 27795 0.794794795 0.027027027 1.178178
## 27796 0.795795796 0.027027027 1.177177
## 27797 0.796796797 0.027027027 1.176176
## 27798 0.797797798 0.027027027 1.175175
## 27799 0.798798799 0.027027027 1.174174
## 27800 0.799799800 0.027027027 1.173173
## 27801 0.800800801 0.027027027 1.172172
## 27802 0.801801802 0.027027027 1.171171
## 27803 0.802802803 0.027027027 1.170170
## 27804 0.803803804 0.027027027 1.169169
## 27805 0.804804805 0.027027027 1.168168
## 27806 0.805805806 0.027027027 1.167167
## 27807 0.806806807 0.027027027 1.166166
## 27808 0.807807808 0.027027027 1.165165
## 27809 0.808808809 0.027027027 1.164164
## 27810 0.809809810 0.027027027 1.163163
## 27811 0.810810811 0.027027027 1.162162
## 27812 0.811811812 0.027027027 1.161161
## 27813 0.812812813 0.027027027 1.160160
## 27814 0.813813814 0.027027027 1.159159
## 27815 0.814814815 0.027027027 1.158158
## 27816 0.815815816 0.027027027 1.157157
## 27817 0.816816817 0.027027027 1.156156
## 27818 0.817817818 0.027027027 1.155155
## 27819 0.818818819 0.027027027 1.154154
## 27820 0.819819820 0.027027027 1.153153
## 27821 0.820820821 0.027027027 1.152152
## 27822 0.821821822 0.027027027 1.151151
## 27823 0.822822823 0.027027027 1.150150
## 27824 0.823823824 0.027027027 1.149149
## 27825 0.824824825 0.027027027 1.148148
## 27826 0.825825826 0.027027027 1.147147
## 27827 0.826826827 0.027027027 1.146146
## 27828 0.827827828 0.027027027 1.145145
## 27829 0.828828829 0.027027027 1.144144
## 27830 0.829829830 0.027027027 1.143143
## 27831 0.830830831 0.027027027 1.142142
## 27832 0.831831832 0.027027027 1.141141
## 27833 0.832832833 0.027027027 1.140140
## 27834 0.833833834 0.027027027 1.139139
## 27835 0.834834835 0.027027027 1.138138
## 27836 0.835835836 0.027027027 1.137137
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 717

```

## 27837 0.836836837 0.027027027 1.136136
## 27838 0.837837838 0.027027027 1.135135
## 27839 0.838838839 0.027027027 1.134134
## 27840 0.839839840 0.027027027 1.133133
## 27841 0.840840841 0.027027027 1.132132
## 27842 0.841841842 0.027027027 1.131131
## 27843 0.842842843 0.027027027 1.130130
## 27844 0.843843844 0.027027027 1.129129
## 27845 0.844844845 0.027027027 1.128128
## 27846 0.845845846 0.027027027 1.127127
## 27847 0.846846847 0.027027027 1.126126
## 27848 0.847847848 0.027027027 1.125125
## 27849 0.848848849 0.027027027 1.124124
## 27850 0.849849850 0.027027027 1.123123
## 27851 0.850850851 0.027027027 1.122122
## 27852 0.851851852 0.027027027 1.121121
## 27853 0.852852853 0.027027027 1.120120
## 27854 0.853853854 0.027027027 1.119119
## 27855 0.854854855 0.027027027 1.118118
## 27856 0.855855856 0.027027027 1.117117
## 27857 0.856856857 0.027027027 1.116116
## 27858 0.857857858 0.027027027 1.115115
## 27859 0.858858859 0.027027027 1.114114
## 27860 0.859859860 0.027027027 1.113113
## 27861 0.860860861 0.027027027 1.112112
## 27862 0.861861862 0.027027027 1.111111
## 27863 0.862862863 0.027027027 1.110110
## 27864 0.863863864 0.027027027 1.109109
## 27865 0.864864865 0.027027027 1.108108
## 27866 0.865865866 0.027027027 1.107107
## 27867 0.866866867 0.027027027 1.106106
## 27868 0.867867868 0.027027027 1.105105
## 27869 0.868868869 0.027027027 1.104104
## 27870 0.869869870 0.027027027 1.103103
## 27871 0.870870871 0.027027027 1.102102
## 27872 0.871871872 0.027027027 1.101101
## 27873 0.872872873 0.027027027 1.100100
## 27874 0.873873874 0.027027027 1.099099
## 27875 0.874874875 0.027027027 1.098098
## 27876 0.875875876 0.027027027 1.097097
## 27877 0.876876877 0.027027027 1.096096
## 27878 0.877877878 0.027027027 1.095095
## 27879 0.878878879 0.027027027 1.094094
## 27880 0.879879880 0.027027027 1.093093
## 27881 0.880880881 0.027027027 1.092092
## 27882 0.881881882 0.027027027 1.091091

```

```
## 27883 0.882882883 0.027027027 1.090090
## 27884 0.883883884 0.027027027 1.089089
## 27885 0.884884885 0.027027027 1.088088
## 27886 0.885885886 0.027027027 1.087087
## 27887 0.886886887 0.027027027 1.086086
## 27888 0.887887888 0.027027027 1.085085
## 27889 0.888888889 0.027027027 1.084084
## 27890 0.889889890 0.027027027 1.083083
## 27891 0.890890891 0.027027027 1.082082
## 27892 0.891891892 0.027027027 1.081081
## 27893 0.892892893 0.027027027 1.080080
## 27894 0.893893894 0.027027027 1.079079
## 27895 0.894894895 0.027027027 1.078078
## 27896 0.895895896 0.027027027 1.077077
## 27897 0.896896897 0.027027027 1.076076
## 27898 0.897897898 0.027027027 1.075075
## 27899 0.898898899 0.027027027 1.074074
## 27900 0.899899900 0.027027027 1.073073
## 27901 0.900900901 0.027027027 1.072072
## 27902 0.901901902 0.027027027 1.071071
## 27903 0.902902903 0.027027027 1.070070
## 27904 0.903903904 0.027027027 1.069069
## 27905 0.904904905 0.027027027 1.068068
## 27906 0.905905906 0.027027027 1.067067
## 27907 0.906906907 0.027027027 1.066066
## 27908 0.907907908 0.027027027 1.065065
## 27909 0.908908909 0.027027027 1.064064
## 27910 0.909909910 0.027027027 1.063063
## 27911 0.910910911 0.027027027 1.062062
## 27912 0.911911912 0.027027027 1.061061
## 27913 0.912912913 0.027027027 1.060060
## 27914 0.913913914 0.027027027 1.059059
## 27915 0.914914915 0.027027027 1.058058
## 27916 0.915915916 0.027027027 1.057057
## 27917 0.916916917 0.027027027 1.056056
## 27918 0.917917918 0.027027027 1.055055
## 27919 0.918918919 0.027027027 1.054054
## 27920 0.919919920 0.027027027 1.053053
## 27921 0.920920921 0.027027027 1.052052
## 27922 0.921921922 0.027027027 1.051051
## 27923 0.922922923 0.027027027 1.050050
## 27924 0.923923924 0.027027027 1.049049
## 27925 0.924924925 0.027027027 1.048048
## 27926 0.925925926 0.027027027 1.047047
## 27927 0.926926927 0.027027027 1.046046
## 27928 0.927927928 0.027027027 1.045045
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 719

```
## 27929 0.928928929 0.027027027 1.044044
## 27930 0.929929930 0.027027027 1.043043
## 27931 0.930930931 0.027027027 1.042042
## 27932 0.931931932 0.027027027 1.041041
## 27933 0.932932933 0.027027027 1.040040
## 27934 0.933933934 0.027027027 1.039039
## 27935 0.934934935 0.027027027 1.038038
## 27936 0.935935936 0.027027027 1.037037
## 27937 0.936936937 0.027027027 1.036036
## 27938 0.937937938 0.027027027 1.035035
## 27939 0.938938939 0.027027027 1.034034
## 27940 0.939939940 0.027027027 1.033033
## 27941 0.940940941 0.027027027 1.032032
## 27942 0.941941942 0.027027027 1.031031
## 27943 0.942942943 0.027027027 1.030030
## 27944 0.943943944 0.027027027 1.029029
## 27945 0.944944945 0.027027027 1.028028
## 27946 0.945945946 0.027027027 1.027027
## 27947 0.946946947 0.027027027 1.026026
## 27948 0.947947948 0.027027027 1.025025
## 27949 0.948948949 0.027027027 1.024024
## 27950 0.949949950 0.027027027 1.023023
## 27951 0.950950951 0.027027027 1.022022
## 27952 0.951951952 0.027027027 1.021021
## 27953 0.952952953 0.027027027 1.020020
## 27954 0.953953954 0.027027027 1.019019
## 27955 0.954954955 0.027027027 1.018018
## 27956 0.955955956 0.027027027 1.017017
## 27957 0.956956957 0.027027027 1.016016
## 27958 0.957957958 0.027027027 1.015015
## 27959 0.958958959 0.027027027 1.014014
## 27960 0.959959960 0.027027027 1.013013
## 27961 0.960960961 0.027027027 1.012012
## 27962 0.961961962 0.027027027 1.011011
## 27963 0.962962963 0.027027027 1.010010
## 27964 0.963963964 0.027027027 1.009009
## 27965 0.964964965 0.027027027 1.008008
## 27966 0.965965966 0.027027027 1.007007
## 27967 0.966966967 0.027027027 1.006006
## 27968 0.967967968 0.027027027 1.005005
## 27969 0.968968969 0.027027027 1.004004
## 27970 0.969969970 0.027027027 1.003003
## 27971 0.970970971 0.027027027 1.002002
## 27972 0.971971972 0.027027027 1.001001
## 27973 0.972972973 0.027027027 1.000000
## 27974 0.973973974 0.027027027 0.998999
```

```
## 27975 0.974974975 0.027027027 0.997998
## 27976 0.975975976 0.027027027 0.996997
## 27977 0.976976977 0.027027027 0.995996
## 27978 0.977977978 0.027027027 0.994995
## 27979 0.978978979 0.027027027 0.993994
## 27980 0.979979980 0.027027027 0.992993
## 27981 0.980980981 0.027027027 0.991992
## 27982 0.981981982 0.027027027 0.990991
## 27983 0.982982983 0.027027027 0.989990
## 27984 0.983983984 0.027027027 0.988989
## 27985 0.984984985 0.027027027 0.987988
## 27986 0.985985986 0.027027027 0.986987
## 27987 0.986986987 0.027027027 0.985986
## 27988 0.987987988 0.027027027 0.984985
## 27989 0.988988989 0.027027027 0.983984
## 27990 0.989989990 0.027027027 0.982983
## 27991 0.990990991 0.027027027 0.981982
## 27992 0.991991992 0.027027027 0.980981
## 27993 0.992992993 0.027027027 0.979980
## 27994 0.993993994 0.027027027 0.978979
## 27995 0.994994995 0.027027027 0.977978
## 27996 0.995995996 0.027027027 0.976977
## 27997 0.996996997 0.027027027 0.975976
## 27998 0.997997998 0.027027027 0.974975
## 27999 0.998998999 0.027027027 0.973974
## 28000 1.000000000 0.027027027 0.972973
## 28001 0.000000000 0.028028028 1.971972
## 28002 0.001001001 0.028028028 1.970971
## 28003 0.002002002 0.028028028 1.969970
## 28004 0.003003003 0.028028028 1.968969
## 28005 0.004004004 0.028028028 1.967968
## 28006 0.005005005 0.028028028 1.966967
## 28007 0.006006006 0.028028028 1.965966
## 28008 0.007007007 0.028028028 1.964965
## 28009 0.008008008 0.028028028 1.963964
## 28010 0.009009009 0.028028028 1.962963
## 28011 0.010010010 0.028028028 1.961962
## 28012 0.011011011 0.028028028 1.960961
## 28013 0.012012012 0.028028028 1.959960
## 28014 0.013013013 0.028028028 1.958959
## 28015 0.014014014 0.028028028 1.957958
## 28016 0.015015015 0.028028028 1.956957
## 28017 0.016016016 0.028028028 1.955956
## 28018 0.017017017 0.028028028 1.954955
## 28019 0.018018018 0.028028028 1.953954
## 28020 0.019019019 0.028028028 1.952953
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 721

```
## 28021 0.020020020 0.028028028 1.951952
## 28022 0.021021021 0.028028028 1.950951
## 28023 0.022022022 0.028028028 1.949950
## 28024 0.023023023 0.028028028 1.948949
## 28025 0.024024024 0.028028028 1.947948
## 28026 0.025025025 0.028028028 1.946947
## 28027 0.026026026 0.028028028 1.945946
## 28028 0.027027027 0.028028028 1.944945
## 28029 0.028028028 0.028028028 1.943944
## 28030 0.029029029 0.028028028 1.942943
## 28031 0.030030030 0.028028028 1.941942
## 28032 0.031031031 0.028028028 1.940941
## 28033 0.032032032 0.028028028 1.939940
## 28034 0.033033033 0.028028028 1.938939
## 28035 0.034034034 0.028028028 1.937938
## 28036 0.035035035 0.028028028 1.936937
## 28037 0.036036036 0.028028028 1.935936
## 28038 0.037037037 0.028028028 1.934935
## 28039 0.038038038 0.028028028 1.933934
## 28040 0.039039039 0.028028028 1.932933
## 28041 0.040040040 0.028028028 1.931932
## 28042 0.041041041 0.028028028 1.930931
## 28043 0.042042042 0.028028028 1.929930
## 28044 0.043043043 0.028028028 1.928929
## 28045 0.044044044 0.028028028 1.927928
## 28046 0.045045045 0.028028028 1.926927
## 28047 0.046046046 0.028028028 1.925926
## 28048 0.047047047 0.028028028 1.924925
## 28049 0.048048048 0.028028028 1.923924
## 28050 0.049049049 0.028028028 1.922923
## 28051 0.050050050 0.028028028 1.921922
## 28052 0.051051051 0.028028028 1.920921
## 28053 0.052052052 0.028028028 1.919920
## 28054 0.053053053 0.028028028 1.918919
## 28055 0.054054054 0.028028028 1.917918
## 28056 0.055055055 0.028028028 1.916917
## 28057 0.056056056 0.028028028 1.915916
## 28058 0.057057057 0.028028028 1.914915
## 28059 0.058058058 0.028028028 1.913914
## 28060 0.059059059 0.028028028 1.912913
## 28061 0.060060060 0.028028028 1.911912
## 28062 0.061061061 0.028028028 1.910911
## 28063 0.062062062 0.028028028 1.909910
## 28064 0.063063063 0.028028028 1.908909
## 28065 0.064064064 0.028028028 1.907908
## 28066 0.065065065 0.028028028 1.906907
```

```
## 28067 0.066066066 0.028028028 1.905906
## 28068 0.067067067 0.028028028 1.904905
## 28069 0.068068068 0.028028028 1.903904
## 28070 0.069069069 0.028028028 1.902903
## 28071 0.070070070 0.028028028 1.901902
## 28072 0.071071071 0.028028028 1.900901
## 28073 0.072072072 0.028028028 1.899900
## 28074 0.073073073 0.028028028 1.898899
## 28075 0.074074074 0.028028028 1.897898
## 28076 0.075075075 0.028028028 1.896897
## 28077 0.076076076 0.028028028 1.895896
## 28078 0.077077077 0.028028028 1.894895
## 28079 0.078078078 0.028028028 1.893894
## 28080 0.079079079 0.028028028 1.892893
## 28081 0.080080080 0.028028028 1.891892
## 28082 0.081081081 0.028028028 1.890891
## 28083 0.082082082 0.028028028 1.889890
## 28084 0.083083083 0.028028028 1.888889
## 28085 0.084084084 0.028028028 1.887888
## 28086 0.085085085 0.028028028 1.886887
## 28087 0.086086086 0.028028028 1.885886
## 28088 0.087087087 0.028028028 1.884885
## 28089 0.088088088 0.028028028 1.883884
## 28090 0.089089089 0.028028028 1.882883
## 28091 0.090090090 0.028028028 1.881882
## 28092 0.091091091 0.028028028 1.880881
## 28093 0.092092092 0.028028028 1.879880
## 28094 0.093093093 0.028028028 1.878879
## 28095 0.094094094 0.028028028 1.877878
## 28096 0.095095095 0.028028028 1.876877
## 28097 0.096096096 0.028028028 1.875876
## 28098 0.097097097 0.028028028 1.874875
## 28099 0.098098098 0.028028028 1.873874
## 28100 0.099099099 0.028028028 1.872873
## 28101 0.100100100 0.028028028 1.871872
## 28102 0.101101101 0.028028028 1.870871
## 28103 0.102102102 0.028028028 1.869870
## 28104 0.103103103 0.028028028 1.868869
## 28105 0.104104104 0.028028028 1.867868
## 28106 0.105105105 0.028028028 1.866867
## 28107 0.106106106 0.028028028 1.865866
## 28108 0.107107107 0.028028028 1.864865
## 28109 0.108108108 0.028028028 1.863864
## 28110 0.109109109 0.028028028 1.862863
## 28111 0.110110110 0.028028028 1.861862
## 28112 0.111111111 0.028028028 1.860861
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 723

```
## 28113 0.112112112 0.028028028 1.859860
## 28114 0.113113113 0.028028028 1.858859
## 28115 0.114114114 0.028028028 1.857858
## 28116 0.115115115 0.028028028 1.856857
## 28117 0.116116116 0.028028028 1.855856
## 28118 0.117117117 0.028028028 1.854855
## 28119 0.118118118 0.028028028 1.853854
## 28120 0.119119119 0.028028028 1.852853
## 28121 0.120120120 0.028028028 1.851852
## 28122 0.121121121 0.028028028 1.850851
## 28123 0.122122122 0.028028028 1.849850
## 28124 0.123123123 0.028028028 1.848849
## 28125 0.124124124 0.028028028 1.847848
## 28126 0.125125125 0.028028028 1.846847
## 28127 0.126126126 0.028028028 1.845846
## 28128 0.127127127 0.028028028 1.844845
## 28129 0.128128128 0.028028028 1.843844
## 28130 0.129129129 0.028028028 1.842843
## 28131 0.130130130 0.028028028 1.841842
## 28132 0.131131131 0.028028028 1.840841
## 28133 0.132132132 0.028028028 1.839840
## 28134 0.133133133 0.028028028 1.838839
## 28135 0.134134134 0.028028028 1.837838
## 28136 0.135135135 0.028028028 1.836837
## 28137 0.136136136 0.028028028 1.835836
## 28138 0.137137137 0.028028028 1.834835
## 28139 0.138138138 0.028028028 1.833834
## 28140 0.139139139 0.028028028 1.832833
## 28141 0.140140140 0.028028028 1.831832
## 28142 0.141141141 0.028028028 1.830831
## 28143 0.142142142 0.028028028 1.829830
## 28144 0.143143143 0.028028028 1.828829
## 28145 0.144144144 0.028028028 1.827828
## 28146 0.145145145 0.028028028 1.826827
## 28147 0.146146146 0.028028028 1.825826
## 28148 0.147147147 0.028028028 1.824825
## 28149 0.148148148 0.028028028 1.823824
## 28150 0.149149149 0.028028028 1.822823
## 28151 0.150150150 0.028028028 1.821822
## 28152 0.151151151 0.028028028 1.820821
## 28153 0.152152152 0.028028028 1.819820
## 28154 0.153153153 0.028028028 1.818819
## 28155 0.154154154 0.028028028 1.817818
## 28156 0.155155155 0.028028028 1.816817
## 28157 0.156156156 0.028028028 1.815816
## 28158 0.157157157 0.028028028 1.814815
```

```
## 28159 0.158158158 0.028028028 1.813814
## 28160 0.159159159 0.028028028 1.812813
## 28161 0.160160160 0.028028028 1.811812
## 28162 0.161161161 0.028028028 1.810811
## 28163 0.162162162 0.028028028 1.809810
## 28164 0.163163163 0.028028028 1.808809
## 28165 0.164164164 0.028028028 1.807808
## 28166 0.165165165 0.028028028 1.806807
## 28167 0.166166166 0.028028028 1.805806
## 28168 0.167167167 0.028028028 1.804805
## 28169 0.168168168 0.028028028 1.803804
## 28170 0.169169169 0.028028028 1.802803
## 28171 0.170170170 0.028028028 1.801802
## 28172 0.171171171 0.028028028 1.800801
## 28173 0.172172172 0.028028028 1.799800
## 28174 0.173173173 0.028028028 1.798799
## 28175 0.174174174 0.028028028 1.797798
## 28176 0.175175175 0.028028028 1.796797
## 28177 0.176176176 0.028028028 1.795796
## 28178 0.177177177 0.028028028 1.794795
## 28179 0.178178178 0.028028028 1.793794
## 28180 0.179179179 0.028028028 1.792793
## 28181 0.180180180 0.028028028 1.791792
## 28182 0.181181181 0.028028028 1.790791
## 28183 0.182182182 0.028028028 1.789790
## 28184 0.183183183 0.028028028 1.788789
## 28185 0.184184184 0.028028028 1.787788
## 28186 0.185185185 0.028028028 1.786787
## 28187 0.186186186 0.028028028 1.785786
## 28188 0.187187187 0.028028028 1.784785
## 28189 0.188188188 0.028028028 1.783784
## 28190 0.189189189 0.028028028 1.782783
## 28191 0.190190190 0.028028028 1.781782
## 28192 0.191191191 0.028028028 1.780781
## 28193 0.192192192 0.028028028 1.779780
## 28194 0.193193193 0.028028028 1.778779
## 28195 0.194194194 0.028028028 1.777778
## 28196 0.195195195 0.028028028 1.776777
## 28197 0.196196196 0.028028028 1.775776
## 28198 0.197197197 0.028028028 1.774775
## 28199 0.198198198 0.028028028 1.773774
## 28200 0.199199199 0.028028028 1.772773
## 28201 0.200200200 0.028028028 1.771772
## 28202 0.201201201 0.028028028 1.770771
## 28203 0.202202202 0.028028028 1.769770
## 28204 0.203203203 0.028028028 1.768769
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR725

```
## 28205 0.204204204 0.028028028 1.767768
## 28206 0.205205205 0.028028028 1.766767
## 28207 0.206206206 0.028028028 1.765766
## 28208 0.207207207 0.028028028 1.764765
## 28209 0.208208208 0.028028028 1.763764
## 28210 0.209209209 0.028028028 1.762763
## 28211 0.210210210 0.028028028 1.761762
## 28212 0.211211211 0.028028028 1.760761
## 28213 0.212212212 0.028028028 1.759760
## 28214 0.213213213 0.028028028 1.758759
## 28215 0.214214214 0.028028028 1.757758
## 28216 0.215215215 0.028028028 1.756757
## 28217 0.216216216 0.028028028 1.755756
## 28218 0.217217217 0.028028028 1.754755
## 28219 0.218218218 0.028028028 1.753754
## 28220 0.219219219 0.028028028 1.752753
## 28221 0.220220220 0.028028028 1.751752
## 28222 0.221221221 0.028028028 1.750751
## 28223 0.222222222 0.028028028 1.749750
## 28224 0.223223223 0.028028028 1.748749
## 28225 0.224224224 0.028028028 1.747748
## 28226 0.225225225 0.028028028 1.746747
## 28227 0.226226226 0.028028028 1.745746
## 28228 0.227227227 0.028028028 1.744745
## 28229 0.228228228 0.028028028 1.743744
## 28230 0.229229229 0.028028028 1.742743
## 28231 0.230230230 0.028028028 1.741742
## 28232 0.231231231 0.028028028 1.740741
## 28233 0.232232232 0.028028028 1.739740
## 28234 0.233233233 0.028028028 1.738739
## 28235 0.234234234 0.028028028 1.737738
## 28236 0.235235235 0.028028028 1.736737
## 28237 0.236236236 0.028028028 1.735736
## 28238 0.237237237 0.028028028 1.734735
## 28239 0.238238238 0.028028028 1.733734
## 28240 0.239239239 0.028028028 1.732733
## 28241 0.240240240 0.028028028 1.731732
## 28242 0.241241241 0.028028028 1.730731
## 28243 0.242242242 0.028028028 1.729730
## 28244 0.243243243 0.028028028 1.728729
## 28245 0.244244244 0.028028028 1.727728
## 28246 0.245245245 0.028028028 1.726727
## 28247 0.246246246 0.028028028 1.725726
## 28248 0.247247247 0.028028028 1.724725
## 28249 0.248248248 0.028028028 1.723724
## 28250 0.249249249 0.028028028 1.722723
```

```
## 28251 0.250250250 0.028028028 1.721722
## 28252 0.251251251 0.028028028 1.720721
## 28253 0.252252252 0.028028028 1.719720
## 28254 0.253253253 0.028028028 1.718719
## 28255 0.254254254 0.028028028 1.717718
## 28256 0.255255255 0.028028028 1.716717
## 28257 0.256256256 0.028028028 1.715716
## 28258 0.257257257 0.028028028 1.714715
## 28259 0.258258258 0.028028028 1.713714
## 28260 0.259259259 0.028028028 1.712713
## 28261 0.260260260 0.028028028 1.711712
## 28262 0.261261261 0.028028028 1.710711
## 28263 0.262262262 0.028028028 1.709710
## 28264 0.263263263 0.028028028 1.708709
## 28265 0.264264264 0.028028028 1.707708
## 28266 0.265265265 0.028028028 1.706707
## 28267 0.266266266 0.028028028 1.705706
## 28268 0.267267267 0.028028028 1.704705
## 28269 0.268268268 0.028028028 1.703704
## 28270 0.269269269 0.028028028 1.702703
## 28271 0.270270270 0.028028028 1.701702
## 28272 0.271271271 0.028028028 1.700701
## 28273 0.272272272 0.028028028 1.699700
## 28274 0.273273273 0.028028028 1.698699
## 28275 0.274274274 0.028028028 1.697698
## 28276 0.275275275 0.028028028 1.696697
## 28277 0.276276276 0.028028028 1.695696
## 28278 0.277277277 0.028028028 1.694695
## 28279 0.278278278 0.028028028 1.693694
## 28280 0.279279279 0.028028028 1.692693
## 28281 0.280280280 0.028028028 1.691692
## 28282 0.281281281 0.028028028 1.690691
## 28283 0.282282282 0.028028028 1.689690
## 28284 0.283283283 0.028028028 1.688689
## 28285 0.284284284 0.028028028 1.687688
## 28286 0.285285285 0.028028028 1.686687
## 28287 0.286286286 0.028028028 1.685686
## 28288 0.287287287 0.028028028 1.684685
## 28289 0.288288288 0.028028028 1.683684
## 28290 0.289289289 0.028028028 1.682683
## 28291 0.290290290 0.028028028 1.681682
## 28292 0.291291291 0.028028028 1.680681
## 28293 0.292292292 0.028028028 1.679680
## 28294 0.293293293 0.028028028 1.678679
## 28295 0.294294294 0.028028028 1.677678
## 28296 0.295295295 0.028028028 1.676677
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 727

```
## 28297 0.296296296 0.028028028 1.675676
## 28298 0.297297297 0.028028028 1.674675
## 28299 0.298298298 0.028028028 1.673674
## 28300 0.299299299 0.028028028 1.672673
## 28301 0.300300300 0.028028028 1.671672
## 28302 0.301301301 0.028028028 1.670671
## 28303 0.302302302 0.028028028 1.669670
## 28304 0.303303303 0.028028028 1.668669
## 28305 0.304304304 0.028028028 1.667668
## 28306 0.305305305 0.028028028 1.666667
## 28307 0.306306306 0.028028028 1.665666
## 28308 0.307307307 0.028028028 1.664665
## 28309 0.308308308 0.028028028 1.663664
## 28310 0.309309309 0.028028028 1.662663
## 28311 0.310310310 0.028028028 1.661662
## 28312 0.311311311 0.028028028 1.660661
## 28313 0.312312312 0.028028028 1.659660
## 28314 0.313313313 0.028028028 1.658659
## 28315 0.314314314 0.028028028 1.657658
## 28316 0.315315315 0.028028028 1.656657
## 28317 0.316316316 0.028028028 1.655656
## 28318 0.317317317 0.028028028 1.654655
## 28319 0.318318318 0.028028028 1.653654
## 28320 0.319319319 0.028028028 1.652653
## 28321 0.320320320 0.028028028 1.651652
## 28322 0.321321321 0.028028028 1.650651
## 28323 0.322322322 0.028028028 1.649650
## 28324 0.323323323 0.028028028 1.648649
## 28325 0.324324324 0.028028028 1.647648
## 28326 0.325325325 0.028028028 1.646647
## 28327 0.326326326 0.028028028 1.645646
## 28328 0.327327327 0.028028028 1.644645
## 28329 0.328328328 0.028028028 1.643644
## 28330 0.329329329 0.028028028 1.642643
## 28331 0.330330330 0.028028028 1.641642
## 28332 0.331331331 0.028028028 1.640641
## 28333 0.332332332 0.028028028 1.639640
## 28334 0.333333333 0.028028028 1.638639
## 28335 0.334334334 0.028028028 1.637638
## 28336 0.335335335 0.028028028 1.636637
## 28337 0.336336336 0.028028028 1.635636
## 28338 0.337337337 0.028028028 1.634635
## 28339 0.338338338 0.028028028 1.633634
## 28340 0.339339339 0.028028028 1.632633
## 28341 0.340340340 0.028028028 1.631632
## 28342 0.341341341 0.028028028 1.630631
```

```
## 28343 0.342342342 0.028028028 1.629630
## 28344 0.343343343 0.028028028 1.628629
## 28345 0.344344344 0.028028028 1.627628
## 28346 0.345345345 0.028028028 1.626627
## 28347 0.346346346 0.028028028 1.625626
## 28348 0.347347347 0.028028028 1.624625
## 28349 0.348348348 0.028028028 1.623624
## 28350 0.349349349 0.028028028 1.622623
## 28351 0.350350350 0.028028028 1.621622
## 28352 0.351351351 0.028028028 1.620621
## 28353 0.352352352 0.028028028 1.619620
## 28354 0.353353353 0.028028028 1.618619
## 28355 0.354354354 0.028028028 1.617618
## 28356 0.355355355 0.028028028 1.616617
## 28357 0.356356356 0.028028028 1.615616
## 28358 0.357357357 0.028028028 1.614615
## 28359 0.358358358 0.028028028 1.613614
## 28360 0.359359359 0.028028028 1.612613
## 28361 0.360360360 0.028028028 1.611612
## 28362 0.361361361 0.028028028 1.610611
## 28363 0.362362362 0.028028028 1.609610
## 28364 0.363363363 0.028028028 1.608609
## 28365 0.364364364 0.028028028 1.607608
## 28366 0.365365365 0.028028028 1.606607
## 28367 0.366366366 0.028028028 1.605606
## 28368 0.367367367 0.028028028 1.604605
## 28369 0.368368368 0.028028028 1.603604
## 28370 0.369369369 0.028028028 1.602603
## 28371 0.370370370 0.028028028 1.601602
## 28372 0.371371371 0.028028028 1.600601
## 28373 0.372372372 0.028028028 1.599600
## 28374 0.373373373 0.028028028 1.598599
## 28375 0.374374374 0.028028028 1.597598
## 28376 0.375375375 0.028028028 1.596597
## 28377 0.376376376 0.028028028 1.595596
## 28378 0.377377377 0.028028028 1.594595
## 28379 0.378378378 0.028028028 1.593594
## 28380 0.379379379 0.028028028 1.592593
## 28381 0.380380380 0.028028028 1.591592
## 28382 0.381381381 0.028028028 1.590591
## 28383 0.382382382 0.028028028 1.589590
## 28384 0.383383383 0.028028028 1.588589
## 28385 0.384384384 0.028028028 1.587588
## 28386 0.385385385 0.028028028 1.586587
## 28387 0.386386386 0.028028028 1.585586
## 28388 0.387387387 0.028028028 1.584585
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 729

```

## 28389 0.388388388 0.028028028 1.583584
## 28390 0.389389389 0.028028028 1.582583
## 28391 0.390390390 0.028028028 1.581582
## 28392 0.391391391 0.028028028 1.580581
## 28393 0.392392392 0.028028028 1.579580
## 28394 0.393393393 0.028028028 1.578579
## 28395 0.394394394 0.028028028 1.577578
## 28396 0.395395395 0.028028028 1.576577
## 28397 0.396396396 0.028028028 1.575576
## 28398 0.397397397 0.028028028 1.574575
## 28399 0.398398398 0.028028028 1.573574
## 28400 0.399399399 0.028028028 1.572573
## 28401 0.400400400 0.028028028 1.571572
## 28402 0.401401401 0.028028028 1.570571
## 28403 0.402402402 0.028028028 1.569570
## 28404 0.403403403 0.028028028 1.568569
## 28405 0.404404404 0.028028028 1.567568
## 28406 0.405405405 0.028028028 1.566567
## 28407 0.406406406 0.028028028 1.565566
## 28408 0.407407407 0.028028028 1.564565
## 28409 0.408408408 0.028028028 1.563564
## 28410 0.409409409 0.028028028 1.562563
## 28411 0.410410410 0.028028028 1.561562
## 28412 0.411411411 0.028028028 1.560561
## 28413 0.412412412 0.028028028 1.559560
## 28414 0.413413413 0.028028028 1.558559
## 28415 0.414414414 0.028028028 1.557558
## 28416 0.415415415 0.028028028 1.556557
## 28417 0.416416416 0.028028028 1.555556
## 28418 0.417417417 0.028028028 1.554555
## 28419 0.418418418 0.028028028 1.553554
## 28420 0.419419419 0.028028028 1.552553
## 28421 0.420420420 0.028028028 1.551552
## 28422 0.421421421 0.028028028 1.550551
## 28423 0.422422422 0.028028028 1.549550
## 28424 0.423423423 0.028028028 1.548549
## 28425 0.424424424 0.028028028 1.547548
## 28426 0.425425425 0.028028028 1.546547
## 28427 0.426426426 0.028028028 1.545546
## 28428 0.427427427 0.028028028 1.544545
## 28429 0.428428428 0.028028028 1.543544
## 28430 0.429429429 0.028028028 1.542543
## 28431 0.430430430 0.028028028 1.541542
## 28432 0.431431431 0.028028028 1.540541
## 28433 0.432432432 0.028028028 1.539540
## 28434 0.433433433 0.028028028 1.538539

```

```
## 28435 0.434434434 0.028028028 1.537538
## 28436 0.435435435 0.028028028 1.536537
## 28437 0.436436436 0.028028028 1.535536
## 28438 0.437437437 0.028028028 1.534535
## 28439 0.438438438 0.028028028 1.533534
## 28440 0.439439439 0.028028028 1.532533
## 28441 0.440440440 0.028028028 1.531532
## 28442 0.441441441 0.028028028 1.530531
## 28443 0.442442442 0.028028028 1.529530
## 28444 0.443443443 0.028028028 1.528529
## 28445 0.444444444 0.028028028 1.527528
## 28446 0.445445445 0.028028028 1.526527
## 28447 0.446446446 0.028028028 1.525526
## 28448 0.447447447 0.028028028 1.524525
## 28449 0.448448448 0.028028028 1.523524
## 28450 0.449449449 0.028028028 1.522523
## 28451 0.450450450 0.028028028 1.521522
## 28452 0.451451451 0.028028028 1.520521
## 28453 0.452452452 0.028028028 1.519520
## 28454 0.453453453 0.028028028 1.518519
## 28455 0.454454454 0.028028028 1.517518
## 28456 0.455455455 0.028028028 1.516517
## 28457 0.456456456 0.028028028 1.515516
## 28458 0.457457457 0.028028028 1.514515
## 28459 0.458458458 0.028028028 1.513514
## 28460 0.459459459 0.028028028 1.512513
## 28461 0.460460460 0.028028028 1.511512
## 28462 0.461461461 0.028028028 1.510511
## 28463 0.462462462 0.028028028 1.509510
## 28464 0.463463463 0.028028028 1.508509
## 28465 0.464464464 0.028028028 1.507508
## 28466 0.465465465 0.028028028 1.506507
## 28467 0.466466466 0.028028028 1.505506
## 28468 0.467467467 0.028028028 1.504505
## 28469 0.468468468 0.028028028 1.503504
## 28470 0.469469469 0.028028028 1.502503
## 28471 0.470470470 0.028028028 1.501502
## 28472 0.471471471 0.028028028 1.500501
## 28473 0.472472472 0.028028028 1.499499
## 28474 0.473473473 0.028028028 1.498498
## 28475 0.474474474 0.028028028 1.497497
## 28476 0.475475475 0.028028028 1.496496
## 28477 0.476476476 0.028028028 1.495495
## 28478 0.477477477 0.028028028 1.494494
## 28479 0.478478478 0.028028028 1.493493
## 28480 0.479479479 0.028028028 1.492492
```

```
## 28481 0.480480480 0.028028028 1.491491
## 28482 0.481481481 0.028028028 1.490490
## 28483 0.482482482 0.028028028 1.489489
## 28484 0.483483483 0.028028028 1.488488
## 28485 0.484484484 0.028028028 1.487487
## 28486 0.485485485 0.028028028 1.486486
## 28487 0.486486486 0.028028028 1.485485
## 28488 0.487487487 0.028028028 1.484484
## 28489 0.488488488 0.028028028 1.483483
## 28490 0.489489489 0.028028028 1.482482
## 28491 0.490490490 0.028028028 1.481481
## 28492 0.491491491 0.028028028 1.480480
## 28493 0.492492492 0.028028028 1.479479
## 28494 0.493493493 0.028028028 1.478478
## 28495 0.494494494 0.028028028 1.477477
## 28496 0.495495495 0.028028028 1.476476
## 28497 0.496496496 0.028028028 1.475475
## 28498 0.497497497 0.028028028 1.474474
## 28499 0.498498498 0.028028028 1.473473
## 28500 0.499499499 0.028028028 1.472472
## 28501 0.500500501 0.028028028 1.471471
## 28502 0.501501502 0.028028028 1.470470
## 28503 0.502502503 0.028028028 1.469469
## 28504 0.503503504 0.028028028 1.468468
## 28505 0.504504505 0.028028028 1.467467
## 28506 0.505505506 0.028028028 1.466466
## 28507 0.506506507 0.028028028 1.465465
## 28508 0.507507508 0.028028028 1.464464
## 28509 0.508508509 0.028028028 1.463463
## 28510 0.509509510 0.028028028 1.462462
## 28511 0.510510511 0.028028028 1.461461
## 28512 0.511511512 0.028028028 1.460460
## 28513 0.512512513 0.028028028 1.459459
## 28514 0.513513514 0.028028028 1.458458
## 28515 0.514514515 0.028028028 1.457457
## 28516 0.515515516 0.028028028 1.456456
## 28517 0.516516517 0.028028028 1.455455
## 28518 0.517517518 0.028028028 1.454454
## 28519 0.518518519 0.028028028 1.453453
## 28520 0.519519520 0.028028028 1.452452
## 28521 0.520520521 0.028028028 1.451451
## 28522 0.521521522 0.028028028 1.450450
## 28523 0.522522523 0.028028028 1.449449
## 28524 0.523523524 0.028028028 1.448448
## 28525 0.524524525 0.028028028 1.447447
## 28526 0.525525526 0.028028028 1.446446
```

```
## 28527 0.526526527 0.028028028 1.445445
## 28528 0.527527528 0.028028028 1.444444
## 28529 0.528528529 0.028028028 1.443443
## 28530 0.529529530 0.028028028 1.442442
## 28531 0.530530531 0.028028028 1.441441
## 28532 0.531531532 0.028028028 1.440440
## 28533 0.532532533 0.028028028 1.439439
## 28534 0.533533534 0.028028028 1.438438
## 28535 0.534534535 0.028028028 1.437437
## 28536 0.535535536 0.028028028 1.436436
## 28537 0.536536537 0.028028028 1.435435
## 28538 0.537537538 0.028028028 1.434434
## 28539 0.538538539 0.028028028 1.433433
## 28540 0.539539540 0.028028028 1.432432
## 28541 0.540540541 0.028028028 1.431431
## 28542 0.541541542 0.028028028 1.430430
## 28543 0.542542543 0.028028028 1.429429
## 28544 0.543543544 0.028028028 1.428428
## 28545 0.544544545 0.028028028 1.427427
## 28546 0.545545546 0.028028028 1.426426
## 28547 0.546546547 0.028028028 1.425425
## 28548 0.547547548 0.028028028 1.424424
## 28549 0.548548549 0.028028028 1.423423
## 28550 0.549549550 0.028028028 1.422422
## 28551 0.550550551 0.028028028 1.421421
## 28552 0.551551552 0.028028028 1.420420
## 28553 0.552552553 0.028028028 1.419419
## 28554 0.553553554 0.028028028 1.418418
## 28555 0.554554555 0.028028028 1.417417
## 28556 0.555555556 0.028028028 1.416416
## 28557 0.556556557 0.028028028 1.415415
## 28558 0.557557558 0.028028028 1.414414
## 28559 0.558558559 0.028028028 1.413413
## 28560 0.559559560 0.028028028 1.412412
## 28561 0.560560561 0.028028028 1.411411
## 28562 0.561561562 0.028028028 1.410410
## 28563 0.562562563 0.028028028 1.409409
## 28564 0.563563564 0.028028028 1.408408
## 28565 0.564564565 0.028028028 1.407407
## 28566 0.565565566 0.028028028 1.406406
## 28567 0.566566567 0.028028028 1.405405
## 28568 0.567567568 0.028028028 1.404404
## 28569 0.568568569 0.028028028 1.403403
## 28570 0.569569570 0.028028028 1.402402
## 28571 0.570570571 0.028028028 1.401401
## 28572 0.571571572 0.028028028 1.400400
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 733

```

## 28573 0.572572573 0.028028028 1.399399
## 28574 0.573573574 0.028028028 1.398398
## 28575 0.574574575 0.028028028 1.397397
## 28576 0.575575576 0.028028028 1.396396
## 28577 0.576576577 0.028028028 1.395395
## 28578 0.577577578 0.028028028 1.394394
## 28579 0.578578579 0.028028028 1.393393
## 28580 0.579579580 0.028028028 1.392392
## 28581 0.580580581 0.028028028 1.391391
## 28582 0.581581582 0.028028028 1.390390
## 28583 0.582582583 0.028028028 1.389389
## 28584 0.583583584 0.028028028 1.388388
## 28585 0.584584585 0.028028028 1.387387
## 28586 0.585585586 0.028028028 1.386386
## 28587 0.586586587 0.028028028 1.385385
## 28588 0.587587588 0.028028028 1.384384
## 28589 0.588588589 0.028028028 1.383383
## 28590 0.589589590 0.028028028 1.382382
## 28591 0.590590591 0.028028028 1.381381
## 28592 0.591591592 0.028028028 1.380380
## 28593 0.592592593 0.028028028 1.379379
## 28594 0.593593594 0.028028028 1.378378
## 28595 0.594594595 0.028028028 1.377377
## 28596 0.595595596 0.028028028 1.376376
## 28597 0.596596597 0.028028028 1.375375
## 28598 0.597597598 0.028028028 1.374374
## 28599 0.598598599 0.028028028 1.373373
## 28600 0.599599600 0.028028028 1.372372
## 28601 0.600600601 0.028028028 1.371371
## 28602 0.601601602 0.028028028 1.370370
## 28603 0.602602603 0.028028028 1.369369
## 28604 0.603603604 0.028028028 1.368368
## 28605 0.604604605 0.028028028 1.367367
## 28606 0.605605606 0.028028028 1.366366
## 28607 0.606606607 0.028028028 1.365365
## 28608 0.607607608 0.028028028 1.364364
## 28609 0.608608609 0.028028028 1.363363
## 28610 0.609609610 0.028028028 1.362362
## 28611 0.610610611 0.028028028 1.361361
## 28612 0.611611612 0.028028028 1.360360
## 28613 0.612612613 0.028028028 1.359359
## 28614 0.613613614 0.028028028 1.358358
## 28615 0.614614615 0.028028028 1.357357
## 28616 0.615615616 0.028028028 1.356356
## 28617 0.616616617 0.028028028 1.355355
## 28618 0.617617618 0.028028028 1.354354

```

```
## 28619 0.618618619 0.028028028 1.353353
## 28620 0.619619620 0.028028028 1.352352
## 28621 0.620620621 0.028028028 1.351351
## 28622 0.621621622 0.028028028 1.350350
## 28623 0.622622623 0.028028028 1.349349
## 28624 0.623623624 0.028028028 1.348348
## 28625 0.624624625 0.028028028 1.347347
## 28626 0.625625626 0.028028028 1.346346
## 28627 0.626626627 0.028028028 1.345345
## 28628 0.627627628 0.028028028 1.344344
## 28629 0.628628629 0.028028028 1.343343
## 28630 0.629629630 0.028028028 1.342342
## 28631 0.630630631 0.028028028 1.341341
## 28632 0.631631632 0.028028028 1.340340
## 28633 0.632632633 0.028028028 1.339339
## 28634 0.633633634 0.028028028 1.338338
## 28635 0.634634635 0.028028028 1.337337
## 28636 0.635635636 0.028028028 1.336336
## 28637 0.636636637 0.028028028 1.335335
## 28638 0.637637638 0.028028028 1.334334
## 28639 0.638638639 0.028028028 1.333333
## 28640 0.639639640 0.028028028 1.332332
## 28641 0.640640641 0.028028028 1.331331
## 28642 0.641641642 0.028028028 1.330330
## 28643 0.642642643 0.028028028 1.329329
## 28644 0.643643644 0.028028028 1.328328
## 28645 0.644644645 0.028028028 1.327327
## 28646 0.645645646 0.028028028 1.326326
## 28647 0.646646647 0.028028028 1.325325
## 28648 0.647647648 0.028028028 1.324324
## 28649 0.648648649 0.028028028 1.323323
## 28650 0.649649650 0.028028028 1.322322
## 28651 0.650650651 0.028028028 1.321321
## 28652 0.651651652 0.028028028 1.320320
## 28653 0.652652653 0.028028028 1.319319
## 28654 0.653653654 0.028028028 1.318318
## 28655 0.654654655 0.028028028 1.317317
## 28656 0.6556555656 0.028028028 1.316316
## 28657 0.656656657 0.028028028 1.315315
## 28658 0.657657658 0.028028028 1.314314
## 28659 0.658658659 0.028028028 1.313313
## 28660 0.659659660 0.028028028 1.312312
## 28661 0.660660661 0.028028028 1.311311
## 28662 0.661661662 0.028028028 1.310310
## 28663 0.662662663 0.028028028 1.309309
## 28664 0.663663664 0.028028028 1.308308
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 735

```
## 28665 0.664664665 0.028028028 1.307307
## 28666 0.665665666 0.028028028 1.306306
## 28667 0.666666667 0.028028028 1.305305
## 28668 0.667667668 0.028028028 1.304304
## 28669 0.668668669 0.028028028 1.303303
## 28670 0.669669670 0.028028028 1.302302
## 28671 0.670670671 0.028028028 1.301301
## 28672 0.671671672 0.028028028 1.300300
## 28673 0.672672673 0.028028028 1.299299
## 28674 0.673673674 0.028028028 1.298298
## 28675 0.674674675 0.028028028 1.297297
## 28676 0.675675676 0.028028028 1.296296
## 28677 0.676676677 0.028028028 1.295295
## 28678 0.677677678 0.028028028 1.294294
## 28679 0.678678679 0.028028028 1.293293
## 28680 0.679679680 0.028028028 1.292292
## 28681 0.680680681 0.028028028 1.291291
## 28682 0.681681682 0.028028028 1.290290
## 28683 0.682682683 0.028028028 1.289289
## 28684 0.683683684 0.028028028 1.288288
## 28685 0.684684685 0.028028028 1.287287
## 28686 0.685685686 0.028028028 1.286286
## 28687 0.686686687 0.028028028 1.285285
## 28688 0.687687688 0.028028028 1.284284
## 28689 0.688688689 0.028028028 1.283283
## 28690 0.689689690 0.028028028 1.282282
## 28691 0.690690691 0.028028028 1.281281
## 28692 0.691691692 0.028028028 1.280280
## 28693 0.692692693 0.028028028 1.279279
## 28694 0.693693694 0.028028028 1.278278
## 28695 0.694694695 0.028028028 1.277277
## 28696 0.695695696 0.028028028 1.276276
## 28697 0.696696697 0.028028028 1.275275
## 28698 0.697697698 0.028028028 1.274274
## 28699 0.698698699 0.028028028 1.273273
## 28700 0.699699700 0.028028028 1.272272
## 28701 0.700700701 0.028028028 1.271271
## 28702 0.701701702 0.028028028 1.270270
## 28703 0.702702703 0.028028028 1.269269
## 28704 0.703703704 0.028028028 1.268268
## 28705 0.704704705 0.028028028 1.267267
## 28706 0.705705706 0.028028028 1.266266
## 28707 0.706706707 0.028028028 1.265265
## 28708 0.707707708 0.028028028 1.264264
## 28709 0.708708709 0.028028028 1.263263
## 28710 0.709709710 0.028028028 1.262262
```

```
## 28711 0.710710711 0.028028028 1.261261
## 28712 0.711711712 0.028028028 1.260260
## 28713 0.712712713 0.028028028 1.259259
## 28714 0.713713714 0.028028028 1.258258
## 28715 0.714714715 0.028028028 1.257257
## 28716 0.715715716 0.028028028 1.256256
## 28717 0.716716717 0.028028028 1.255255
## 28718 0.717717718 0.028028028 1.254254
## 28719 0.718718719 0.028028028 1.253253
## 28720 0.719719720 0.028028028 1.252252
## 28721 0.720720721 0.028028028 1.251251
## 28722 0.721721722 0.028028028 1.250250
## 28723 0.722722723 0.028028028 1.249249
## 28724 0.723723724 0.028028028 1.248248
## 28725 0.724724725 0.028028028 1.247247
## 28726 0.725725726 0.028028028 1.246246
## 28727 0.726726727 0.028028028 1.245245
## 28728 0.727727728 0.028028028 1.244244
## 28729 0.728728729 0.028028028 1.243243
## 28730 0.729729730 0.028028028 1.242242
## 28731 0.730730731 0.028028028 1.241241
## 28732 0.731731732 0.028028028 1.240240
## 28733 0.732732733 0.028028028 1.239239
## 28734 0.733733734 0.028028028 1.238238
## 28735 0.734734735 0.028028028 1.237237
## 28736 0.735735736 0.028028028 1.236236
## 28737 0.736736737 0.028028028 1.235235
## 28738 0.737737738 0.028028028 1.234234
## 28739 0.738738739 0.028028028 1.233233
## 28740 0.739739740 0.028028028 1.232232
## 28741 0.740740741 0.028028028 1.231231
## 28742 0.741741742 0.028028028 1.230230
## 28743 0.742742743 0.028028028 1.229229
## 28744 0.743743744 0.028028028 1.228228
## 28745 0.744744745 0.028028028 1.227227
## 28746 0.745745746 0.028028028 1.226226
## 28747 0.746746747 0.028028028 1.225225
## 28748 0.747747748 0.028028028 1.224224
## 28749 0.748748749 0.028028028 1.223223
## 28750 0.749749750 0.028028028 1.222222
## 28751 0.750750751 0.028028028 1.221221
## 28752 0.751751752 0.028028028 1.220220
## 28753 0.752752753 0.028028028 1.219219
## 28754 0.753753754 0.028028028 1.218218
## 28755 0.754754755 0.028028028 1.217217
## 28756 0.755755756 0.028028028 1.216216
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 737

```
## 28757 0.756756757 0.028028028 1.215215
## 28758 0.757757758 0.028028028 1.214214
## 28759 0.758758759 0.028028028 1.213213
## 28760 0.759759760 0.028028028 1.212212
## 28761 0.760760761 0.028028028 1.211211
## 28762 0.761761762 0.028028028 1.210210
## 28763 0.762762763 0.028028028 1.209209
## 28764 0.763763764 0.028028028 1.208208
## 28765 0.764764765 0.028028028 1.207207
## 28766 0.765765766 0.028028028 1.206206
## 28767 0.766766767 0.028028028 1.205205
## 28768 0.767767768 0.028028028 1.204204
## 28769 0.768768769 0.028028028 1.203203
## 28770 0.769769770 0.028028028 1.202202
## 28771 0.770770771 0.028028028 1.201201
## 28772 0.771771772 0.028028028 1.200200
## 28773 0.772772773 0.028028028 1.199199
## 28774 0.773773774 0.028028028 1.198198
## 28775 0.774774775 0.028028028 1.197197
## 28776 0.775775776 0.028028028 1.196196
## 28777 0.776776777 0.028028028 1.195195
## 28778 0.777777778 0.028028028 1.194194
## 28779 0.778778779 0.028028028 1.193193
## 28780 0.779779780 0.028028028 1.192192
## 28781 0.780780781 0.028028028 1.191191
## 28782 0.781781782 0.028028028 1.190190
## 28783 0.782782783 0.028028028 1.189189
## 28784 0.783783784 0.028028028 1.188188
## 28785 0.784784785 0.028028028 1.187187
## 28786 0.785785786 0.028028028 1.186186
## 28787 0.786786787 0.028028028 1.185185
## 28788 0.787787788 0.028028028 1.184184
## 28789 0.788788789 0.028028028 1.183183
## 28790 0.789789790 0.028028028 1.182182
## 28791 0.790790791 0.028028028 1.181181
## 28792 0.791791792 0.028028028 1.180180
## 28793 0.792792793 0.028028028 1.179179
## 28794 0.793793794 0.028028028 1.178178
## 28795 0.794794795 0.028028028 1.177177
## 28796 0.795795796 0.028028028 1.176176
## 28797 0.796796797 0.028028028 1.175175
## 28798 0.797797798 0.028028028 1.174174
## 28799 0.798798799 0.028028028 1.173173
## 28800 0.799799800 0.028028028 1.172172
## 28801 0.800800801 0.028028028 1.171171
## 28802 0.801801802 0.028028028 1.170170
```

```
## 28803 0.802802803 0.028028028 1.169169
## 28804 0.803803804 0.028028028 1.168168
## 28805 0.804804805 0.028028028 1.167167
## 28806 0.805805806 0.028028028 1.166166
## 28807 0.806806807 0.028028028 1.165165
## 28808 0.807807808 0.028028028 1.164164
## 28809 0.808808809 0.028028028 1.163163
## 28810 0.809809810 0.028028028 1.162162
## 28811 0.810810811 0.028028028 1.161161
## 28812 0.811811812 0.028028028 1.160160
## 28813 0.812812813 0.028028028 1.159159
## 28814 0.813813814 0.028028028 1.158158
## 28815 0.814814815 0.028028028 1.157157
## 28816 0.815815816 0.028028028 1.156156
## 28817 0.816816817 0.028028028 1.155155
## 28818 0.817817818 0.028028028 1.154154
## 28819 0.818818819 0.028028028 1.153153
## 28820 0.819819820 0.028028028 1.152152
## 28821 0.820820821 0.028028028 1.151151
## 28822 0.821821822 0.028028028 1.150150
## 28823 0.822822823 0.028028028 1.149149
## 28824 0.823823824 0.028028028 1.148148
## 28825 0.824824825 0.028028028 1.147147
## 28826 0.825825826 0.028028028 1.146146
## 28827 0.826826827 0.028028028 1.145145
## 28828 0.827827828 0.028028028 1.144144
## 28829 0.828828829 0.028028028 1.143143
## 28830 0.829829830 0.028028028 1.142142
## 28831 0.830830831 0.028028028 1.141141
## 28832 0.831831832 0.028028028 1.140140
## 28833 0.832832833 0.028028028 1.139139
## 28834 0.833833834 0.028028028 1.138138
## 28835 0.834834835 0.028028028 1.137137
## 28836 0.835835836 0.028028028 1.136136
## 28837 0.836836837 0.028028028 1.135135
## 28838 0.837837838 0.028028028 1.134134
## 28839 0.838838839 0.028028028 1.133133
## 28840 0.839839840 0.028028028 1.132132
## 28841 0.840840841 0.028028028 1.131131
## 28842 0.841841842 0.028028028 1.130130
## 28843 0.842842843 0.028028028 1.129129
## 28844 0.843843844 0.028028028 1.128128
## 28845 0.844844845 0.028028028 1.127127
## 28846 0.845845846 0.028028028 1.126126
## 28847 0.846846847 0.028028028 1.125125
## 28848 0.847847848 0.028028028 1.124124
```

```

## 28849 0.848848849 0.028028028 1.123123
## 28850 0.849849850 0.028028028 1.122122
## 28851 0.850850851 0.028028028 1.121121
## 28852 0.851851852 0.028028028 1.120120
## 28853 0.852852853 0.028028028 1.119119
## 28854 0.853853854 0.028028028 1.118118
## 28855 0.854854855 0.028028028 1.117117
## 28856 0.855855856 0.028028028 1.116116
## 28857 0.856856857 0.028028028 1.115115
## 28858 0.857857858 0.028028028 1.114114
## 28859 0.858858859 0.028028028 1.113113
## 28860 0.859859860 0.028028028 1.112112
## 28861 0.860860861 0.028028028 1.111111
## 28862 0.861861862 0.028028028 1.110110
## 28863 0.862862863 0.028028028 1.109109
## 28864 0.863863864 0.028028028 1.108108
## 28865 0.864864865 0.028028028 1.107107
## 28866 0.865865866 0.028028028 1.106106
## 28867 0.866866867 0.028028028 1.105105
## 28868 0.867867868 0.028028028 1.104104
## 28869 0.868868869 0.028028028 1.103103
## 28870 0.869869870 0.028028028 1.102102
## 28871 0.870870871 0.028028028 1.101101
## 28872 0.871871872 0.028028028 1.100100
## 28873 0.872872873 0.028028028 1.099099
## 28874 0.873873874 0.028028028 1.098098
## 28875 0.874874875 0.028028028 1.097097
## 28876 0.875875876 0.028028028 1.096096
## 28877 0.876876877 0.028028028 1.095095
## 28878 0.877877878 0.028028028 1.094094
## 28879 0.878878879 0.028028028 1.093093
## 28880 0.879879880 0.028028028 1.092092
## 28881 0.880880881 0.028028028 1.091091
## 28882 0.881881882 0.028028028 1.090090
## 28883 0.882882883 0.028028028 1.089089
## 28884 0.883883884 0.028028028 1.088088
## 28885 0.884884885 0.028028028 1.087087
## 28886 0.885885886 0.028028028 1.086086
## 28887 0.886886887 0.028028028 1.085085
## 28888 0.887887888 0.028028028 1.084084
## 28889 0.888888889 0.028028028 1.083083
## 28890 0.889889890 0.028028028 1.082082
## 28891 0.890890891 0.028028028 1.081081
## 28892 0.891891892 0.028028028 1.080080
## 28893 0.892892893 0.028028028 1.079079
## 28894 0.893893894 0.028028028 1.078078

```

```
## 28895 0.894894895 0.028028028 1.077077
## 28896 0.895895896 0.028028028 1.076076
## 28897 0.896896897 0.028028028 1.075075
## 28898 0.897897898 0.028028028 1.074074
## 28899 0.898898899 0.028028028 1.073073
## 28900 0.899899900 0.028028028 1.072072
## 28901 0.900900901 0.028028028 1.071071
## 28902 0.901901902 0.028028028 1.070070
## 28903 0.902902903 0.028028028 1.069069
## 28904 0.903903904 0.028028028 1.068068
## 28905 0.904904905 0.028028028 1.067067
## 28906 0.905905906 0.028028028 1.066066
## 28907 0.906906907 0.028028028 1.065065
## 28908 0.907907908 0.028028028 1.064064
## 28909 0.908908909 0.028028028 1.063063
## 28910 0.909909910 0.028028028 1.062062
## 28911 0.910910911 0.028028028 1.061061
## 28912 0.911911912 0.028028028 1.060060
## 28913 0.912912913 0.028028028 1.059059
## 28914 0.913913914 0.028028028 1.058058
## 28915 0.914914915 0.028028028 1.057057
## 28916 0.915915916 0.028028028 1.056056
## 28917 0.916916917 0.028028028 1.055055
## 28918 0.917917918 0.028028028 1.054054
## 28919 0.918918919 0.028028028 1.053053
## 28920 0.919919920 0.028028028 1.052052
## 28921 0.920920921 0.028028028 1.051051
## 28922 0.921921922 0.028028028 1.050050
## 28923 0.922922923 0.028028028 1.049049
## 28924 0.923923924 0.028028028 1.048048
## 28925 0.924924925 0.028028028 1.047047
## 28926 0.925925926 0.028028028 1.046046
## 28927 0.926926927 0.028028028 1.045045
## 28928 0.927927928 0.028028028 1.044044
## 28929 0.928928929 0.028028028 1.043043
## 28930 0.929929930 0.028028028 1.042042
## 28931 0.930930931 0.028028028 1.041041
## 28932 0.931931932 0.028028028 1.040040
## 28933 0.932932933 0.028028028 1.039039
## 28934 0.933933934 0.028028028 1.038038
## 28935 0.934934935 0.028028028 1.037037
## 28936 0.935935936 0.028028028 1.036036
## 28937 0.936936937 0.028028028 1.035035
## 28938 0.937937938 0.028028028 1.034034
## 28939 0.938938939 0.028028028 1.033033
## 28940 0.939939940 0.028028028 1.032032
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 741

```
## 28941 0.940940941 0.028028028 1.031031
## 28942 0.941941942 0.028028028 1.030030
## 28943 0.942942943 0.028028028 1.029029
## 28944 0.943943944 0.028028028 1.028028
## 28945 0.944944945 0.028028028 1.027027
## 28946 0.945945946 0.028028028 1.026026
## 28947 0.946946947 0.028028028 1.025025
## 28948 0.947947948 0.028028028 1.024024
## 28949 0.948948949 0.028028028 1.023023
## 28950 0.949949950 0.028028028 1.022022
## 28951 0.950950951 0.028028028 1.021021
## 28952 0.951951952 0.028028028 1.020020
## 28953 0.952952953 0.028028028 1.019019
## 28954 0.953953954 0.028028028 1.018018
## 28955 0.954954955 0.028028028 1.017017
## 28956 0.955955956 0.028028028 1.016016
## 28957 0.956956957 0.028028028 1.015015
## 28958 0.957957958 0.028028028 1.014014
## 28959 0.958958959 0.028028028 1.013013
## 28960 0.959959960 0.028028028 1.012012
## 28961 0.960960961 0.028028028 1.011011
## 28962 0.961961962 0.028028028 1.010010
## 28963 0.962962963 0.028028028 1.009009
## 28964 0.963963964 0.028028028 1.008008
## 28965 0.964964965 0.028028028 1.007007
## 28966 0.965965966 0.028028028 1.006006
## 28967 0.966966967 0.028028028 1.005005
## 28968 0.967967968 0.028028028 1.004004
## 28969 0.968968969 0.028028028 1.003003
## 28970 0.969969970 0.028028028 1.002002
## 28971 0.970970971 0.028028028 1.001001
## 28972 0.971971972 0.028028028 1.000000
## 28973 0.972972973 0.028028028 0.998999
## 28974 0.973973974 0.028028028 0.997998
## 28975 0.974974975 0.028028028 0.996997
## 28976 0.975975976 0.028028028 0.995996
## 28977 0.976976977 0.028028028 0.994995
## 28978 0.977977978 0.028028028 0.993994
## 28979 0.978978979 0.028028028 0.992993
## 28980 0.979979980 0.028028028 0.991992
## 28981 0.980980981 0.028028028 0.990991
## 28982 0.981981982 0.028028028 0.989990
## 28983 0.982982983 0.028028028 0.988989
## 28984 0.983983984 0.028028028 0.987988
## 28985 0.984984985 0.028028028 0.986987
## 28986 0.985985986 0.028028028 0.985986
```

```
## 28987 0.986986987 0.028028028 0.984985
## 28988 0.987987988 0.028028028 0.983984
## 28989 0.988988989 0.028028028 0.982983
## 28990 0.989989990 0.028028028 0.981982
## 28991 0.990990991 0.028028028 0.980981
## 28992 0.991991992 0.028028028 0.979980
## 28993 0.992992993 0.028028028 0.978979
## 28994 0.993993994 0.028028028 0.977978
## 28995 0.994994995 0.028028028 0.976977
## 28996 0.995995996 0.028028028 0.975976
## 28997 0.996996997 0.028028028 0.974975
## 28998 0.997997998 0.028028028 0.973974
## 28999 0.998998999 0.028028028 0.972973
## 29000 1.000000000 0.028028028 0.971972
## 29001 0.000000000 0.029029029 1.970971
## 29002 0.001001001 0.029029029 1.969970
## 29003 0.002002002 0.029029029 1.968969
## 29004 0.003003003 0.029029029 1.967968
## 29005 0.004004004 0.029029029 1.966967
## 29006 0.005005005 0.029029029 1.965966
## 29007 0.006006006 0.029029029 1.964965
## 29008 0.007007007 0.029029029 1.963964
## 29009 0.008008008 0.029029029 1.962963
## 29010 0.009009009 0.029029029 1.961962
## 29011 0.010010010 0.029029029 1.960961
## 29012 0.011011011 0.029029029 1.959960
## 29013 0.012012012 0.029029029 1.958959
## 29014 0.013013013 0.029029029 1.957958
## 29015 0.014014014 0.029029029 1.956957
## 29016 0.015015015 0.029029029 1.955956
## 29017 0.016016016 0.029029029 1.954955
## 29018 0.017017017 0.029029029 1.953954
## 29019 0.018018018 0.029029029 1.952953
## 29020 0.019019019 0.029029029 1.951952
## 29021 0.020020020 0.029029029 1.950951
## 29022 0.021021021 0.029029029 1.949950
## 29023 0.022022022 0.029029029 1.948949
## 29024 0.023023023 0.029029029 1.947948
## 29025 0.024024024 0.029029029 1.946947
## 29026 0.025025025 0.029029029 1.945946
## 29027 0.026026026 0.029029029 1.944945
## 29028 0.027027027 0.029029029 1.943944
## 29029 0.028028028 0.029029029 1.942943
## 29030 0.029029029 0.029029029 1.941942
## 29031 0.030030030 0.029029029 1.940941
## 29032 0.031031031 0.029029029 1.939940
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 743

```
## 29033 0.032032032 0.029029029 1.938939
## 29034 0.033033033 0.029029029 1.937938
## 29035 0.034034034 0.029029029 1.936937
## 29036 0.035035035 0.029029029 1.935936
## 29037 0.036036036 0.029029029 1.934935
## 29038 0.037037037 0.029029029 1.933934
## 29039 0.038038038 0.029029029 1.932933
## 29040 0.039039039 0.029029029 1.931932
## 29041 0.040040040 0.029029029 1.930931
## 29042 0.041041041 0.029029029 1.929930
## 29043 0.042042042 0.029029029 1.928929
## 29044 0.043043043 0.029029029 1.927928
## 29045 0.044044044 0.029029029 1.926927
## 29046 0.045045045 0.029029029 1.925926
## 29047 0.046046046 0.029029029 1.924925
## 29048 0.047047047 0.029029029 1.923924
## 29049 0.048048048 0.029029029 1.922923
## 29050 0.049049049 0.029029029 1.921922
## 29051 0.050050050 0.029029029 1.920921
## 29052 0.051051051 0.029029029 1.919920
## 29053 0.052052052 0.029029029 1.918919
## 29054 0.053053053 0.029029029 1.917918
## 29055 0.054054054 0.029029029 1.916917
## 29056 0.055055055 0.029029029 1.915916
## 29057 0.056056056 0.029029029 1.914915
## 29058 0.057057057 0.029029029 1.913914
## 29059 0.058058058 0.029029029 1.912913
## 29060 0.059059059 0.029029029 1.911912
## 29061 0.060060060 0.029029029 1.910911
## 29062 0.061061061 0.029029029 1.909910
## 29063 0.062062062 0.029029029 1.908909
## 29064 0.063063063 0.029029029 1.907908
## 29065 0.064064064 0.029029029 1.906907
## 29066 0.065065065 0.029029029 1.905906
## 29067 0.066066066 0.029029029 1.904905
## 29068 0.067067067 0.029029029 1.903904
## 29069 0.068068068 0.029029029 1.902903
## 29070 0.069069069 0.029029029 1.901902
## 29071 0.070070070 0.029029029 1.900901
## 29072 0.071071071 0.029029029 1.899900
## 29073 0.072072072 0.029029029 1.898899
## 29074 0.073073073 0.029029029 1.897898
## 29075 0.074074074 0.029029029 1.896897
## 29076 0.075075075 0.029029029 1.895896
## 29077 0.076076076 0.029029029 1.894895
## 29078 0.077077077 0.029029029 1.893894
```

```
## 29079 0.078078078 0.029029029 1.892893
## 29080 0.079079079 0.029029029 1.891892
## 29081 0.080080080 0.029029029 1.890891
## 29082 0.081081081 0.029029029 1.889890
## 29083 0.082082082 0.029029029 1.888889
## 29084 0.083083083 0.029029029 1.887888
## 29085 0.084084084 0.029029029 1.886887
## 29086 0.085085085 0.029029029 1.885886
## 29087 0.086086086 0.029029029 1.884885
## 29088 0.087087087 0.029029029 1.883884
## 29089 0.088088088 0.029029029 1.882883
## 29090 0.089089089 0.029029029 1.881882
## 29091 0.090090090 0.029029029 1.880881
## 29092 0.091091091 0.029029029 1.879880
## 29093 0.092092092 0.029029029 1.878879
## 29094 0.093093093 0.029029029 1.877878
## 29095 0.094094094 0.029029029 1.876877
## 29096 0.095095095 0.029029029 1.875876
## 29097 0.096096096 0.029029029 1.874875
## 29098 0.097097097 0.029029029 1.873874
## 29099 0.098098098 0.029029029 1.872873
## 29100 0.099099099 0.029029029 1.871872
## 29101 0.100100100 0.029029029 1.870871
## 29102 0.101101101 0.029029029 1.869870
## 29103 0.102102102 0.029029029 1.868869
## 29104 0.103103103 0.029029029 1.867868
## 29105 0.104104104 0.029029029 1.866867
## 29106 0.105105105 0.029029029 1.865866
## 29107 0.106106106 0.029029029 1.864865
## 29108 0.107107107 0.029029029 1.863864
## 29109 0.108108108 0.029029029 1.862863
## 29110 0.109109109 0.029029029 1.861862
## 29111 0.110110110 0.029029029 1.860861
## 29112 0.111111111 0.029029029 1.859860
## 29113 0.112112112 0.029029029 1.858859
## 29114 0.113113113 0.029029029 1.857858
## 29115 0.114114114 0.029029029 1.856857
## 29116 0.115115115 0.029029029 1.855856
## 29117 0.116116116 0.029029029 1.854855
## 29118 0.117117117 0.029029029 1.853854
## 29119 0.118118118 0.029029029 1.852853
## 29120 0.119119119 0.029029029 1.851852
## 29121 0.120120120 0.029029029 1.850851
## 29122 0.121121121 0.029029029 1.849850
## 29123 0.122122122 0.029029029 1.848849
## 29124 0.123123123 0.029029029 1.847848
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 745

```
## 29125 0.124124124 0.029029029 1.846847
## 29126 0.125125125 0.029029029 1.845846
## 29127 0.126126126 0.029029029 1.844845
## 29128 0.127127127 0.029029029 1.843844
## 29129 0.128128128 0.029029029 1.842843
## 29130 0.129129129 0.029029029 1.841842
## 29131 0.130130130 0.029029029 1.840841
## 29132 0.131131131 0.029029029 1.839840
## 29133 0.132132132 0.029029029 1.838839
## 29134 0.133133133 0.029029029 1.837838
## 29135 0.134134134 0.029029029 1.836837
## 29136 0.135135135 0.029029029 1.835836
## 29137 0.136136136 0.029029029 1.834835
## 29138 0.137137137 0.029029029 1.833834
## 29139 0.138138138 0.029029029 1.832833
## 29140 0.139139139 0.029029029 1.831832
## 29141 0.140140140 0.029029029 1.830831
## 29142 0.141141141 0.029029029 1.829830
## 29143 0.142142142 0.029029029 1.828829
## 29144 0.143143143 0.029029029 1.827828
## 29145 0.144144144 0.029029029 1.826827
## 29146 0.145145145 0.029029029 1.825826
## 29147 0.146146146 0.029029029 1.824825
## 29148 0.147147147 0.029029029 1.823824
## 29149 0.148148148 0.029029029 1.822823
## 29150 0.149149149 0.029029029 1.821822
## 29151 0.150150150 0.029029029 1.820821
## 29152 0.151151151 0.029029029 1.819820
## 29153 0.152152152 0.029029029 1.818819
## 29154 0.153153153 0.029029029 1.817818
## 29155 0.154154154 0.029029029 1.816817
## 29156 0.155155155 0.029029029 1.815816
## 29157 0.156156156 0.029029029 1.814815
## 29158 0.157157157 0.029029029 1.813814
## 29159 0.158158158 0.029029029 1.812813
## 29160 0.159159159 0.029029029 1.811812
## 29161 0.160160160 0.029029029 1.810811
## 29162 0.161161161 0.029029029 1.809810
## 29163 0.162162162 0.029029029 1.808809
## 29164 0.163163163 0.029029029 1.807808
## 29165 0.164164164 0.029029029 1.806807
## 29166 0.165165165 0.029029029 1.805806
## 29167 0.166166166 0.029029029 1.804805
## 29168 0.167167167 0.029029029 1.803804
## 29169 0.168168168 0.029029029 1.802803
## 29170 0.169169169 0.029029029 1.801802
```

```
## 29171 0.170170170 0.029029029 1.800801
## 29172 0.171171171 0.029029029 1.799800
## 29173 0.172172172 0.029029029 1.798799
## 29174 0.173173173 0.029029029 1.797798
## 29175 0.174174174 0.029029029 1.796797
## 29176 0.175175175 0.029029029 1.795796
## 29177 0.176176176 0.029029029 1.794795
## 29178 0.177177177 0.029029029 1.793794
## 29179 0.178178178 0.029029029 1.792793
## 29180 0.179179179 0.029029029 1.791792
## 29181 0.180180180 0.029029029 1.790791
## 29182 0.181181181 0.029029029 1.789790
## 29183 0.182182182 0.029029029 1.788789
## 29184 0.183183183 0.029029029 1.787788
## 29185 0.184184184 0.029029029 1.786787
## 29186 0.185185185 0.029029029 1.785786
## 29187 0.186186186 0.029029029 1.784785
## 29188 0.187187187 0.029029029 1.783784
## 29189 0.188188188 0.029029029 1.782783
## 29190 0.189189189 0.029029029 1.781782
## 29191 0.190190190 0.029029029 1.780781
## 29192 0.191191191 0.029029029 1.779780
## 29193 0.192192192 0.029029029 1.778779
## 29194 0.193193193 0.029029029 1.777778
## 29195 0.194194194 0.029029029 1.776777
## 29196 0.195195195 0.029029029 1.775776
## 29197 0.196196196 0.029029029 1.774775
## 29198 0.197197197 0.029029029 1.773774
## 29199 0.198198198 0.029029029 1.772773
## 29200 0.199199199 0.029029029 1.771772
## 29201 0.200200200 0.029029029 1.770771
## 29202 0.201201201 0.029029029 1.769770
## 29203 0.202202202 0.029029029 1.768769
## 29204 0.203203203 0.029029029 1.767768
## 29205 0.204204204 0.029029029 1.766767
## 29206 0.205205205 0.029029029 1.765766
## 29207 0.206206206 0.029029029 1.764765
## 29208 0.207207207 0.029029029 1.763764
## 29209 0.208208208 0.029029029 1.762763
## 29210 0.209209209 0.029029029 1.761762
## 29211 0.210210210 0.029029029 1.760761
## 29212 0.211211211 0.029029029 1.759760
## 29213 0.212212212 0.029029029 1.758759
## 29214 0.213213213 0.029029029 1.757758
## 29215 0.214214214 0.029029029 1.756757
## 29216 0.215215215 0.029029029 1.755756
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 747

```
## 29217 0.216216216 0.029029029 1.754755
## 29218 0.217217217 0.029029029 1.753754
## 29219 0.218218218 0.029029029 1.752753
## 29220 0.219219219 0.029029029 1.751752
## 29221 0.220220220 0.029029029 1.750751
## 29222 0.221221221 0.029029029 1.749750
## 29223 0.222222222 0.029029029 1.748749
## 29224 0.223223223 0.029029029 1.747748
## 29225 0.224224224 0.029029029 1.746747
## 29226 0.225225225 0.029029029 1.745746
## 29227 0.226226226 0.029029029 1.744745
## 29228 0.227227227 0.029029029 1.743744
## 29229 0.228228228 0.029029029 1.742743
## 29230 0.229229229 0.029029029 1.741742
## 29231 0.230230230 0.029029029 1.740741
## 29232 0.231231231 0.029029029 1.739740
## 29233 0.232232232 0.029029029 1.738739
## 29234 0.233233233 0.029029029 1.737738
## 29235 0.234234234 0.029029029 1.736737
## 29236 0.235235235 0.029029029 1.735736
## 29237 0.236236236 0.029029029 1.734735
## 29238 0.237237237 0.029029029 1.733734
## 29239 0.238238238 0.029029029 1.732733
## 29240 0.239239239 0.029029029 1.731732
## 29241 0.240240240 0.029029029 1.730731
## 29242 0.241241241 0.029029029 1.729730
## 29243 0.242242242 0.029029029 1.728729
## 29244 0.243243243 0.029029029 1.727728
## 29245 0.244244244 0.029029029 1.726727
## 29246 0.245245245 0.029029029 1.725726
## 29247 0.246246246 0.029029029 1.724725
## 29248 0.247247247 0.029029029 1.723724
## 29249 0.248248248 0.029029029 1.722723
## 29250 0.249249249 0.029029029 1.721722
## 29251 0.250250250 0.029029029 1.720721
## 29252 0.251251251 0.029029029 1.719720
## 29253 0.252252252 0.029029029 1.718719
## 29254 0.253253253 0.029029029 1.717718
## 29255 0.254254254 0.029029029 1.716717
## 29256 0.255255255 0.029029029 1.715716
## 29257 0.256256256 0.029029029 1.714715
## 29258 0.257257257 0.029029029 1.713714
## 29259 0.258258258 0.029029029 1.712713
## 29260 0.259259259 0.029029029 1.711712
## 29261 0.260260260 0.029029029 1.710711
## 29262 0.261261261 0.029029029 1.709710
```

```
## 29263 0.262262262 0.029029029 1.708709
## 29264 0.263263263 0.029029029 1.707708
## 29265 0.264264264 0.029029029 1.706707
## 29266 0.265265265 0.029029029 1.705706
## 29267 0.266266266 0.029029029 1.704705
## 29268 0.267267267 0.029029029 1.703704
## 29269 0.268268268 0.029029029 1.702703
## 29270 0.269269269 0.029029029 1.701702
## 29271 0.270270270 0.029029029 1.700701
## 29272 0.271271271 0.029029029 1.699700
## 29273 0.272272272 0.029029029 1.698699
## 29274 0.273273273 0.029029029 1.697698
## 29275 0.274274274 0.029029029 1.696697
## 29276 0.275275275 0.029029029 1.695696
## 29277 0.276276276 0.029029029 1.694695
## 29278 0.277277277 0.029029029 1.693694
## 29279 0.278278278 0.029029029 1.692693
## 29280 0.279279279 0.029029029 1.691692
## 29281 0.280280280 0.029029029 1.690691
## 29282 0.281281281 0.029029029 1.689690
## 29283 0.282282282 0.029029029 1.688689
## 29284 0.283283283 0.029029029 1.687688
## 29285 0.284284284 0.029029029 1.686687
## 29286 0.285285285 0.029029029 1.685686
## 29287 0.286286286 0.029029029 1.684685
## 29288 0.287287287 0.029029029 1.683684
## 29289 0.288288288 0.029029029 1.682683
## 29290 0.289289289 0.029029029 1.681682
## 29291 0.290290290 0.029029029 1.680681
## 29292 0.291291291 0.029029029 1.679680
## 29293 0.292292292 0.029029029 1.678679
## 29294 0.293293293 0.029029029 1.677678
## 29295 0.294294294 0.029029029 1.676677
## 29296 0.295295295 0.029029029 1.675676
## 29297 0.296296296 0.029029029 1.674675
## 29298 0.297297297 0.029029029 1.673674
## 29299 0.298298298 0.029029029 1.672673
## 29300 0.299299299 0.029029029 1.671672
## 29301 0.300300300 0.029029029 1.670671
## 29302 0.301301301 0.029029029 1.669670
## 29303 0.302302302 0.029029029 1.668669
## 29304 0.303303303 0.029029029 1.667668
## 29305 0.304304304 0.029029029 1.666667
## 29306 0.305305305 0.029029029 1.665666
## 29307 0.306306306 0.029029029 1.664665
## 29308 0.307307307 0.029029029 1.663664
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 749

```
## 29309 0.308308308 0.029029029 1.662663
## 29310 0.309309309 0.029029029 1.661662
## 29311 0.310310310 0.029029029 1.660661
## 29312 0.311311311 0.029029029 1.659660
## 29313 0.312312312 0.029029029 1.658659
## 29314 0.313313313 0.029029029 1.657658
## 29315 0.314314314 0.029029029 1.656657
## 29316 0.315315315 0.029029029 1.655656
## 29317 0.316316316 0.029029029 1.654655
## 29318 0.317317317 0.029029029 1.653654
## 29319 0.318318318 0.029029029 1.652653
## 29320 0.319319319 0.029029029 1.651652
## 29321 0.320320320 0.029029029 1.650651
## 29322 0.321321321 0.029029029 1.649650
## 29323 0.322322322 0.029029029 1.648649
## 29324 0.323323323 0.029029029 1.647648
## 29325 0.324324324 0.029029029 1.646647
## 29326 0.325325325 0.029029029 1.645646
## 29327 0.326326326 0.029029029 1.644645
## 29328 0.327327327 0.029029029 1.643644
## 29329 0.328328328 0.029029029 1.642643
## 29330 0.329329329 0.029029029 1.641642
## 29331 0.330330330 0.029029029 1.640641
## 29332 0.331331331 0.029029029 1.639640
## 29333 0.332332332 0.029029029 1.638639
## 29334 0.333333333 0.029029029 1.637638
## 29335 0.334334334 0.029029029 1.636637
## 29336 0.335335335 0.029029029 1.635636
## 29337 0.336336336 0.029029029 1.634635
## 29338 0.337337337 0.029029029 1.633634
## 29339 0.338338338 0.029029029 1.632633
## 29340 0.339339339 0.029029029 1.631632
## 29341 0.340340340 0.029029029 1.630631
## 29342 0.341341341 0.029029029 1.629630
## 29343 0.342342342 0.029029029 1.628629
## 29344 0.343343343 0.029029029 1.627628
## 29345 0.344344344 0.029029029 1.626627
## 29346 0.345345345 0.029029029 1.625626
## 29347 0.346346346 0.029029029 1.624625
## 29348 0.347347347 0.029029029 1.623624
## 29349 0.348348348 0.029029029 1.622623
## 29350 0.349349349 0.029029029 1.621622
## 29351 0.350350350 0.029029029 1.620621
## 29352 0.351351351 0.029029029 1.619620
## 29353 0.352352352 0.029029029 1.618619
## 29354 0.353353353 0.029029029 1.617618
```

```
## 29355 0.354354354 0.029029029 1.616617
## 29356 0.355355355 0.029029029 1.615616
## 29357 0.356356356 0.029029029 1.614615
## 29358 0.357357357 0.029029029 1.613614
## 29359 0.358358358 0.029029029 1.612613
## 29360 0.359359359 0.029029029 1.611612
## 29361 0.360360360 0.029029029 1.610611
## 29362 0.361361361 0.029029029 1.609610
## 29363 0.362362362 0.029029029 1.608609
## 29364 0.363363363 0.029029029 1.607608
## 29365 0.364364364 0.029029029 1.606607
## 29366 0.365365365 0.029029029 1.605606
## 29367 0.366366366 0.029029029 1.604605
## 29368 0.367367367 0.029029029 1.603604
## 29369 0.368368368 0.029029029 1.602603
## 29370 0.369369369 0.029029029 1.601602
## 29371 0.370370370 0.029029029 1.600601
## 29372 0.371371371 0.029029029 1.599600
## 29373 0.372372372 0.029029029 1.598599
## 29374 0.373373373 0.029029029 1.597598
## 29375 0.374374374 0.029029029 1.596597
## 29376 0.375375375 0.029029029 1.595596
## 29377 0.376376376 0.029029029 1.594595
## 29378 0.377377377 0.029029029 1.593594
## 29379 0.378378378 0.029029029 1.592593
## 29380 0.379379379 0.029029029 1.591592
## 29381 0.380380380 0.029029029 1.590591
## 29382 0.381381381 0.029029029 1.589590
## 29383 0.382382382 0.029029029 1.588589
## 29384 0.383383383 0.029029029 1.587588
## 29385 0.384384384 0.029029029 1.586587
## 29386 0.385385385 0.029029029 1.585586
## 29387 0.386386386 0.029029029 1.584585
## 29388 0.387387387 0.029029029 1.583584
## 29389 0.388388388 0.029029029 1.582583
## 29390 0.389389389 0.029029029 1.581582
## 29391 0.390390390 0.029029029 1.580581
## 29392 0.391391391 0.029029029 1.579580
## 29393 0.392392392 0.029029029 1.578579
## 29394 0.393393393 0.029029029 1.577578
## 29395 0.394394394 0.029029029 1.576577
## 29396 0.395395395 0.029029029 1.575576
## 29397 0.396396396 0.029029029 1.574575
## 29398 0.397397397 0.029029029 1.573574
## 29399 0.398398398 0.029029029 1.572573
## 29400 0.399399399 0.029029029 1.571572
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 751

```

## 29401 0.400400400 0.029029029 1.570571
## 29402 0.401401401 0.029029029 1.569570
## 29403 0.402402402 0.029029029 1.568569
## 29404 0.403403403 0.029029029 1.567568
## 29405 0.404404404 0.029029029 1.566567
## 29406 0.405405405 0.029029029 1.565566
## 29407 0.406406406 0.029029029 1.564565
## 29408 0.407407407 0.029029029 1.563564
## 29409 0.408408408 0.029029029 1.562563
## 29410 0.409409409 0.029029029 1.561562
## 29411 0.410410410 0.029029029 1.560561
## 29412 0.411411411 0.029029029 1.559560
## 29413 0.412412412 0.029029029 1.558559
## 29414 0.413413413 0.029029029 1.557558
## 29415 0.414414414 0.029029029 1.556557
## 29416 0.415415415 0.029029029 1.555556
## 29417 0.416416416 0.029029029 1.554555
## 29418 0.417417417 0.029029029 1.553554
## 29419 0.418418418 0.029029029 1.552553
## 29420 0.419419419 0.029029029 1.551552
## 29421 0.420420420 0.029029029 1.550551
## 29422 0.421421421 0.029029029 1.549550
## 29423 0.422422422 0.029029029 1.548549
## 29424 0.423423423 0.029029029 1.547548
## 29425 0.424424424 0.029029029 1.546547
## 29426 0.425425425 0.029029029 1.545546
## 29427 0.426426426 0.029029029 1.544545
## 29428 0.427427427 0.029029029 1.543544
## 29429 0.428428428 0.029029029 1.542543
## 29430 0.429429429 0.029029029 1.541542
## 29431 0.430430430 0.029029029 1.540541
## 29432 0.431431431 0.029029029 1.539540
## 29433 0.432432432 0.029029029 1.538539
## 29434 0.433433433 0.029029029 1.537538
## 29435 0.434434434 0.029029029 1.536537
## 29436 0.435435435 0.029029029 1.535536
## 29437 0.436436436 0.029029029 1.534535
## 29438 0.437437437 0.029029029 1.533534
## 29439 0.438438438 0.029029029 1.532533
## 29440 0.439439439 0.029029029 1.531532
## 29441 0.440440440 0.029029029 1.530531
## 29442 0.441441441 0.029029029 1.529530
## 29443 0.442442442 0.029029029 1.528529
## 29444 0.443443443 0.029029029 1.527528
## 29445 0.444444444 0.029029029 1.526527
## 29446 0.445445445 0.029029029 1.525526

```

```
## 29447 0.446446446 0.029029029 1.524525
## 29448 0.447447447 0.029029029 1.523524
## 29449 0.448448448 0.029029029 1.522523
## 29450 0.449449449 0.029029029 1.521522
## 29451 0.450450450 0.029029029 1.520521
## 29452 0.451451451 0.029029029 1.519520
## 29453 0.452452452 0.029029029 1.518519
## 29454 0.453453453 0.029029029 1.517518
## 29455 0.454454454 0.029029029 1.516517
## 29456 0.455455455 0.029029029 1.515516
## 29457 0.456456456 0.029029029 1.514515
## 29458 0.457457457 0.029029029 1.513514
## 29459 0.458458458 0.029029029 1.512513
## 29460 0.459459459 0.029029029 1.511512
## 29461 0.460460460 0.029029029 1.510511
## 29462 0.461461461 0.029029029 1.509510
## 29463 0.462462462 0.029029029 1.508509
## 29464 0.463463463 0.029029029 1.507508
## 29465 0.464464464 0.029029029 1.506507
## 29466 0.465465465 0.029029029 1.505506
## 29467 0.466466466 0.029029029 1.504505
## 29468 0.467467467 0.029029029 1.503504
## 29469 0.468468468 0.029029029 1.502503
## 29470 0.469469469 0.029029029 1.501502
## 29471 0.470470470 0.029029029 1.500501
## 29472 0.471471471 0.029029029 1.499499
## 29473 0.472472472 0.029029029 1.498498
## 29474 0.473473473 0.029029029 1.497497
## 29475 0.474474474 0.029029029 1.496496
## 29476 0.475475475 0.029029029 1.495495
## 29477 0.476476476 0.029029029 1.494494
## 29478 0.477477477 0.029029029 1.493493
## 29479 0.478478478 0.029029029 1.492492
## 29480 0.479479479 0.029029029 1.491491
## 29481 0.480480480 0.029029029 1.490490
## 29482 0.481481481 0.029029029 1.489489
## 29483 0.482482482 0.029029029 1.488488
## 29484 0.483483483 0.029029029 1.487487
## 29485 0.484484484 0.029029029 1.486486
## 29486 0.485485485 0.029029029 1.485485
## 29487 0.486486486 0.029029029 1.484484
## 29488 0.487487487 0.029029029 1.483483
## 29489 0.488488488 0.029029029 1.482482
## 29490 0.489489489 0.029029029 1.481481
## 29491 0.490490490 0.029029029 1.480480
## 29492 0.491491491 0.029029029 1.479479
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 753

```
## 29493 0.492492492 0.029029029 1.478478
## 29494 0.493493493 0.029029029 1.477477
## 29495 0.494494494 0.029029029 1.476476
## 29496 0.495495495 0.029029029 1.475475
## 29497 0.496496496 0.029029029 1.474474
## 29498 0.497497497 0.029029029 1.473473
## 29499 0.498498498 0.029029029 1.472472
## 29500 0.499499499 0.029029029 1.471471
## 29501 0.500500501 0.029029029 1.470470
## 29502 0.501501502 0.029029029 1.469469
## 29503 0.502502503 0.029029029 1.468468
## 29504 0.503503504 0.029029029 1.467467
## 29505 0.504504505 0.029029029 1.466466
## 29506 0.505505506 0.029029029 1.465465
## 29507 0.506506507 0.029029029 1.464464
## 29508 0.507507508 0.029029029 1.463463
## 29509 0.508508509 0.029029029 1.462462
## 29510 0.509509510 0.029029029 1.461461
## 29511 0.510510511 0.029029029 1.460460
## 29512 0.511511512 0.029029029 1.459459
## 29513 0.512512513 0.029029029 1.458458
## 29514 0.513513514 0.029029029 1.457457
## 29515 0.514514515 0.029029029 1.456456
## 29516 0.515515516 0.029029029 1.455455
## 29517 0.516516517 0.029029029 1.454454
## 29518 0.517517518 0.029029029 1.453453
## 29519 0.518518519 0.029029029 1.452452
## 29520 0.519519520 0.029029029 1.451451
## 29521 0.520520521 0.029029029 1.450450
## 29522 0.521521522 0.029029029 1.449449
## 29523 0.522522523 0.029029029 1.448448
## 29524 0.523523524 0.029029029 1.447447
## 29525 0.524524525 0.029029029 1.446446
## 29526 0.525525526 0.029029029 1.445445
## 29527 0.526526527 0.029029029 1.444444
## 29528 0.527527528 0.029029029 1.443443
## 29529 0.528528529 0.029029029 1.442442
## 29530 0.529529530 0.029029029 1.441441
## 29531 0.530530531 0.029029029 1.440440
## 29532 0.531531532 0.029029029 1.439439
## 29533 0.532532533 0.029029029 1.438438
## 29534 0.533533534 0.029029029 1.437437
## 29535 0.534534535 0.029029029 1.436436
## 29536 0.535535536 0.029029029 1.435435
## 29537 0.536536537 0.029029029 1.434434
## 29538 0.537537538 0.029029029 1.433433
```

```
## 29539 0.538538539 0.029029029 1.432432
## 29540 0.539539540 0.029029029 1.431431
## 29541 0.540540541 0.029029029 1.430430
## 29542 0.541541542 0.029029029 1.429429
## 29543 0.542542543 0.029029029 1.428428
## 29544 0.543543544 0.029029029 1.427427
## 29545 0.544544545 0.029029029 1.426426
## 29546 0.545545546 0.029029029 1.425425
## 29547 0.546546547 0.029029029 1.424424
## 29548 0.547547548 0.029029029 1.423423
## 29549 0.548548549 0.029029029 1.422422
## 29550 0.549549550 0.029029029 1.421421
## 29551 0.550550551 0.029029029 1.420420
## 29552 0.551551552 0.029029029 1.419419
## 29553 0.552552553 0.029029029 1.418418
## 29554 0.553553554 0.029029029 1.417417
## 29555 0.554554555 0.029029029 1.416416
## 29556 0.555555556 0.029029029 1.415415
## 29557 0.556556557 0.029029029 1.414414
## 29558 0.557557558 0.029029029 1.413413
## 29559 0.558558559 0.029029029 1.412412
## 29560 0.559559560 0.029029029 1.411411
## 29561 0.560560561 0.029029029 1.410410
## 29562 0.561561562 0.029029029 1.409409
## 29563 0.562562563 0.029029029 1.408408
## 29564 0.563563564 0.029029029 1.407407
## 29565 0.564564565 0.029029029 1.406406
## 29566 0.565565566 0.029029029 1.405405
## 29567 0.566566567 0.029029029 1.404404
## 29568 0.567567568 0.029029029 1.403403
## 29569 0.568568569 0.029029029 1.402402
## 29570 0.569569570 0.029029029 1.401401
## 29571 0.570570571 0.029029029 1.400400
## 29572 0.571571572 0.029029029 1.399399
## 29573 0.572572573 0.029029029 1.398398
## 29574 0.573573574 0.029029029 1.397397
## 29575 0.574574575 0.029029029 1.396396
## 29576 0.575575576 0.029029029 1.395395
## 29577 0.576576577 0.029029029 1.394394
## 29578 0.577577578 0.029029029 1.393393
## 29579 0.578578579 0.029029029 1.392392
## 29580 0.579579580 0.029029029 1.391391
## 29581 0.580580581 0.029029029 1.390390
## 29582 0.581581582 0.029029029 1.389389
## 29583 0.582582583 0.029029029 1.388388
## 29584 0.583583584 0.029029029 1.387387
```

```

## 29585 0.584584585 0.029029029 1.386386
## 29586 0.585585586 0.029029029 1.385385
## 29587 0.586586587 0.029029029 1.384384
## 29588 0.587587588 0.029029029 1.383383
## 29589 0.588588589 0.029029029 1.382382
## 29590 0.589589590 0.029029029 1.381381
## 29591 0.590590591 0.029029029 1.380380
## 29592 0.591591592 0.029029029 1.379379
## 29593 0.592592593 0.029029029 1.378378
## 29594 0.593593594 0.029029029 1.377377
## 29595 0.594594595 0.029029029 1.376376
## 29596 0.595595596 0.029029029 1.375375
## 29597 0.596596597 0.029029029 1.374374
## 29598 0.597597598 0.029029029 1.373373
## 29599 0.598598599 0.029029029 1.372372
## 29600 0.599599600 0.029029029 1.371371
## 29601 0.600600601 0.029029029 1.370370
## 29602 0.601601602 0.029029029 1.369369
## 29603 0.602602603 0.029029029 1.368368
## 29604 0.603603604 0.029029029 1.367367
## 29605 0.604604605 0.029029029 1.366366
## 29606 0.605605606 0.029029029 1.365365
## 29607 0.606606607 0.029029029 1.364364
## 29608 0.607607608 0.029029029 1.363363
## 29609 0.608608609 0.029029029 1.362362
## 29610 0.609609610 0.029029029 1.361361
## 29611 0.610610611 0.029029029 1.360360
## 29612 0.611611612 0.029029029 1.359359
## 29613 0.612612613 0.029029029 1.358358
## 29614 0.613613614 0.029029029 1.357357
## 29615 0.614614615 0.029029029 1.356356
## 29616 0.615615616 0.029029029 1.355355
## 29617 0.616616617 0.029029029 1.354354
## 29618 0.617617618 0.029029029 1.353353
## 29619 0.618618619 0.029029029 1.352352
## 29620 0.619619620 0.029029029 1.351351
## 29621 0.620620621 0.029029029 1.350350
## 29622 0.621621622 0.029029029 1.349349
## 29623 0.622622623 0.029029029 1.348348
## 29624 0.623623624 0.029029029 1.347347
## 29625 0.624624625 0.029029029 1.346346
## 29626 0.625625626 0.029029029 1.345345
## 29627 0.626626627 0.029029029 1.344344
## 29628 0.627627628 0.029029029 1.343343
## 29629 0.628628629 0.029029029 1.342342
## 29630 0.629629630 0.029029029 1.341341

```

```
## 29631 0.630630631 0.029029029 1.340340
## 29632 0.631631632 0.029029029 1.339339
## 29633 0.632632633 0.029029029 1.338338
## 29634 0.6336333634 0.029029029 1.337337
## 29635 0.634634635 0.029029029 1.336336
## 29636 0.635635636 0.029029029 1.335335
## 29637 0.636636637 0.029029029 1.334334
## 29638 0.637637638 0.029029029 1.333333
## 29639 0.638638639 0.029029029 1.332332
## 29640 0.639639640 0.029029029 1.331331
## 29641 0.640640641 0.029029029 1.330330
## 29642 0.641641642 0.029029029 1.329329
## 29643 0.642642643 0.029029029 1.328328
## 29644 0.643643644 0.029029029 1.327327
## 29645 0.644644645 0.029029029 1.326326
## 29646 0.645645646 0.029029029 1.325325
## 29647 0.646646647 0.029029029 1.324324
## 29648 0.647647648 0.029029029 1.323323
## 29649 0.648648649 0.029029029 1.322322
## 29650 0.649649650 0.029029029 1.321321
## 29651 0.650650651 0.029029029 1.320320
## 29652 0.651651652 0.029029029 1.319319
## 29653 0.652652653 0.029029029 1.318318
## 29654 0.653653654 0.029029029 1.317317
## 29655 0.654654655 0.029029029 1.316316
## 29656 0.655655656 0.029029029 1.315315
## 29657 0.656656657 0.029029029 1.314314
## 29658 0.657657658 0.029029029 1.313313
## 29659 0.658658659 0.029029029 1.312312
## 29660 0.659659660 0.029029029 1.311311
## 29661 0.660660661 0.029029029 1.310310
## 29662 0.661661662 0.029029029 1.309309
## 29663 0.662662663 0.029029029 1.308308
## 29664 0.663663664 0.029029029 1.307307
## 29665 0.664664665 0.029029029 1.306306
## 29666 0.665665666 0.029029029 1.305305
## 29667 0.666666667 0.029029029 1.304304
## 29668 0.667667668 0.029029029 1.303303
## 29669 0.668668669 0.029029029 1.302302
## 29670 0.669669670 0.029029029 1.301301
## 29671 0.670670671 0.029029029 1.300300
## 29672 0.671671672 0.029029029 1.299299
## 29673 0.672672673 0.029029029 1.298298
## 29674 0.673673674 0.029029029 1.297297
## 29675 0.674674675 0.029029029 1.296296
## 29676 0.675675676 0.029029029 1.295295
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 757

```
## 29677 0.676676677 0.029029029 1.294294
## 29678 0.677677678 0.029029029 1.293293
## 29679 0.678678679 0.029029029 1.292292
## 29680 0.679679680 0.029029029 1.291291
## 29681 0.680680681 0.029029029 1.290290
## 29682 0.681681682 0.029029029 1.289289
## 29683 0.682682683 0.029029029 1.288288
## 29684 0.683683684 0.029029029 1.287287
## 29685 0.684684685 0.029029029 1.286286
## 29686 0.685685686 0.029029029 1.285285
## 29687 0.686686687 0.029029029 1.284284
## 29688 0.687687688 0.029029029 1.283283
## 29689 0.688688689 0.029029029 1.282282
## 29690 0.689689690 0.029029029 1.281281
## 29691 0.690690691 0.029029029 1.280280
## 29692 0.691691692 0.029029029 1.279279
## 29693 0.692692693 0.029029029 1.278278
## 29694 0.693693694 0.029029029 1.277277
## 29695 0.694694695 0.029029029 1.276276
## 29696 0.695695696 0.029029029 1.275275
## 29697 0.696696697 0.029029029 1.274274
## 29698 0.697697698 0.029029029 1.273273
## 29699 0.698698699 0.029029029 1.272272
## 29700 0.699699700 0.029029029 1.271271
## 29701 0.700700701 0.029029029 1.270270
## 29702 0.701701702 0.029029029 1.269269
## 29703 0.702702703 0.029029029 1.268268
## 29704 0.703703704 0.029029029 1.267267
## 29705 0.704704705 0.029029029 1.266266
## 29706 0.705705706 0.029029029 1.265265
## 29707 0.706706707 0.029029029 1.264264
## 29708 0.707707708 0.029029029 1.263263
## 29709 0.708708709 0.029029029 1.262262
## 29710 0.709709710 0.029029029 1.261261
## 29711 0.710710711 0.029029029 1.260260
## 29712 0.711711712 0.029029029 1.259259
## 29713 0.712712713 0.029029029 1.258258
## 29714 0.713713714 0.029029029 1.257257
## 29715 0.714714715 0.029029029 1.256256
## 29716 0.715715716 0.029029029 1.255255
## 29717 0.716716717 0.029029029 1.254254
## 29718 0.717717718 0.029029029 1.253253
## 29719 0.718718719 0.029029029 1.252252
## 29720 0.719719720 0.029029029 1.251251
## 29721 0.720720721 0.029029029 1.250250
## 29722 0.721721722 0.029029029 1.249249
```

```
## 29723 0.722722723 0.029029029 1.248248
## 29724 0.723723724 0.029029029 1.247247
## 29725 0.724724725 0.029029029 1.246246
## 29726 0.725725726 0.029029029 1.245245
## 29727 0.726726727 0.029029029 1.244244
## 29728 0.727727728 0.029029029 1.243243
## 29729 0.728728729 0.029029029 1.242242
## 29730 0.729729730 0.029029029 1.241241
## 29731 0.730730731 0.029029029 1.240240
## 29732 0.731731732 0.029029029 1.239239
## 29733 0.732732733 0.029029029 1.238238
## 29734 0.733733734 0.029029029 1.237237
## 29735 0.734734735 0.029029029 1.236236
## 29736 0.735735736 0.029029029 1.235235
## 29737 0.736736737 0.029029029 1.234234
## 29738 0.737737738 0.029029029 1.233233
## 29739 0.738738739 0.029029029 1.232232
## 29740 0.739739740 0.029029029 1.231231
## 29741 0.740740741 0.029029029 1.230230
## 29742 0.741741742 0.029029029 1.229229
## 29743 0.742742743 0.029029029 1.228228
## 29744 0.743743744 0.029029029 1.227227
## 29745 0.744744745 0.029029029 1.226226
## 29746 0.745745746 0.029029029 1.225225
## 29747 0.746746747 0.029029029 1.224224
## 29748 0.747747748 0.029029029 1.223223
## 29749 0.748748749 0.029029029 1.222222
## 29750 0.749749750 0.029029029 1.221221
## 29751 0.750750751 0.029029029 1.220220
## 29752 0.751751752 0.029029029 1.219219
## 29753 0.752752753 0.029029029 1.218218
## 29754 0.753753754 0.029029029 1.217217
## 29755 0.754754755 0.029029029 1.216216
## 29756 0.7557555756 0.029029029 1.215215
## 29757 0.756756757 0.029029029 1.214214
## 29758 0.757757758 0.029029029 1.213213
## 29759 0.758758759 0.029029029 1.212212
## 29760 0.759759760 0.029029029 1.211211
## 29761 0.760760761 0.029029029 1.210210
## 29762 0.761761762 0.029029029 1.209209
## 29763 0.762762763 0.029029029 1.208208
## 29764 0.763763764 0.029029029 1.207207
## 29765 0.764764765 0.029029029 1.206206
## 29766 0.765765766 0.029029029 1.205205
## 29767 0.766766767 0.029029029 1.204204
## 29768 0.767767768 0.029029029 1.203203
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 759

```

## 29769 0.768768769 0.029029029 1.202202
## 29770 0.769769770 0.029029029 1.201201
## 29771 0.770770771 0.029029029 1.200200
## 29772 0.771771772 0.029029029 1.199199
## 29773 0.772772773 0.029029029 1.198198
## 29774 0.773773774 0.029029029 1.197197
## 29775 0.774774775 0.029029029 1.196196
## 29776 0.775775776 0.029029029 1.195195
## 29777 0.776776777 0.029029029 1.194194
## 29778 0.777777778 0.029029029 1.193193
## 29779 0.778778779 0.029029029 1.192192
## 29780 0.779779780 0.029029029 1.191191
## 29781 0.780780781 0.029029029 1.190190
## 29782 0.781781782 0.029029029 1.189189
## 29783 0.782782783 0.029029029 1.188188
## 29784 0.783783784 0.029029029 1.187187
## 29785 0.784784785 0.029029029 1.186186
## 29786 0.785785786 0.029029029 1.185185
## 29787 0.786786787 0.029029029 1.184184
## 29788 0.787787788 0.029029029 1.183183
## 29789 0.788788789 0.029029029 1.182182
## 29790 0.789789790 0.029029029 1.181181
## 29791 0.790790791 0.029029029 1.180180
## 29792 0.791791792 0.029029029 1.179179
## 29793 0.792792793 0.029029029 1.178178
## 29794 0.793793794 0.029029029 1.177177
## 29795 0.794794795 0.029029029 1.176176
## 29796 0.795795796 0.029029029 1.175175
## 29797 0.796796797 0.029029029 1.174174
## 29798 0.797797798 0.029029029 1.173173
## 29799 0.798798799 0.029029029 1.172172
## 29800 0.799799800 0.029029029 1.171171
## 29801 0.800800801 0.029029029 1.170170
## 29802 0.801801802 0.029029029 1.169169
## 29803 0.802802803 0.029029029 1.168168
## 29804 0.803803804 0.029029029 1.167167
## 29805 0.804804805 0.029029029 1.166166
## 29806 0.805805806 0.029029029 1.165165
## 29807 0.806806807 0.029029029 1.164164
## 29808 0.807807808 0.029029029 1.163163
## 29809 0.808808809 0.029029029 1.162162
## 29810 0.809809810 0.029029029 1.161161
## 29811 0.810810811 0.029029029 1.160160
## 29812 0.811811812 0.029029029 1.159159
## 29813 0.812812813 0.029029029 1.158158
## 29814 0.813813814 0.029029029 1.157157

```

```
## 29815 0.814814815 0.029029029 1.156156
## 29816 0.815815816 0.029029029 1.155155
## 29817 0.816816817 0.029029029 1.154154
## 29818 0.817817818 0.029029029 1.153153
## 29819 0.818818819 0.029029029 1.152152
## 29820 0.819819820 0.029029029 1.151151
## 29821 0.820820821 0.029029029 1.150150
## 29822 0.821821822 0.029029029 1.149149
## 29823 0.822822823 0.029029029 1.148148
## 29824 0.823823824 0.029029029 1.147147
## 29825 0.824824825 0.029029029 1.146146
## 29826 0.825825826 0.029029029 1.145145
## 29827 0.826826827 0.029029029 1.144144
## 29828 0.827827828 0.029029029 1.143143
## 29829 0.828828829 0.029029029 1.142142
## 29830 0.829829830 0.029029029 1.141141
## 29831 0.830830831 0.029029029 1.140140
## 29832 0.831831832 0.029029029 1.139139
## 29833 0.832832833 0.029029029 1.138138
## 29834 0.833833834 0.029029029 1.137137
## 29835 0.834834835 0.029029029 1.136136
## 29836 0.835835836 0.029029029 1.135135
## 29837 0.836836837 0.029029029 1.134134
## 29838 0.837837838 0.029029029 1.133133
## 29839 0.838838839 0.029029029 1.132132
## 29840 0.839839840 0.029029029 1.131131
## 29841 0.840840841 0.029029029 1.130130
## 29842 0.841841842 0.029029029 1.129129
## 29843 0.842842843 0.029029029 1.128128
## 29844 0.843843844 0.029029029 1.127127
## 29845 0.8448444845 0.029029029 1.126126
## 29846 0.845845846 0.029029029 1.125125
## 29847 0.846846847 0.029029029 1.124124
## 29848 0.847847848 0.029029029 1.123123
## 29849 0.848848849 0.029029029 1.122122
## 29850 0.849849850 0.029029029 1.121121
## 29851 0.850850851 0.029029029 1.120120
## 29852 0.851851852 0.029029029 1.119119
## 29853 0.852852853 0.029029029 1.118118
## 29854 0.853853854 0.029029029 1.117117
## 29855 0.854854855 0.029029029 1.116116
## 29856 0.855855856 0.029029029 1.115115
## 29857 0.856856857 0.029029029 1.114114
## 29858 0.857857858 0.029029029 1.113113
## 29859 0.858858859 0.029029029 1.112112
## 29860 0.859859860 0.029029029 1.111111
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR761

```

## 29861 0.860860861 0.029029029 1.110110
## 29862 0.861861862 0.029029029 1.109109
## 29863 0.862862863 0.029029029 1.108108
## 29864 0.863863864 0.029029029 1.107107
## 29865 0.864864865 0.029029029 1.106106
## 29866 0.865865866 0.029029029 1.105105
## 29867 0.866866867 0.029029029 1.104104
## 29868 0.867867868 0.029029029 1.103103
## 29869 0.868868869 0.029029029 1.102102
## 29870 0.869869870 0.029029029 1.101101
## 29871 0.870870871 0.029029029 1.100100
## 29872 0.871871872 0.029029029 1.099099
## 29873 0.872872873 0.029029029 1.098098
## 29874 0.873873874 0.029029029 1.097097
## 29875 0.874874875 0.029029029 1.096096
## 29876 0.875875876 0.029029029 1.095095
## 29877 0.876876877 0.029029029 1.094094
## 29878 0.877877878 0.029029029 1.093093
## 29879 0.878878879 0.029029029 1.092092
## 29880 0.879879880 0.029029029 1.091091
## 29881 0.880880881 0.029029029 1.090090
## 29882 0.881881882 0.029029029 1.089089
## 29883 0.882882883 0.029029029 1.088088
## 29884 0.883883884 0.029029029 1.087087
## 29885 0.884884885 0.029029029 1.086086
## 29886 0.885885886 0.029029029 1.085085
## 29887 0.886886887 0.029029029 1.084084
## 29888 0.887887888 0.029029029 1.083083
## 29889 0.888888889 0.029029029 1.082082
## 29890 0.889889890 0.029029029 1.081081
## 29891 0.890890891 0.029029029 1.080080
## 29892 0.891891892 0.029029029 1.079079
## 29893 0.892892893 0.029029029 1.078078
## 29894 0.893893894 0.029029029 1.077077
## 29895 0.894894895 0.029029029 1.076076
## 29896 0.895895896 0.029029029 1.075075
## 29897 0.896896897 0.029029029 1.074074
## 29898 0.897897898 0.029029029 1.073073
## 29899 0.898898899 0.029029029 1.072072
## 29900 0.899899900 0.029029029 1.071071
## 29901 0.900900901 0.029029029 1.070070
## 29902 0.901901902 0.029029029 1.069069
## 29903 0.902902903 0.029029029 1.068068
## 29904 0.903903904 0.029029029 1.067067
## 29905 0.904904905 0.029029029 1.066066
## 29906 0.905905906 0.029029029 1.065065

```

```
## 29907 0.906906907 0.029029029 1.064064
## 29908 0.907907908 0.029029029 1.063063
## 29909 0.908908909 0.029029029 1.062062
## 29910 0.909909910 0.029029029 1.061061
## 29911 0.910910911 0.029029029 1.060060
## 29912 0.911911912 0.029029029 1.059059
## 29913 0.912912913 0.029029029 1.058058
## 29914 0.913913914 0.029029029 1.057057
## 29915 0.914914915 0.029029029 1.056056
## 29916 0.915915916 0.029029029 1.055055
## 29917 0.916916917 0.029029029 1.054054
## 29918 0.917917918 0.029029029 1.053053
## 29919 0.918918919 0.029029029 1.052052
## 29920 0.919919920 0.029029029 1.051051
## 29921 0.920920921 0.029029029 1.050050
## 29922 0.921921922 0.029029029 1.049049
## 29923 0.922922923 0.029029029 1.048048
## 29924 0.923923924 0.029029029 1.047047
## 29925 0.924924925 0.029029029 1.046046
## 29926 0.925925926 0.029029029 1.045045
## 29927 0.926926927 0.029029029 1.044044
## 29928 0.927927928 0.029029029 1.043043
## 29929 0.928928929 0.029029029 1.042042
## 29930 0.929929930 0.029029029 1.041041
## 29931 0.930930931 0.029029029 1.040040
## 29932 0.931931932 0.029029029 1.039039
## 29933 0.932932933 0.029029029 1.038038
## 29934 0.933933934 0.029029029 1.037037
## 29935 0.934934935 0.029029029 1.036036
## 29936 0.935935936 0.029029029 1.035035
## 29937 0.936936937 0.029029029 1.034034
## 29938 0.937937938 0.029029029 1.033033
## 29939 0.938938939 0.029029029 1.032032
## 29940 0.939939940 0.029029029 1.031031
## 29941 0.940940941 0.029029029 1.030030
## 29942 0.941941942 0.029029029 1.029029
## 29943 0.942942943 0.029029029 1.028028
## 29944 0.943943944 0.029029029 1.027027
## 29945 0.9449444945 0.029029029 1.026026
## 29946 0.945945946 0.029029029 1.025025
## 29947 0.946946947 0.029029029 1.024024
## 29948 0.947947948 0.029029029 1.023023
## 29949 0.948948949 0.029029029 1.022022
## 29950 0.949949950 0.029029029 1.021021
## 29951 0.950950951 0.029029029 1.020020
## 29952 0.951951952 0.029029029 1.019019
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 763

```

## 29953 0.952952953 0.029029029 1.018018
## 29954 0.953953954 0.029029029 1.017017
## 29955 0.954954955 0.029029029 1.016016
## 29956 0.955955956 0.029029029 1.015015
## 29957 0.956956957 0.029029029 1.014014
## 29958 0.957957958 0.029029029 1.013013
## 29959 0.958958959 0.029029029 1.012012
## 29960 0.959959960 0.029029029 1.011011
## 29961 0.960960961 0.029029029 1.010010
## 29962 0.961961962 0.029029029 1.009009
## 29963 0.962962963 0.029029029 1.008008
## 29964 0.963963964 0.029029029 1.007007
## 29965 0.964964965 0.029029029 1.006006
## 29966 0.965965966 0.029029029 1.005005
## 29967 0.966966967 0.029029029 1.004004
## 29968 0.967967968 0.029029029 1.003003
## 29969 0.968968969 0.029029029 1.002002
## 29970 0.969969970 0.029029029 1.001001
## 29971 0.970970971 0.029029029 1.000000
## 29972 0.971971972 0.029029029 0.998999
## 29973 0.972972973 0.029029029 0.997998
## 29974 0.973973974 0.029029029 0.996997
## 29975 0.974974975 0.029029029 0.995996
## 29976 0.975975976 0.029029029 0.994995
## 29977 0.976976977 0.029029029 0.993994
## 29978 0.977977978 0.029029029 0.992993
## 29979 0.978978979 0.029029029 0.991992
## 29980 0.979979980 0.029029029 0.990991
## 29981 0.980980981 0.029029029 0.989990
## 29982 0.981981982 0.029029029 0.988989
## 29983 0.982982983 0.029029029 0.987988
## 29984 0.983983984 0.029029029 0.986987
## 29985 0.984984985 0.029029029 0.985986
## 29986 0.985985986 0.029029029 0.984985
## 29987 0.986986987 0.029029029 0.983984
## 29988 0.987987988 0.029029029 0.982983
## 29989 0.988988989 0.029029029 0.981982
## 29990 0.989989990 0.029029029 0.980981
## 29991 0.990990991 0.029029029 0.979980
## 29992 0.991991992 0.029029029 0.978979
## 29993 0.992992993 0.029029029 0.977978
## 29994 0.993993994 0.029029029 0.976977
## 29995 0.994994995 0.029029029 0.975976
## 29996 0.995995996 0.029029029 0.974975
## 29997 0.996996997 0.029029029 0.973974
## 29998 0.997997998 0.029029029 0.972973

```

```
## 29999 0.998998999 0.029029029 0.971972
## 30000 1.000000000 0.029029029 0.970971
## 30001 0.000000000 0.030030030 1.969970
## 30002 0.001001001 0.030030030 1.968969
## 30003 0.002002002 0.030030030 1.967968
## 30004 0.003003003 0.030030030 1.966967
## 30005 0.004004004 0.030030030 1.965966
## 30006 0.005005005 0.030030030 1.964965
## 30007 0.006006006 0.030030030 1.963964
## 30008 0.007007007 0.030030030 1.962963
## 30009 0.008008008 0.030030030 1.961962
## 30010 0.009009009 0.030030030 1.960961
## 30011 0.010010010 0.030030030 1.959960
## 30012 0.011011011 0.030030030 1.958959
## 30013 0.012012012 0.030030030 1.957958
## 30014 0.013013013 0.030030030 1.956957
## 30015 0.014014014 0.030030030 1.955956
## 30016 0.015015015 0.030030030 1.954955
## 30017 0.016016016 0.030030030 1.953954
## 30018 0.017017017 0.030030030 1.952953
## 30019 0.018018018 0.030030030 1.951952
## 30020 0.019019019 0.030030030 1.950951
## 30021 0.020020020 0.030030030 1.949950
## 30022 0.021021021 0.030030030 1.948949
## 30023 0.022022022 0.030030030 1.947948
## 30024 0.023023023 0.030030030 1.946947
## 30025 0.024024024 0.030030030 1.945946
## 30026 0.025025025 0.030030030 1.944945
## 30027 0.026026026 0.030030030 1.943944
## 30028 0.027027027 0.030030030 1.942943
## 30029 0.028028028 0.030030030 1.941942
## 30030 0.029029029 0.030030030 1.940941
## 30031 0.030030030 0.030030030 1.939940
## 30032 0.031031031 0.030030030 1.938939
## 30033 0.032032032 0.030030030 1.937938
## 30034 0.033033033 0.030030030 1.936937
## 30035 0.034034034 0.030030030 1.935936
## 30036 0.035035035 0.030030030 1.934935
## 30037 0.036036036 0.030030030 1.933934
## 30038 0.037037037 0.030030030 1.932933
## 30039 0.038038038 0.030030030 1.931932
## 30040 0.039039039 0.030030030 1.930931
## 30041 0.040040040 0.030030030 1.929930
## 30042 0.041041041 0.030030030 1.928929
## 30043 0.042042042 0.030030030 1.927928
## 30044 0.043043043 0.030030030 1.926927
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 765

```
## 30045 0.044044044 0.030030030 1.925926
## 30046 0.045045045 0.030030030 1.924925
## 30047 0.046046046 0.030030030 1.923924
## 30048 0.047047047 0.030030030 1.922923
## 30049 0.048048048 0.030030030 1.921922
## 30050 0.049049049 0.030030030 1.920921
## 30051 0.050050050 0.030030030 1.919920
## 30052 0.051051051 0.030030030 1.918919
## 30053 0.052052052 0.030030030 1.917918
## 30054 0.053053053 0.030030030 1.916917
## 30055 0.054054054 0.030030030 1.915916
## 30056 0.055055055 0.030030030 1.914915
## 30057 0.056056056 0.030030030 1.913914
## 30058 0.057057057 0.030030030 1.912913
## 30059 0.058058058 0.030030030 1.911912
## 30060 0.059059059 0.030030030 1.910911
## 30061 0.060060060 0.030030030 1.909910
## 30062 0.061061061 0.030030030 1.908909
## 30063 0.062062062 0.030030030 1.907908
## 30064 0.063063063 0.030030030 1.906907
## 30065 0.064064064 0.030030030 1.905906
## 30066 0.065065065 0.030030030 1.904905
## 30067 0.066066066 0.030030030 1.903904
## 30068 0.067067067 0.030030030 1.902903
## 30069 0.068068068 0.030030030 1.901902
## 30070 0.069069069 0.030030030 1.900901
## 30071 0.070070070 0.030030030 1.899900
## 30072 0.071071071 0.030030030 1.898899
## 30073 0.072072072 0.030030030 1.897898
## 30074 0.073073073 0.030030030 1.896897
## 30075 0.074074074 0.030030030 1.895896
## 30076 0.075075075 0.030030030 1.894895
## 30077 0.076076076 0.030030030 1.893894
## 30078 0.077077077 0.030030030 1.892893
## 30079 0.078078078 0.030030030 1.891892
## 30080 0.079079079 0.030030030 1.890891
## 30081 0.080080080 0.030030030 1.889890
## 30082 0.081081081 0.030030030 1.888889
## 30083 0.082082082 0.030030030 1.887888
## 30084 0.083083083 0.030030030 1.886887
## 30085 0.084084084 0.030030030 1.885886
## 30086 0.085085085 0.030030030 1.884885
## 30087 0.086086086 0.030030030 1.883884
## 30088 0.087087087 0.030030030 1.882883
## 30089 0.088088088 0.030030030 1.881882
## 30090 0.089089089 0.030030030 1.880881
```

```
## 30091 0.090090090 0.030030030 1.879880
## 30092 0.091091091 0.030030030 1.878879
## 30093 0.092092092 0.030030030 1.877878
## 30094 0.093093093 0.030030030 1.876877
## 30095 0.094094094 0.030030030 1.875876
## 30096 0.095095095 0.030030030 1.874875
## 30097 0.096096096 0.030030030 1.873874
## 30098 0.097097097 0.030030030 1.872873
## 30099 0.098098098 0.030030030 1.871872
## 30100 0.099099099 0.030030030 1.870871
## 30101 0.100100100 0.030030030 1.869870
## 30102 0.101101101 0.030030030 1.868869
## 30103 0.102102102 0.030030030 1.867868
## 30104 0.103103103 0.030030030 1.866867
## 30105 0.104104104 0.030030030 1.865866
## 30106 0.105105105 0.030030030 1.864865
## 30107 0.106106106 0.030030030 1.863864
## 30108 0.107107107 0.030030030 1.862863
## 30109 0.108108108 0.030030030 1.861862
## 30110 0.109109109 0.030030030 1.860861
## 30111 0.110110110 0.030030030 1.859860
## 30112 0.111111111 0.030030030 1.858859
## 30113 0.112112112 0.030030030 1.857858
## 30114 0.113113113 0.030030030 1.856857
## 30115 0.114114114 0.030030030 1.855856
## 30116 0.115115115 0.030030030 1.854855
## 30117 0.116116116 0.030030030 1.853854
## 30118 0.117117117 0.030030030 1.852853
## 30119 0.118118118 0.030030030 1.851852
## 30120 0.119119119 0.030030030 1.850851
## 30121 0.120120120 0.030030030 1.849850
## 30122 0.121121121 0.030030030 1.848849
## 30123 0.122122122 0.030030030 1.847848
## 30124 0.123123123 0.030030030 1.846847
## 30125 0.124124124 0.030030030 1.845846
## 30126 0.125125125 0.030030030 1.844845
## 30127 0.126126126 0.030030030 1.843844
## 30128 0.127127127 0.030030030 1.842843
## 30129 0.128128128 0.030030030 1.841842
## 30130 0.129129129 0.030030030 1.840841
## 30131 0.130130130 0.030030030 1.839840
## 30132 0.131131131 0.030030030 1.838839
## 30133 0.132132132 0.030030030 1.837838
## 30134 0.133133133 0.030030030 1.836837
## 30135 0.134134134 0.030030030 1.835836
## 30136 0.135135135 0.030030030 1.834835
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 767

```
## 30137 0.136136136 0.030030030 1.833834
## 30138 0.137137137 0.030030030 1.832833
## 30139 0.138138138 0.030030030 1.831832
## 30140 0.139139139 0.030030030 1.830831
## 30141 0.140140140 0.030030030 1.829830
## 30142 0.141141141 0.030030030 1.828829
## 30143 0.142142142 0.030030030 1.827828
## 30144 0.143143143 0.030030030 1.826827
## 30145 0.144144144 0.030030030 1.825826
## 30146 0.145145145 0.030030030 1.824825
## 30147 0.146146146 0.030030030 1.823824
## 30148 0.147147147 0.030030030 1.822823
## 30149 0.148148148 0.030030030 1.821822
## 30150 0.149149149 0.030030030 1.820821
## 30151 0.150150150 0.030030030 1.819820
## 30152 0.151151151 0.030030030 1.818819
## 30153 0.152152152 0.030030030 1.817818
## 30154 0.153153153 0.030030030 1.816817
## 30155 0.154154154 0.030030030 1.815816
## 30156 0.155155155 0.030030030 1.814815
## 30157 0.156156156 0.030030030 1.813814
## 30158 0.157157157 0.030030030 1.812813
## 30159 0.158158158 0.030030030 1.811812
## 30160 0.159159159 0.030030030 1.810811
## 30161 0.160160160 0.030030030 1.809810
## 30162 0.161161161 0.030030030 1.808809
## 30163 0.162162162 0.030030030 1.807808
## 30164 0.163163163 0.030030030 1.806807
## 30165 0.164164164 0.030030030 1.805806
## 30166 0.165165165 0.030030030 1.804805
## 30167 0.166166166 0.030030030 1.803804
## 30168 0.167167167 0.030030030 1.802803
## 30169 0.168168168 0.030030030 1.801802
## 30170 0.169169169 0.030030030 1.800801
## 30171 0.170170170 0.030030030 1.799800
## 30172 0.171171171 0.030030030 1.798799
## 30173 0.172172172 0.030030030 1.797798
## 30174 0.173173173 0.030030030 1.796797
## 30175 0.174174174 0.030030030 1.795796
## 30176 0.175175175 0.030030030 1.794795
## 30177 0.176176176 0.030030030 1.793794
## 30178 0.177177177 0.030030030 1.792793
## 30179 0.178178178 0.030030030 1.791792
## 30180 0.179179179 0.030030030 1.790791
## 30181 0.180180180 0.030030030 1.789790
## 30182 0.181181181 0.030030030 1.788789
```

```
## 30183 0.182182182 0.030030030 1.787788
## 30184 0.183183183 0.030030030 1.786787
## 30185 0.184184184 0.030030030 1.785786
## 30186 0.185185185 0.030030030 1.784785
## 30187 0.186186186 0.030030030 1.783784
## 30188 0.187187187 0.030030030 1.782783
## 30189 0.188188188 0.030030030 1.781782
## 30190 0.189189189 0.030030030 1.780781
## 30191 0.190190190 0.030030030 1.779780
## 30192 0.191191191 0.030030030 1.778779
## 30193 0.192192192 0.030030030 1.777778
## 30194 0.193193193 0.030030030 1.776777
## 30195 0.194194194 0.030030030 1.775776
## 30196 0.195195195 0.030030030 1.774775
## 30197 0.196196196 0.030030030 1.773774
## 30198 0.197197197 0.030030030 1.772773
## 30199 0.198198198 0.030030030 1.771772
## 30200 0.199199199 0.030030030 1.770771
## 30201 0.200200200 0.030030030 1.769770
## 30202 0.201201201 0.030030030 1.768769
## 30203 0.202202202 0.030030030 1.767768
## 30204 0.203203203 0.030030030 1.766767
## 30205 0.204204204 0.030030030 1.765766
## 30206 0.205205205 0.030030030 1.764765
## 30207 0.206206206 0.030030030 1.763764
## 30208 0.207207207 0.030030030 1.762763
## 30209 0.208208208 0.030030030 1.761762
## 30210 0.209209209 0.030030030 1.760761
## 30211 0.210210210 0.030030030 1.759760
## 30212 0.211211211 0.030030030 1.758759
## 30213 0.212212212 0.030030030 1.757758
## 30214 0.213213213 0.030030030 1.756757
## 30215 0.214214214 0.030030030 1.755756
## 30216 0.215215215 0.030030030 1.754755
## 30217 0.216216216 0.030030030 1.753754
## 30218 0.217217217 0.030030030 1.752753
## 30219 0.218218218 0.030030030 1.751752
## 30220 0.219219219 0.030030030 1.750751
## 30221 0.220220220 0.030030030 1.749750
## 30222 0.221221221 0.030030030 1.748749
## 30223 0.222222222 0.030030030 1.747748
## 30224 0.223223223 0.030030030 1.746747
## 30225 0.224224224 0.030030030 1.745746
## 30226 0.225225225 0.030030030 1.744745
## 30227 0.226226226 0.030030030 1.743744
## 30228 0.227227227 0.030030030 1.742743
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 769

```

## 30229 0.228228228 0.030030030 1.741742
## 30230 0.229229229 0.030030030 1.740741
## 30231 0.230230230 0.030030030 1.739740
## 30232 0.231231231 0.030030030 1.738739
## 30233 0.232232232 0.030030030 1.737738
## 30234 0.233233233 0.030030030 1.736737
## 30235 0.234234234 0.030030030 1.735736
## 30236 0.235235235 0.030030030 1.734735
## 30237 0.236236236 0.030030030 1.733734
## 30238 0.237237237 0.030030030 1.732733
## 30239 0.238238238 0.030030030 1.731732
## 30240 0.239239239 0.030030030 1.730731
## 30241 0.240240240 0.030030030 1.729730
## 30242 0.241241241 0.030030030 1.728729
## 30243 0.242242242 0.030030030 1.727728
## 30244 0.243243243 0.030030030 1.726727
## 30245 0.244244244 0.030030030 1.725726
## 30246 0.245245245 0.030030030 1.724725
## 30247 0.246246246 0.030030030 1.723724
## 30248 0.247247247 0.030030030 1.722723
## 30249 0.248248248 0.030030030 1.721722
## 30250 0.249249249 0.030030030 1.720721
## 30251 0.250250250 0.030030030 1.719720
## 30252 0.251251251 0.030030030 1.718719
## 30253 0.252252252 0.030030030 1.717718
## 30254 0.253253253 0.030030030 1.716717
## 30255 0.254254254 0.030030030 1.715716
## 30256 0.255255255 0.030030030 1.714715
## 30257 0.256256256 0.030030030 1.713714
## 30258 0.257257257 0.030030030 1.712713
## 30259 0.258258258 0.030030030 1.711712
## 30260 0.259259259 0.030030030 1.710711
## 30261 0.260260260 0.030030030 1.709710
## 30262 0.261261261 0.030030030 1.708709
## 30263 0.262262262 0.030030030 1.707708
## 30264 0.263263263 0.030030030 1.706707
## 30265 0.264264264 0.030030030 1.705706
## 30266 0.265265265 0.030030030 1.704705
## 30267 0.266266266 0.030030030 1.703704
## 30268 0.267267267 0.030030030 1.702703
## 30269 0.268268268 0.030030030 1.701702
## 30270 0.269269269 0.030030030 1.700701
## 30271 0.270270270 0.030030030 1.699700
## 30272 0.271271271 0.030030030 1.698699
## 30273 0.272272272 0.030030030 1.697698
## 30274 0.273273273 0.030030030 1.696697

```

```
## 30275 0.274274274 0.030030030 1.695696
## 30276 0.275275275 0.030030030 1.694695
## 30277 0.276276276 0.030030030 1.693694
## 30278 0.277277277 0.030030030 1.692693
## 30279 0.278278278 0.030030030 1.691692
## 30280 0.279279279 0.030030030 1.690691
## 30281 0.280280280 0.030030030 1.689690
## 30282 0.281281281 0.030030030 1.688689
## 30283 0.282282282 0.030030030 1.687688
## 30284 0.283283283 0.030030030 1.686687
## 30285 0.284284284 0.030030030 1.685686
## 30286 0.285285285 0.030030030 1.684685
## 30287 0.286286286 0.030030030 1.683684
## 30288 0.287287287 0.030030030 1.682683
## 30289 0.288288288 0.030030030 1.681682
## 30290 0.289289289 0.030030030 1.680681
## 30291 0.290290290 0.030030030 1.679680
## 30292 0.291291291 0.030030030 1.678679
## 30293 0.292292292 0.030030030 1.677678
## 30294 0.293293293 0.030030030 1.676677
## 30295 0.294294294 0.030030030 1.675676
## 30296 0.295295295 0.030030030 1.674675
## 30297 0.296296296 0.030030030 1.673674
## 30298 0.297297297 0.030030030 1.672673
## 30299 0.298298298 0.030030030 1.671672
## 30300 0.299299299 0.030030030 1.670671
## 30301 0.300300300 0.030030030 1.669670
## 30302 0.301301301 0.030030030 1.668669
## 30303 0.302302302 0.030030030 1.667668
## 30304 0.303303303 0.030030030 1.666667
## 30305 0.304304304 0.030030030 1.665666
## 30306 0.305305305 0.030030030 1.664665
## 30307 0.306306306 0.030030030 1.663664
## 30308 0.307307307 0.030030030 1.662663
## 30309 0.308308308 0.030030030 1.661662
## 30310 0.309309309 0.030030030 1.660661
## 30311 0.310310310 0.030030030 1.659660
## 30312 0.311311311 0.030030030 1.658659
## 30313 0.312312312 0.030030030 1.657658
## 30314 0.313313313 0.030030030 1.656657
## 30315 0.314314314 0.030030030 1.655656
## 30316 0.315315315 0.030030030 1.654655
## 30317 0.316316316 0.030030030 1.653654
## 30318 0.317317317 0.030030030 1.652653
## 30319 0.318318318 0.030030030 1.651652
## 30320 0.319319319 0.030030030 1.650651
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 771

```
## 30321 0.320320320 0.030030030 1.649650
## 30322 0.321321321 0.030030030 1.648649
## 30323 0.322322322 0.030030030 1.647648
## 30324 0.323323323 0.030030030 1.646647
## 30325 0.324324324 0.030030030 1.645646
## 30326 0.325325325 0.030030030 1.644645
## 30327 0.326326326 0.030030030 1.643644
## 30328 0.327327327 0.030030030 1.642643
## 30329 0.328328328 0.030030030 1.641642
## 30330 0.329329329 0.030030030 1.640641
## 30331 0.330330330 0.030030030 1.639640
## 30332 0.331331331 0.030030030 1.638639
## 30333 0.332332332 0.030030030 1.637638
## 30334 0.333333333 0.030030030 1.636637
## 30335 0.334334334 0.030030030 1.635636
## 30336 0.335335335 0.030030030 1.634635
## 30337 0.336336336 0.030030030 1.633634
## 30338 0.337337337 0.030030030 1.632633
## 30339 0.338338338 0.030030030 1.631632
## 30340 0.339339339 0.030030030 1.630631
## 30341 0.340340340 0.030030030 1.629630
## 30342 0.341341341 0.030030030 1.628629
## 30343 0.342342342 0.030030030 1.627628
## 30344 0.343343343 0.030030030 1.626627
## 30345 0.344344344 0.030030030 1.625626
## 30346 0.345345345 0.030030030 1.624625
## 30347 0.346346346 0.030030030 1.623624
## 30348 0.347347347 0.030030030 1.622623
## 30349 0.348348348 0.030030030 1.621622
## 30350 0.349349349 0.030030030 1.620621
## 30351 0.350350350 0.030030030 1.619620
## 30352 0.351351351 0.030030030 1.618619
## 30353 0.352352352 0.030030030 1.617618
## 30354 0.353353353 0.030030030 1.616617
## 30355 0.354354354 0.030030030 1.615616
## 30356 0.355355355 0.030030030 1.614615
## 30357 0.356356356 0.030030030 1.613614
## 30358 0.357357357 0.030030030 1.612613
## 30359 0.358358358 0.030030030 1.611612
## 30360 0.359359359 0.030030030 1.610611
## 30361 0.360360360 0.030030030 1.609610
## 30362 0.361361361 0.030030030 1.608609
## 30363 0.362362362 0.030030030 1.607608
## 30364 0.363363363 0.030030030 1.606607
## 30365 0.364364364 0.030030030 1.605606
## 30366 0.365365365 0.030030030 1.604605
```

```
## 30367 0.366366366 0.030030030 1.603604
## 30368 0.367367367 0.030030030 1.602603
## 30369 0.368368368 0.030030030 1.601602
## 30370 0.369369369 0.030030030 1.600601
## 30371 0.370370370 0.030030030 1.599600
## 30372 0.371371371 0.030030030 1.598599
## 30373 0.372372372 0.030030030 1.597598
## 30374 0.373373373 0.030030030 1.596597
## 30375 0.374374374 0.030030030 1.595596
## 30376 0.375375375 0.030030030 1.594595
## 30377 0.376376376 0.030030030 1.593594
## 30378 0.377377377 0.030030030 1.592593
## 30379 0.378378378 0.030030030 1.591592
## 30380 0.379379379 0.030030030 1.590591
## 30381 0.380380380 0.030030030 1.589590
## 30382 0.381381381 0.030030030 1.588589
## 30383 0.382382382 0.030030030 1.587588
## 30384 0.383383383 0.030030030 1.586587
## 30385 0.384384384 0.030030030 1.585586
## 30386 0.385385385 0.030030030 1.584585
## 30387 0.386386386 0.030030030 1.583584
## 30388 0.387387387 0.030030030 1.582583
## 30389 0.388388388 0.030030030 1.581582
## 30390 0.389389389 0.030030030 1.580581
## 30391 0.390390390 0.030030030 1.579580
## 30392 0.391391391 0.030030030 1.578579
## 30393 0.392392392 0.030030030 1.577578
## 30394 0.393393393 0.030030030 1.576577
## 30395 0.394394394 0.030030030 1.575576
## 30396 0.395395395 0.030030030 1.574575
## 30397 0.396396396 0.030030030 1.573574
## 30398 0.397397397 0.030030030 1.572573
## 30399 0.398398398 0.030030030 1.571572
## 30400 0.399399399 0.030030030 1.570571
## 30401 0.400400400 0.030030030 1.569570
## 30402 0.401401401 0.030030030 1.568569
## 30403 0.402402402 0.030030030 1.567568
## 30404 0.403403403 0.030030030 1.566567
## 30405 0.404404404 0.030030030 1.565566
## 30406 0.405405405 0.030030030 1.564565
## 30407 0.406406406 0.030030030 1.563564
## 30408 0.407407407 0.030030030 1.562563
## 30409 0.408408408 0.030030030 1.561562
## 30410 0.409409409 0.030030030 1.560561
## 30411 0.410410410 0.030030030 1.559560
## 30412 0.411411411 0.030030030 1.558559
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 773

```

## 30413 0.412412412 0.030030030 1.557558
## 30414 0.413413413 0.030030030 1.556557
## 30415 0.414414414 0.030030030 1.555556
## 30416 0.415415415 0.030030030 1.554555
## 30417 0.416416416 0.030030030 1.553554
## 30418 0.417417417 0.030030030 1.552553
## 30419 0.418418418 0.030030030 1.551552
## 30420 0.419419419 0.030030030 1.550551
## 30421 0.420420420 0.030030030 1.549550
## 30422 0.421421421 0.030030030 1.548549
## 30423 0.422422422 0.030030030 1.547548
## 30424 0.423423423 0.030030030 1.546547
## 30425 0.424424424 0.030030030 1.545546
## 30426 0.425425425 0.030030030 1.544545
## 30427 0.426426426 0.030030030 1.543544
## 30428 0.427427427 0.030030030 1.542543
## 30429 0.428428428 0.030030030 1.541542
## 30430 0.429429429 0.030030030 1.540541
## 30431 0.430430430 0.030030030 1.539540
## 30432 0.431431431 0.030030030 1.538539
## 30433 0.432432432 0.030030030 1.537538
## 30434 0.433433433 0.030030030 1.536537
## 30435 0.434434434 0.030030030 1.535536
## 30436 0.435435435 0.030030030 1.534535
## 30437 0.436436436 0.030030030 1.533534
## 30438 0.437437437 0.030030030 1.532533
## 30439 0.438438438 0.030030030 1.531532
## 30440 0.439439439 0.030030030 1.530531
## 30441 0.440440440 0.030030030 1.529530
## 30442 0.441441441 0.030030030 1.528529
## 30443 0.442442442 0.030030030 1.527528
## 30444 0.443443443 0.030030030 1.526527
## 30445 0.444444444 0.030030030 1.525526
## 30446 0.445445445 0.030030030 1.524525
## 30447 0.446446446 0.030030030 1.523524
## 30448 0.447447447 0.030030030 1.522523
## 30449 0.448448448 0.030030030 1.521522
## 30450 0.449449449 0.030030030 1.520521
## 30451 0.450450450 0.030030030 1.519520
## 30452 0.451451451 0.030030030 1.518519
## 30453 0.452452452 0.030030030 1.517518
## 30454 0.453453453 0.030030030 1.516517
## 30455 0.454454454 0.030030030 1.515516
## 30456 0.455455455 0.030030030 1.514515
## 30457 0.456456456 0.030030030 1.513514
## 30458 0.457457457 0.030030030 1.512513

```

```
## 30459 0.458458458 0.030030030 1.511512
## 30460 0.459459459 0.030030030 1.510511
## 30461 0.460460460 0.030030030 1.509510
## 30462 0.461461461 0.030030030 1.508509
## 30463 0.462462462 0.030030030 1.507508
## 30464 0.463463463 0.030030030 1.506507
## 30465 0.464464464 0.030030030 1.505506
## 30466 0.465465465 0.030030030 1.504505
## 30467 0.466466466 0.030030030 1.503504
## 30468 0.467467467 0.030030030 1.502503
## 30469 0.468468468 0.030030030 1.501502
## 30470 0.469469469 0.030030030 1.500501
## 30471 0.470470470 0.030030030 1.499499
## 30472 0.471471471 0.030030030 1.498498
## 30473 0.472472472 0.030030030 1.497497
## 30474 0.473473473 0.030030030 1.496496
## 30475 0.474474474 0.030030030 1.495495
## 30476 0.475475475 0.030030030 1.494494
## 30477 0.476476476 0.030030030 1.493493
## 30478 0.477477477 0.030030030 1.492492
## 30479 0.478478478 0.030030030 1.491491
## 30480 0.479479479 0.030030030 1.490490
## 30481 0.480480480 0.030030030 1.489489
## 30482 0.481481481 0.030030030 1.488488
## 30483 0.482482482 0.030030030 1.487487
## 30484 0.483483483 0.030030030 1.486486
## 30485 0.484484484 0.030030030 1.485485
## 30486 0.485485485 0.030030030 1.484484
## 30487 0.486486486 0.030030030 1.483483
## 30488 0.487487487 0.030030030 1.482482
## 30489 0.488488488 0.030030030 1.481481
## 30490 0.489489489 0.030030030 1.480480
## 30491 0.490490490 0.030030030 1.479479
## 30492 0.491491491 0.030030030 1.478478
## 30493 0.492492492 0.030030030 1.477477
## 30494 0.493493493 0.030030030 1.476476
## 30495 0.494494494 0.030030030 1.475475
## 30496 0.495495495 0.030030030 1.474474
## 30497 0.496496496 0.030030030 1.473473
## 30498 0.497497497 0.030030030 1.472472
## 30499 0.498498498 0.030030030 1.471471
## 30500 0.499499499 0.030030030 1.470470
## 30501 0.500500501 0.030030030 1.469469
## 30502 0.501501502 0.030030030 1.468468
## 30503 0.502502503 0.030030030 1.467467
## 30504 0.503503504 0.030030030 1.466466
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 775

```

## 30505 0.504504505 0.030030030 1.465465
## 30506 0.505505506 0.030030030 1.464464
## 30507 0.506506507 0.030030030 1.463463
## 30508 0.507507508 0.030030030 1.462462
## 30509 0.508508509 0.030030030 1.461461
## 30510 0.509509510 0.030030030 1.460460
## 30511 0.510510511 0.030030030 1.459459
## 30512 0.511511512 0.030030030 1.458458
## 30513 0.512512513 0.030030030 1.457457
## 30514 0.513513514 0.030030030 1.456456
## 30515 0.514514515 0.030030030 1.455455
## 30516 0.515515516 0.030030030 1.454454
## 30517 0.516516517 0.030030030 1.453453
## 30518 0.517517518 0.030030030 1.452452
## 30519 0.518518519 0.030030030 1.451451
## 30520 0.519519520 0.030030030 1.450450
## 30521 0.520520521 0.030030030 1.449449
## 30522 0.521521522 0.030030030 1.448448
## 30523 0.522522523 0.030030030 1.447447
## 30524 0.523523524 0.030030030 1.446446
## 30525 0.524524525 0.030030030 1.445445
## 30526 0.525525526 0.030030030 1.444444
## 30527 0.526526527 0.030030030 1.443443
## 30528 0.527527528 0.030030030 1.442442
## 30529 0.528528529 0.030030030 1.441441
## 30530 0.529529530 0.030030030 1.440440
## 30531 0.530530531 0.030030030 1.439439
## 30532 0.531531532 0.030030030 1.438438
## 30533 0.532532533 0.030030030 1.437437
## 30534 0.533533534 0.030030030 1.436436
## 30535 0.534534535 0.030030030 1.435435
## 30536 0.535535536 0.030030030 1.434434
## 30537 0.536536537 0.030030030 1.433433
## 30538 0.537537538 0.030030030 1.432432
## 30539 0.538538539 0.030030030 1.431431
## 30540 0.539539540 0.030030030 1.430430
## 30541 0.540540541 0.030030030 1.429429
## 30542 0.541541542 0.030030030 1.428428
## 30543 0.542542543 0.030030030 1.427427
## 30544 0.543543544 0.030030030 1.426426
## 30545 0.544544545 0.030030030 1.425425
## 30546 0.545545546 0.030030030 1.424424
## 30547 0.546546547 0.030030030 1.423423
## 30548 0.547547548 0.030030030 1.422422
## 30549 0.548548549 0.030030030 1.421421
## 30550 0.549549550 0.030030030 1.420420

```

```
## 30551 0.550550551 0.030030030 1.419419
## 30552 0.551551552 0.030030030 1.418418
## 30553 0.552552553 0.030030030 1.417417
## 30554 0.553553554 0.030030030 1.416416
## 30555 0.554554555 0.030030030 1.415415
## 30556 0.555555556 0.030030030 1.414414
## 30557 0.556556557 0.030030030 1.413413
## 30558 0.557557558 0.030030030 1.412412
## 30559 0.558558559 0.030030030 1.411411
## 30560 0.559559560 0.030030030 1.410410
## 30561 0.560560561 0.030030030 1.409409
## 30562 0.561561562 0.030030030 1.408408
## 30563 0.562562563 0.030030030 1.407407
## 30564 0.563563564 0.030030030 1.406406
## 30565 0.564564565 0.030030030 1.405405
## 30566 0.565565566 0.030030030 1.404404
## 30567 0.566566567 0.030030030 1.403403
## 30568 0.567567568 0.030030030 1.402402
## 30569 0.568568569 0.030030030 1.401401
## 30570 0.569569570 0.030030030 1.400400
## 30571 0.570570571 0.030030030 1.399399
## 30572 0.571571572 0.030030030 1.398398
## 30573 0.572572573 0.030030030 1.397397
## 30574 0.573573574 0.030030030 1.396396
## 30575 0.574574575 0.030030030 1.395395
## 30576 0.575575576 0.030030030 1.394394
## 30577 0.576576577 0.030030030 1.393393
## 30578 0.577577578 0.030030030 1.392392
## 30579 0.578578579 0.030030030 1.391391
## 30580 0.579579580 0.030030030 1.390390
## 30581 0.580580581 0.030030030 1.389389
## 30582 0.581581582 0.030030030 1.388388
## 30583 0.582582583 0.030030030 1.387387
## 30584 0.583583584 0.030030030 1.386386
## 30585 0.584584585 0.030030030 1.385385
## 30586 0.585585586 0.030030030 1.384384
## 30587 0.586586587 0.030030030 1.383383
## 30588 0.587587588 0.030030030 1.382382
## 30589 0.588588589 0.030030030 1.381381
## 30590 0.589589590 0.030030030 1.380380
## 30591 0.590590591 0.030030030 1.379379
## 30592 0.591591592 0.030030030 1.378378
## 30593 0.592592593 0.030030030 1.377377
## 30594 0.593593594 0.030030030 1.376376
## 30595 0.594594595 0.030030030 1.375375
## 30596 0.595595596 0.030030030 1.374374
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR777

```
## 30597 0.596596597 0.030030030 1.373373
## 30598 0.597597598 0.030030030 1.372372
## 30599 0.598598599 0.030030030 1.371371
## 30600 0.599599600 0.030030030 1.370370
## 30601 0.600600601 0.030030030 1.369369
## 30602 0.601601602 0.030030030 1.368368
## 30603 0.602602603 0.030030030 1.367367
## 30604 0.603603604 0.030030030 1.366366
## 30605 0.604604605 0.030030030 1.365365
## 30606 0.605605606 0.030030030 1.364364
## 30607 0.606606607 0.030030030 1.363363
## 30608 0.607607608 0.030030030 1.362362
## 30609 0.608608609 0.030030030 1.361361
## 30610 0.609609610 0.030030030 1.360360
## 30611 0.610610611 0.030030030 1.359359
## 30612 0.611611612 0.030030030 1.358358
## 30613 0.612612613 0.030030030 1.357357
## 30614 0.613613614 0.030030030 1.356356
## 30615 0.614614615 0.030030030 1.355355
## 30616 0.615615616 0.030030030 1.354354
## 30617 0.616616617 0.030030030 1.353353
## 30618 0.617617618 0.030030030 1.352352
## 30619 0.618618619 0.030030030 1.351351
## 30620 0.619619620 0.030030030 1.350350
## 30621 0.620620621 0.030030030 1.349349
## 30622 0.621621622 0.030030030 1.348348
## 30623 0.622622623 0.030030030 1.347347
## 30624 0.623623624 0.030030030 1.346346
## 30625 0.624624625 0.030030030 1.345345
## 30626 0.625625626 0.030030030 1.344344
## 30627 0.626626627 0.030030030 1.343343
## 30628 0.627627628 0.030030030 1.342342
## 30629 0.628628629 0.030030030 1.341341
## 30630 0.629629630 0.030030030 1.340340
## 30631 0.630630631 0.030030030 1.339339
## 30632 0.631631632 0.030030030 1.338338
## 30633 0.632632633 0.030030030 1.337337
## 30634 0.633633634 0.030030030 1.336336
## 30635 0.634634635 0.030030030 1.335335
## 30636 0.635635636 0.030030030 1.334334
## 30637 0.636636637 0.030030030 1.333333
## 30638 0.637637638 0.030030030 1.332332
## 30639 0.638638639 0.030030030 1.331331
## 30640 0.639639640 0.030030030 1.330330
## 30641 0.640640641 0.030030030 1.329329
## 30642 0.641641642 0.030030030 1.328328
```

```
## 30643 0.642642643 0.030030030 1.327327
## 30644 0.643643644 0.030030030 1.326326
## 30645 0.644644645 0.030030030 1.325325
## 30646 0.645645646 0.030030030 1.324324
## 30647 0.646646647 0.030030030 1.323323
## 30648 0.647647648 0.030030030 1.322322
## 30649 0.648648649 0.030030030 1.321321
## 30650 0.649649650 0.030030030 1.320320
## 30651 0.650650651 0.030030030 1.319319
## 30652 0.651651652 0.030030030 1.318318
## 30653 0.652652653 0.030030030 1.317317
## 30654 0.653653654 0.030030030 1.316316
## 30655 0.654654655 0.030030030 1.315315
## 30656 0.6556555656 0.030030030 1.314314
## 30657 0.656656657 0.030030030 1.313313
## 30658 0.657657658 0.030030030 1.312312
## 30659 0.658658659 0.030030030 1.311311
## 30660 0.659659660 0.030030030 1.310310
## 30661 0.660660661 0.030030030 1.309309
## 30662 0.661661662 0.030030030 1.308308
## 30663 0.662662663 0.030030030 1.307307
## 30664 0.663663664 0.030030030 1.306306
## 30665 0.664664665 0.030030030 1.305305
## 30666 0.665665666 0.030030030 1.304304
## 30667 0.666666667 0.030030030 1.303303
## 30668 0.667667668 0.030030030 1.302302
## 30669 0.668668669 0.030030030 1.301301
## 30670 0.669669670 0.030030030 1.300300
## 30671 0.670670671 0.030030030 1.299299
## 30672 0.671671672 0.030030030 1.298298
## 30673 0.672672673 0.030030030 1.297297
## 30674 0.673673674 0.030030030 1.296296
## 30675 0.674674675 0.030030030 1.295295
## 30676 0.675675676 0.030030030 1.294294
## 30677 0.676676677 0.030030030 1.293293
## 30678 0.677677678 0.030030030 1.292292
## 30679 0.678678679 0.030030030 1.291291
## 30680 0.679679680 0.030030030 1.290290
## 30681 0.680680681 0.030030030 1.289289
## 30682 0.681681682 0.030030030 1.288288
## 30683 0.682682683 0.030030030 1.287287
## 30684 0.683683684 0.030030030 1.286286
## 30685 0.684684685 0.030030030 1.285285
## 30686 0.685685686 0.030030030 1.284284
## 30687 0.686686687 0.030030030 1.283283
## 30688 0.687687688 0.030030030 1.282282
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 779

```
## 30689 0.688688689 0.030030030 1.281281
## 30690 0.689689690 0.030030030 1.280280
## 30691 0.690690691 0.030030030 1.279279
## 30692 0.691691692 0.030030030 1.278278
## 30693 0.692692693 0.030030030 1.277277
## 30694 0.693693694 0.030030030 1.276276
## 30695 0.694694695 0.030030030 1.275275
## 30696 0.695695696 0.030030030 1.274274
## 30697 0.696696697 0.030030030 1.273273
## 30698 0.697697698 0.030030030 1.272272
## 30699 0.698698699 0.030030030 1.271271
## 30700 0.699699700 0.030030030 1.270270
## 30701 0.700700701 0.030030030 1.269269
## 30702 0.701701702 0.030030030 1.268268
## 30703 0.702702703 0.030030030 1.267267
## 30704 0.703703704 0.030030030 1.266266
## 30705 0.704704705 0.030030030 1.265265
## 30706 0.705705706 0.030030030 1.264264
## 30707 0.706706707 0.030030030 1.263263
## 30708 0.707707708 0.030030030 1.262262
## 30709 0.708708709 0.030030030 1.261261
## 30710 0.709709710 0.030030030 1.260260
## 30711 0.710710711 0.030030030 1.259259
## 30712 0.711711712 0.030030030 1.258258
## 30713 0.712712713 0.030030030 1.257257
## 30714 0.713713714 0.030030030 1.256256
## 30715 0.714714715 0.030030030 1.255255
## 30716 0.715715716 0.030030030 1.254254
## 30717 0.716716717 0.030030030 1.253253
## 30718 0.717717718 0.030030030 1.252252
## 30719 0.718718719 0.030030030 1.251251
## 30720 0.719719720 0.030030030 1.250250
## 30721 0.720720721 0.030030030 1.249249
## 30722 0.721721722 0.030030030 1.248248
## 30723 0.722722723 0.030030030 1.247247
## 30724 0.723723724 0.030030030 1.246246
## 30725 0.724724725 0.030030030 1.245245
## 30726 0.725725726 0.030030030 1.244244
## 30727 0.726726727 0.030030030 1.243243
## 30728 0.727727728 0.030030030 1.242242
## 30729 0.728728729 0.030030030 1.241241
## 30730 0.729729730 0.030030030 1.240240
## 30731 0.730730731 0.030030030 1.239239
## 30732 0.731731732 0.030030030 1.238238
## 30733 0.732732733 0.030030030 1.237237
## 30734 0.733733734 0.030030030 1.236236
```

```
## 30735 0.734734735 0.030030030 1.235235
## 30736 0.735735736 0.030030030 1.234234
## 30737 0.736736737 0.030030030 1.233233
## 30738 0.737737738 0.030030030 1.232232
## 30739 0.738738739 0.030030030 1.231231
## 30740 0.739739740 0.030030030 1.230230
## 30741 0.740740741 0.030030030 1.229229
## 30742 0.741741742 0.030030030 1.228228
## 30743 0.742742743 0.030030030 1.227227
## 30744 0.743743744 0.030030030 1.226226
## 30745 0.744744745 0.030030030 1.225225
## 30746 0.745745746 0.030030030 1.224224
## 30747 0.746746747 0.030030030 1.223223
## 30748 0.747747748 0.030030030 1.222222
## 30749 0.748748749 0.030030030 1.221221
## 30750 0.749749750 0.030030030 1.220220
## 30751 0.750750751 0.030030030 1.219219
## 30752 0.751751752 0.030030030 1.218218
## 30753 0.752752753 0.030030030 1.217217
## 30754 0.753753754 0.030030030 1.216216
## 30755 0.754754755 0.030030030 1.215215
## 30756 0.755755756 0.030030030 1.214214
## 30757 0.756756757 0.030030030 1.213213
## 30758 0.757757758 0.030030030 1.212212
## 30759 0.758758759 0.030030030 1.211211
## 30760 0.759759760 0.030030030 1.210210
## 30761 0.760760761 0.030030030 1.209209
## 30762 0.761761762 0.030030030 1.208208
## 30763 0.762762763 0.030030030 1.207207
## 30764 0.763763764 0.030030030 1.206206
## 30765 0.764764765 0.030030030 1.205205
## 30766 0.765765766 0.030030030 1.204204
## 30767 0.766766767 0.030030030 1.203203
## 30768 0.767767768 0.030030030 1.202202
## 30769 0.768768769 0.030030030 1.201201
## 30770 0.769769770 0.030030030 1.200200
## 30771 0.770770771 0.030030030 1.199199
## 30772 0.771771772 0.030030030 1.198198
## 30773 0.772772773 0.030030030 1.197197
## 30774 0.773773774 0.030030030 1.196196
## 30775 0.774774775 0.030030030 1.195195
## 30776 0.775775776 0.030030030 1.194194
## 30777 0.776776777 0.030030030 1.193193
## 30778 0.777777778 0.030030030 1.192192
## 30779 0.778778779 0.030030030 1.191191
## 30780 0.779779780 0.030030030 1.190190
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR781

```
## 30781 0.780780781 0.030030030 1.189189
## 30782 0.781781782 0.030030030 1.188188
## 30783 0.782782783 0.030030030 1.187187
## 30784 0.783783784 0.030030030 1.186186
## 30785 0.784784785 0.030030030 1.185185
## 30786 0.785785786 0.030030030 1.184184
## 30787 0.786786787 0.030030030 1.183183
## 30788 0.787787788 0.030030030 1.182182
## 30789 0.788788789 0.030030030 1.181181
## 30790 0.789789790 0.030030030 1.180180
## 30791 0.790790791 0.030030030 1.179179
## 30792 0.791791792 0.030030030 1.178178
## 30793 0.792792793 0.030030030 1.177177
## 30794 0.793793794 0.030030030 1.176176
## 30795 0.794794795 0.030030030 1.175175
## 30796 0.795795796 0.030030030 1.174174
## 30797 0.796796797 0.030030030 1.173173
## 30798 0.797797798 0.030030030 1.172172
## 30799 0.798798799 0.030030030 1.171171
## 30800 0.799799800 0.030030030 1.170170
## 30801 0.800800801 0.030030030 1.169169
## 30802 0.801801802 0.030030030 1.168168
## 30803 0.802802803 0.030030030 1.167167
## 30804 0.803803804 0.030030030 1.166166
## 30805 0.804804805 0.030030030 1.165165
## 30806 0.805805806 0.030030030 1.164164
## 30807 0.806806807 0.030030030 1.163163
## 30808 0.807807808 0.030030030 1.162162
## 30809 0.808808809 0.030030030 1.161161
## 30810 0.809809810 0.030030030 1.160160
## 30811 0.810810811 0.030030030 1.159159
## 30812 0.811811812 0.030030030 1.158158
## 30813 0.812812813 0.030030030 1.157157
## 30814 0.813813814 0.030030030 1.156156
## 30815 0.814814815 0.030030030 1.155155
## 30816 0.815815816 0.030030030 1.154154
## 30817 0.816816817 0.030030030 1.153153
## 30818 0.817817818 0.030030030 1.152152
## 30819 0.818818819 0.030030030 1.151151
## 30820 0.819819820 0.030030030 1.150150
## 30821 0.820820821 0.030030030 1.149149
## 30822 0.821821822 0.030030030 1.148148
## 30823 0.822822823 0.030030030 1.147147
## 30824 0.823823824 0.030030030 1.146146
## 30825 0.824824825 0.030030030 1.145145
## 30826 0.825825826 0.030030030 1.144144
```

```
## 30827 0.826826827 0.030030030 1.143143
## 30828 0.827827828 0.030030030 1.142142
## 30829 0.828828829 0.030030030 1.141141
## 30830 0.829829830 0.030030030 1.140140
## 30831 0.830830831 0.030030030 1.139139
## 30832 0.831831832 0.030030030 1.138138
## 30833 0.832832833 0.030030030 1.137137
## 30834 0.833833834 0.030030030 1.136136
## 30835 0.834834835 0.030030030 1.135135
## 30836 0.835835836 0.030030030 1.134134
## 30837 0.836836837 0.030030030 1.133133
## 30838 0.837837838 0.030030030 1.132132
## 30839 0.838838839 0.030030030 1.131131
## 30840 0.839839840 0.030030030 1.130130
## 30841 0.840840841 0.030030030 1.129129
## 30842 0.841841842 0.030030030 1.128128
## 30843 0.842842843 0.030030030 1.127127
## 30844 0.843843844 0.030030030 1.126126
## 30845 0.844844845 0.030030030 1.125125
## 30846 0.845845846 0.030030030 1.124124
## 30847 0.846846847 0.030030030 1.123123
## 30848 0.847847848 0.030030030 1.122122
## 30849 0.848848849 0.030030030 1.121121
## 30850 0.849849850 0.030030030 1.120120
## 30851 0.850850851 0.030030030 1.119119
## 30852 0.851851852 0.030030030 1.118118
## 30853 0.852852853 0.030030030 1.117117
## 30854 0.853853854 0.030030030 1.116116
## 30855 0.854854855 0.030030030 1.115115
## 30856 0.855855856 0.030030030 1.114114
## 30857 0.856856857 0.030030030 1.113113
## 30858 0.857857858 0.030030030 1.112112
## 30859 0.858858859 0.030030030 1.111111
## 30860 0.859859860 0.030030030 1.110110
## 30861 0.860860861 0.030030030 1.109109
## 30862 0.861861862 0.030030030 1.108108
## 30863 0.862862863 0.030030030 1.107107
## 30864 0.863863864 0.030030030 1.106106
## 30865 0.864864865 0.030030030 1.105105
## 30866 0.865865866 0.030030030 1.104104
## 30867 0.866866867 0.030030030 1.103103
## 30868 0.867867868 0.030030030 1.102102
## 30869 0.868868869 0.030030030 1.101101
## 30870 0.869869870 0.030030030 1.100100
## 30871 0.870870871 0.030030030 1.099099
## 30872 0.871871872 0.030030030 1.098098
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR783

```
## 30873 0.872872873 0.030030030 1.097097
## 30874 0.873873874 0.030030030 1.096096
## 30875 0.874874875 0.030030030 1.095095
## 30876 0.875875876 0.030030030 1.094094
## 30877 0.876876877 0.030030030 1.093093
## 30878 0.877877878 0.030030030 1.092092
## 30879 0.878878879 0.030030030 1.091091
## 30880 0.879879880 0.030030030 1.090090
## 30881 0.880880881 0.030030030 1.089089
## 30882 0.881881882 0.030030030 1.088088
## 30883 0.882882883 0.030030030 1.087087
## 30884 0.883883884 0.030030030 1.086086
## 30885 0.884884885 0.030030030 1.085085
## 30886 0.885885886 0.030030030 1.084084
## 30887 0.886886887 0.030030030 1.083083
## 30888 0.887887888 0.030030030 1.082082
## 30889 0.888888889 0.030030030 1.081081
## 30890 0.889889890 0.030030030 1.080080
## 30891 0.890890891 0.030030030 1.079079
## 30892 0.891891892 0.030030030 1.078078
## 30893 0.892892893 0.030030030 1.077077
## 30894 0.893893894 0.030030030 1.076076
## 30895 0.894894895 0.030030030 1.075075
## 30896 0.895895896 0.030030030 1.074074
## 30897 0.896896897 0.030030030 1.073073
## 30898 0.897897898 0.030030030 1.072072
## 30899 0.898898899 0.030030030 1.071071
## 30900 0.899899900 0.030030030 1.070070
## 30901 0.900900901 0.030030030 1.069069
## 30902 0.901901902 0.030030030 1.068068
## 30903 0.902902903 0.030030030 1.067067
## 30904 0.903903904 0.030030030 1.066066
## 30905 0.904904905 0.030030030 1.065065
## 30906 0.905905906 0.030030030 1.064064
## 30907 0.906906907 0.030030030 1.063063
## 30908 0.907907908 0.030030030 1.062062
## 30909 0.908908909 0.030030030 1.061061
## 30910 0.909909910 0.030030030 1.060060
## 30911 0.910910911 0.030030030 1.059059
## 30912 0.911911912 0.030030030 1.058058
## 30913 0.912912913 0.030030030 1.057057
## 30914 0.913913914 0.030030030 1.056056
## 30915 0.914914915 0.030030030 1.055055
## 30916 0.915915916 0.030030030 1.054054
## 30917 0.916916917 0.030030030 1.053053
## 30918 0.917917918 0.030030030 1.052052
```

```
## 30919 0.918918919 0.030030030 1.051051
## 30920 0.919919920 0.030030030 1.050050
## 30921 0.920920921 0.030030030 1.049049
## 30922 0.921921922 0.030030030 1.048048
## 30923 0.922922923 0.030030030 1.047047
## 30924 0.923923924 0.030030030 1.046046
## 30925 0.924924925 0.030030030 1.045045
## 30926 0.925925926 0.030030030 1.044044
## 30927 0.926926927 0.030030030 1.043043
## 30928 0.927927928 0.030030030 1.042042
## 30929 0.928928929 0.030030030 1.041041
## 30930 0.929929930 0.030030030 1.040040
## 30931 0.930930931 0.030030030 1.039039
## 30932 0.931931932 0.030030030 1.038038
## 30933 0.932932933 0.030030030 1.037037
## 30934 0.933933934 0.030030030 1.036036
## 30935 0.934934935 0.030030030 1.035035
## 30936 0.935935936 0.030030030 1.034034
## 30937 0.936936937 0.030030030 1.033033
## 30938 0.937937938 0.030030030 1.032032
## 30939 0.938938939 0.030030030 1.031031
## 30940 0.939939940 0.030030030 1.030030
## 30941 0.940940941 0.030030030 1.029029
## 30942 0.941941942 0.030030030 1.028028
## 30943 0.942942943 0.030030030 1.027027
## 30944 0.943943944 0.030030030 1.026026
## 30945 0.9449444945 0.030030030 1.025025
## 30946 0.945945946 0.030030030 1.024024
## 30947 0.946946947 0.030030030 1.023023
## 30948 0.947947948 0.030030030 1.022022
## 30949 0.948948949 0.030030030 1.021021
## 30950 0.949949950 0.030030030 1.020020
## 30951 0.950950951 0.030030030 1.019019
## 30952 0.951951952 0.030030030 1.018018
## 30953 0.952952953 0.030030030 1.017017
## 30954 0.953953954 0.030030030 1.016016
## 30955 0.954954955 0.030030030 1.015015
## 30956 0.9559555956 0.030030030 1.014014
## 30957 0.956956957 0.030030030 1.013013
## 30958 0.957957958 0.030030030 1.012012
## 30959 0.958958959 0.030030030 1.011011
## 30960 0.959959960 0.030030030 1.010010
## 30961 0.960960961 0.030030030 1.009009
## 30962 0.961961962 0.030030030 1.008008
## 30963 0.962962963 0.030030030 1.007007
## 30964 0.963963964 0.030030030 1.006006
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 785

```

## 30965 0.964964965 0.030030030 1.005005
## 30966 0.965965966 0.030030030 1.004004
## 30967 0.966966967 0.030030030 1.003003
## 30968 0.967967968 0.030030030 1.002002
## 30969 0.968968969 0.030030030 1.001001
## 30970 0.969969970 0.030030030 1.000000
## 30971 0.970970971 0.030030030 0.998999
## 30972 0.971971972 0.030030030 0.997998
## 30973 0.972972973 0.030030030 0.996997
## 30974 0.973973974 0.030030030 0.995996
## 30975 0.974974975 0.030030030 0.994995
## 30976 0.975975976 0.030030030 0.993994
## 30977 0.976976977 0.030030030 0.992993
## 30978 0.977977978 0.030030030 0.991992
## 30979 0.978978979 0.030030030 0.990991
## 30980 0.979979980 0.030030030 0.989990
## 30981 0.980980981 0.030030030 0.988989
## 30982 0.981981982 0.030030030 0.987988
## 30983 0.982982983 0.030030030 0.986987
## 30984 0.983983984 0.030030030 0.985986
## 30985 0.984984985 0.030030030 0.984985
## 30986 0.985985986 0.030030030 0.983984
## 30987 0.986986987 0.030030030 0.982983
## 30988 0.987987988 0.030030030 0.981982
## 30989 0.988988989 0.030030030 0.980981
## 30990 0.989989990 0.030030030 0.979980
## 30991 0.990990991 0.030030030 0.978979
## 30992 0.991991992 0.030030030 0.977978
## 30993 0.992992993 0.030030030 0.976977
## 30994 0.993993994 0.030030030 0.975976
## 30995 0.994994995 0.030030030 0.974975
## 30996 0.995995996 0.030030030 0.973974
## 30997 0.996996997 0.030030030 0.972973
## 30998 0.997997998 0.030030030 0.971972
## 30999 0.998998999 0.030030030 0.970971
## 31000 1.000000000 0.030030030 0.969970
## 31001 0.000000000 0.031031031 1.968969
## 31002 0.001001001 0.031031031 1.967968
## 31003 0.002002002 0.031031031 1.966967
## 31004 0.003003003 0.031031031 1.965966
## 31005 0.004004004 0.031031031 1.964965
## 31006 0.005005005 0.031031031 1.963964
## 31007 0.006006006 0.031031031 1.962963
## 31008 0.007007007 0.031031031 1.961962
## 31009 0.008008008 0.031031031 1.960961
## 31010 0.009009009 0.031031031 1.959960

```

```
## 31011 0.010010010 0.031031031 1.958959
## 31012 0.011011011 0.031031031 1.957958
## 31013 0.012012012 0.031031031 1.956957
## 31014 0.013013013 0.031031031 1.955956
## 31015 0.014014014 0.031031031 1.954955
## 31016 0.015015015 0.031031031 1.953954
## 31017 0.016016016 0.031031031 1.952953
## 31018 0.017017017 0.031031031 1.951952
## 31019 0.018018018 0.031031031 1.950951
## 31020 0.019019019 0.031031031 1.949950
## 31021 0.020020020 0.031031031 1.948949
## 31022 0.021021021 0.031031031 1.947948
## 31023 0.022022022 0.031031031 1.946947
## 31024 0.023023023 0.031031031 1.945946
## 31025 0.024024024 0.031031031 1.944945
## 31026 0.025025025 0.031031031 1.943944
## 31027 0.026026026 0.031031031 1.942943
## 31028 0.027027027 0.031031031 1.941942
## 31029 0.028028028 0.031031031 1.940941
## 31030 0.029029029 0.031031031 1.939940
## 31031 0.030030030 0.031031031 1.938939
## 31032 0.031031031 0.031031031 1.937938
## 31033 0.032032032 0.031031031 1.936937
## 31034 0.033033033 0.031031031 1.935936
## 31035 0.034034034 0.031031031 1.934935
## 31036 0.035035035 0.031031031 1.933934
## 31037 0.036036036 0.031031031 1.932933
## 31038 0.037037037 0.031031031 1.931932
## 31039 0.038038038 0.031031031 1.930931
## 31040 0.039039039 0.031031031 1.929930
## 31041 0.040040040 0.031031031 1.928929
## 31042 0.041041041 0.031031031 1.927928
## 31043 0.042042042 0.031031031 1.926927
## 31044 0.043043043 0.031031031 1.925926
## 31045 0.044044044 0.031031031 1.924925
## 31046 0.045045045 0.031031031 1.923924
## 31047 0.046046046 0.031031031 1.922923
## 31048 0.047047047 0.031031031 1.921922
## 31049 0.048048048 0.031031031 1.920921
## 31050 0.049049049 0.031031031 1.919920
## 31051 0.050050050 0.031031031 1.918919
## 31052 0.051051051 0.031031031 1.917918
## 31053 0.052052052 0.031031031 1.916917
## 31054 0.053053053 0.031031031 1.915916
## 31055 0.054054054 0.031031031 1.914915
## 31056 0.055055055 0.031031031 1.913914
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 787

```
## 31057 0.056056056 0.031031031 1.912913
## 31058 0.057057057 0.031031031 1.911912
## 31059 0.058058058 0.031031031 1.910911
## 31060 0.059059059 0.031031031 1.909910
## 31061 0.060060060 0.031031031 1.908909
## 31062 0.061061061 0.031031031 1.907908
## 31063 0.062062062 0.031031031 1.906907
## 31064 0.063063063 0.031031031 1.905906
## 31065 0.064064064 0.031031031 1.904905
## 31066 0.065065065 0.031031031 1.903904
## 31067 0.066066066 0.031031031 1.902903
## 31068 0.067067067 0.031031031 1.901902
## 31069 0.068068068 0.031031031 1.900901
## 31070 0.069069069 0.031031031 1.899900
## 31071 0.070070070 0.031031031 1.898899
## 31072 0.071071071 0.031031031 1.897898
## 31073 0.072072072 0.031031031 1.896897
## 31074 0.073073073 0.031031031 1.895896
## 31075 0.074074074 0.031031031 1.894895
## 31076 0.075075075 0.031031031 1.893894
## 31077 0.076076076 0.031031031 1.892893
## 31078 0.077077077 0.031031031 1.891892
## 31079 0.078078078 0.031031031 1.890891
## 31080 0.079079079 0.031031031 1.889890
## 31081 0.080080080 0.031031031 1.888889
## 31082 0.081081081 0.031031031 1.887888
## 31083 0.082082082 0.031031031 1.886887
## 31084 0.083083083 0.031031031 1.885886
## 31085 0.084084084 0.031031031 1.884885
## 31086 0.085085085 0.031031031 1.883884
## 31087 0.086086086 0.031031031 1.882883
## 31088 0.087087087 0.031031031 1.881882
## 31089 0.088088088 0.031031031 1.880881
## 31090 0.089089089 0.031031031 1.879880
## 31091 0.090090090 0.031031031 1.878879
## 31092 0.091091091 0.031031031 1.877878
## 31093 0.092092092 0.031031031 1.876877
## 31094 0.093093093 0.031031031 1.875876
## 31095 0.094094094 0.031031031 1.874875
## 31096 0.095095095 0.031031031 1.873874
## 31097 0.096096096 0.031031031 1.872873
## 31098 0.097097097 0.031031031 1.871872
## 31099 0.098098098 0.031031031 1.870871
## 31100 0.099099099 0.031031031 1.869870
## 31101 0.100100100 0.031031031 1.868869
## 31102 0.101101101 0.031031031 1.867868
```

```
## 31103 0.102102102 0.031031031 1.866867
## 31104 0.103103103 0.031031031 1.865866
## 31105 0.104104104 0.031031031 1.864865
## 31106 0.105105105 0.031031031 1.863864
## 31107 0.106106106 0.031031031 1.862863
## 31108 0.107107107 0.031031031 1.861862
## 31109 0.108108108 0.031031031 1.860861
## 31110 0.109109109 0.031031031 1.859860
## 31111 0.110110110 0.031031031 1.858859
## 31112 0.111111111 0.031031031 1.857858
## 31113 0.112112112 0.031031031 1.856857
## 31114 0.113113113 0.031031031 1.855856
## 31115 0.114114114 0.031031031 1.854855
## 31116 0.115115115 0.031031031 1.853854
## 31117 0.116116116 0.031031031 1.852853
## 31118 0.117117117 0.031031031 1.851852
## 31119 0.118118118 0.031031031 1.850851
## 31120 0.119119119 0.031031031 1.849850
## 31121 0.120120120 0.031031031 1.848849
## 31122 0.121121121 0.031031031 1.847848
## 31123 0.122122122 0.031031031 1.846847
## 31124 0.123123123 0.031031031 1.845846
## 31125 0.124124124 0.031031031 1.844845
## 31126 0.125125125 0.031031031 1.843844
## 31127 0.126126126 0.031031031 1.842843
## 31128 0.127127127 0.031031031 1.841842
## 31129 0.128128128 0.031031031 1.840841
## 31130 0.129129129 0.031031031 1.839840
## 31131 0.130130130 0.031031031 1.838839
## 31132 0.131131131 0.031031031 1.837838
## 31133 0.132132132 0.031031031 1.836837
## 31134 0.133133133 0.031031031 1.835836
## 31135 0.134134134 0.031031031 1.834835
## 31136 0.135135135 0.031031031 1.833834
## 31137 0.136136136 0.031031031 1.832833
## 31138 0.137137137 0.031031031 1.831832
## 31139 0.138138138 0.031031031 1.830831
## 31140 0.139139139 0.031031031 1.829830
## 31141 0.140140140 0.031031031 1.828829
## 31142 0.141141141 0.031031031 1.827828
## 31143 0.142142142 0.031031031 1.826827
## 31144 0.143143143 0.031031031 1.825826
## 31145 0.144144144 0.031031031 1.824825
## 31146 0.145145145 0.031031031 1.823824
## 31147 0.146146146 0.031031031 1.822823
## 31148 0.147147147 0.031031031 1.821822
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 789

```
## 31149 0.148148148 0.031031031 1.820821
## 31150 0.149149149 0.031031031 1.819820
## 31151 0.150150150 0.031031031 1.818819
## 31152 0.151151151 0.031031031 1.817818
## 31153 0.152152152 0.031031031 1.816817
## 31154 0.153153153 0.031031031 1.815816
## 31155 0.154154154 0.031031031 1.814815
## 31156 0.155155155 0.031031031 1.813814
## 31157 0.156156156 0.031031031 1.812813
## 31158 0.157157157 0.031031031 1.811812
## 31159 0.158158158 0.031031031 1.810811
## 31160 0.159159159 0.031031031 1.809810
## 31161 0.160160160 0.031031031 1.808809
## 31162 0.161161161 0.031031031 1.807808
## 31163 0.162162162 0.031031031 1.806807
## 31164 0.163163163 0.031031031 1.805806
## 31165 0.164164164 0.031031031 1.804805
## 31166 0.165165165 0.031031031 1.803804
## 31167 0.166166166 0.031031031 1.802803
## 31168 0.167167167 0.031031031 1.801802
## 31169 0.168168168 0.031031031 1.800801
## 31170 0.169169169 0.031031031 1.799800
## 31171 0.170170170 0.031031031 1.798799
## 31172 0.171171171 0.031031031 1.797798
## 31173 0.172172172 0.031031031 1.796797
## 31174 0.173173173 0.031031031 1.795796
## 31175 0.174174174 0.031031031 1.794795
## 31176 0.175175175 0.031031031 1.793794
## 31177 0.176176176 0.031031031 1.792793
## 31178 0.177177177 0.031031031 1.791792
## 31179 0.178178178 0.031031031 1.790791
## 31180 0.179179179 0.031031031 1.789790
## 31181 0.180180180 0.031031031 1.788789
## 31182 0.181181181 0.031031031 1.787788
## 31183 0.182182182 0.031031031 1.786787
## 31184 0.183183183 0.031031031 1.785786
## 31185 0.184184184 0.031031031 1.784785
## 31186 0.185185185 0.031031031 1.783784
## 31187 0.186186186 0.031031031 1.782783
## 31188 0.187187187 0.031031031 1.781782
## 31189 0.188188188 0.031031031 1.780781
## 31190 0.189189189 0.031031031 1.779780
## 31191 0.190190190 0.031031031 1.778779
## 31192 0.191191191 0.031031031 1.777778
## 31193 0.192192192 0.031031031 1.776777
## 31194 0.193193193 0.031031031 1.775776
```

```
## 31195 0.194194194 0.031031031 1.774775
## 31196 0.195195195 0.031031031 1.773774
## 31197 0.196196196 0.031031031 1.772773
## 31198 0.197197197 0.031031031 1.771772
## 31199 0.198198198 0.031031031 1.770771
## 31200 0.199199199 0.031031031 1.769770
## 31201 0.200200200 0.031031031 1.768769
## 31202 0.201201201 0.031031031 1.767768
## 31203 0.202202202 0.031031031 1.766767
## 31204 0.203203203 0.031031031 1.765766
## 31205 0.204204204 0.031031031 1.764765
## 31206 0.205205205 0.031031031 1.763764
## 31207 0.206206206 0.031031031 1.762763
## 31208 0.207207207 0.031031031 1.761762
## 31209 0.208208208 0.031031031 1.760761
## 31210 0.209209209 0.031031031 1.759760
## 31211 0.210210210 0.031031031 1.758759
## 31212 0.211211211 0.031031031 1.757758
## 31213 0.212212212 0.031031031 1.756757
## 31214 0.213213213 0.031031031 1.755756
## 31215 0.214214214 0.031031031 1.754755
## 31216 0.215215215 0.031031031 1.753754
## 31217 0.216216216 0.031031031 1.752753
## 31218 0.217217217 0.031031031 1.751752
## 31219 0.218218218 0.031031031 1.750751
## 31220 0.219219219 0.031031031 1.749750
## 31221 0.220220220 0.031031031 1.748749
## 31222 0.221221221 0.031031031 1.747748
## 31223 0.222222222 0.031031031 1.746747
## 31224 0.223223223 0.031031031 1.745746
## 31225 0.224224224 0.031031031 1.744745
## 31226 0.225225225 0.031031031 1.743744
## 31227 0.226226226 0.031031031 1.742743
## 31228 0.227227227 0.031031031 1.741742
## 31229 0.228228228 0.031031031 1.740741
## 31230 0.229229229 0.031031031 1.739740
## 31231 0.230230230 0.031031031 1.738739
## 31232 0.231231231 0.031031031 1.737738
## 31233 0.232232232 0.031031031 1.736737
## 31234 0.233233233 0.031031031 1.735736
## 31235 0.234234234 0.031031031 1.734735
## 31236 0.235235235 0.031031031 1.733734
## 31237 0.236236236 0.031031031 1.732733
## 31238 0.237237237 0.031031031 1.731732
## 31239 0.238238238 0.031031031 1.730731
## 31240 0.239239239 0.031031031 1.729730
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 791

```
## 31241 0.240240240 0.031031031 1.728729
## 31242 0.241241241 0.031031031 1.727728
## 31243 0.242242242 0.031031031 1.726727
## 31244 0.243243243 0.031031031 1.725726
## 31245 0.244244244 0.031031031 1.724725
## 31246 0.245245245 0.031031031 1.723724
## 31247 0.246246246 0.031031031 1.722723
## 31248 0.247247247 0.031031031 1.721722
## 31249 0.248248248 0.031031031 1.720721
## 31250 0.249249249 0.031031031 1.719720
## 31251 0.250250250 0.031031031 1.718719
## 31252 0.251251251 0.031031031 1.717718
## 31253 0.252252252 0.031031031 1.716717
## 31254 0.253253253 0.031031031 1.715716
## 31255 0.254254254 0.031031031 1.714715
## 31256 0.255255255 0.031031031 1.713714
## 31257 0.256256256 0.031031031 1.712713
## 31258 0.257257257 0.031031031 1.711712
## 31259 0.258258258 0.031031031 1.710711
## 31260 0.259259259 0.031031031 1.709710
## 31261 0.260260260 0.031031031 1.708709
## 31262 0.261261261 0.031031031 1.707708
## 31263 0.262262262 0.031031031 1.706707
## 31264 0.263263263 0.031031031 1.705706
## 31265 0.264264264 0.031031031 1.704705
## 31266 0.265265265 0.031031031 1.703704
## 31267 0.266266266 0.031031031 1.702703
## 31268 0.267267267 0.031031031 1.701702
## 31269 0.268268268 0.031031031 1.700701
## 31270 0.269269269 0.031031031 1.699700
## 31271 0.270270270 0.031031031 1.698699
## 31272 0.271271271 0.031031031 1.697698
## 31273 0.272272272 0.031031031 1.696697
## 31274 0.273273273 0.031031031 1.695696
## 31275 0.274274274 0.031031031 1.694695
## 31276 0.275275275 0.031031031 1.693694
## 31277 0.276276276 0.031031031 1.692693
## 31278 0.277277277 0.031031031 1.691692
## 31279 0.278278278 0.031031031 1.690691
## 31280 0.279279279 0.031031031 1.689690
## 31281 0.280280280 0.031031031 1.688689
## 31282 0.281281281 0.031031031 1.687688
## 31283 0.282282282 0.031031031 1.686687
## 31284 0.283283283 0.031031031 1.685686
## 31285 0.284284284 0.031031031 1.684685
## 31286 0.285285285 0.031031031 1.683684
```

```
## 31287 0.286286286 0.031031031 1.682683
## 31288 0.287287287 0.031031031 1.681682
## 31289 0.288288288 0.031031031 1.680681
## 31290 0.289289289 0.031031031 1.679680
## 31291 0.290290290 0.031031031 1.678679
## 31292 0.291291291 0.031031031 1.677678
## 31293 0.292292292 0.031031031 1.676677
## 31294 0.293293293 0.031031031 1.675676
## 31295 0.294294294 0.031031031 1.674675
## 31296 0.295295295 0.031031031 1.673674
## 31297 0.296296296 0.031031031 1.672673
## 31298 0.297297297 0.031031031 1.671672
## 31299 0.298298298 0.031031031 1.670671
## 31300 0.299299299 0.031031031 1.669670
## 31301 0.300300300 0.031031031 1.668669
## 31302 0.301301301 0.031031031 1.667668
## 31303 0.302302302 0.031031031 1.666667
## 31304 0.303303303 0.031031031 1.665666
## 31305 0.304304304 0.031031031 1.664665
## 31306 0.305305305 0.031031031 1.663664
## 31307 0.306306306 0.031031031 1.662663
## 31308 0.307307307 0.031031031 1.661662
## 31309 0.308308308 0.031031031 1.660661
## 31310 0.309309309 0.031031031 1.659660
## 31311 0.310310310 0.031031031 1.658659
## 31312 0.311311311 0.031031031 1.657658
## 31313 0.312312312 0.031031031 1.656657
## 31314 0.313313313 0.031031031 1.655656
## 31315 0.314314314 0.031031031 1.654655
## 31316 0.315315315 0.031031031 1.653654
## 31317 0.316316316 0.031031031 1.652653
## 31318 0.317317317 0.031031031 1.651652
## 31319 0.318318318 0.031031031 1.650651
## 31320 0.319319319 0.031031031 1.649650
## 31321 0.320320320 0.031031031 1.648649
## 31322 0.321321321 0.031031031 1.647648
## 31323 0.322322322 0.031031031 1.646647
## 31324 0.323323323 0.031031031 1.645646
## 31325 0.324324324 0.031031031 1.644645
## 31326 0.325325325 0.031031031 1.643644
## 31327 0.326326326 0.031031031 1.642643
## 31328 0.327327327 0.031031031 1.641642
## 31329 0.328328328 0.031031031 1.640641
## 31330 0.329329329 0.031031031 1.639640
## 31331 0.330330330 0.031031031 1.638639
## 31332 0.331331331 0.031031031 1.637638
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 793

```
## 31333 0.332332332 0.031031031 1.636637
## 31334 0.333333333 0.031031031 1.635636
## 31335 0.334334334 0.031031031 1.634635
## 31336 0.335335335 0.031031031 1.633634
## 31337 0.336336336 0.031031031 1.632633
## 31338 0.337337337 0.031031031 1.631632
## 31339 0.338338338 0.031031031 1.630631
## 31340 0.339339339 0.031031031 1.629630
## 31341 0.340340340 0.031031031 1.628629
## 31342 0.341341341 0.031031031 1.627628
## 31343 0.342342342 0.031031031 1.626627
## 31344 0.343343343 0.031031031 1.625626
## 31345 0.344344344 0.031031031 1.624625
## 31346 0.345345345 0.031031031 1.623624
## 31347 0.346346346 0.031031031 1.622623
## 31348 0.347347347 0.031031031 1.621622
## 31349 0.348348348 0.031031031 1.620621
## 31350 0.349349349 0.031031031 1.619620
## 31351 0.350350350 0.031031031 1.618619
## 31352 0.351351351 0.031031031 1.617618
## 31353 0.352352352 0.031031031 1.616617
## 31354 0.353353353 0.031031031 1.615616
## 31355 0.354354354 0.031031031 1.614615
## 31356 0.355355355 0.031031031 1.613614
## 31357 0.356356356 0.031031031 1.612613
## 31358 0.357357357 0.031031031 1.611612
## 31359 0.358358358 0.031031031 1.610611
## 31360 0.359359359 0.031031031 1.609610
## 31361 0.360360360 0.031031031 1.608609
## 31362 0.361361361 0.031031031 1.607608
## 31363 0.362362362 0.031031031 1.606607
## 31364 0.363363363 0.031031031 1.605606
## 31365 0.364364364 0.031031031 1.604605
## 31366 0.365365365 0.031031031 1.603604
## 31367 0.366366366 0.031031031 1.602603
## 31368 0.367367367 0.031031031 1.601602
## 31369 0.368368368 0.031031031 1.600601
## 31370 0.369369369 0.031031031 1.599600
## 31371 0.370370370 0.031031031 1.598599
## 31372 0.371371371 0.031031031 1.597598
## 31373 0.372372372 0.031031031 1.596597
## 31374 0.373373373 0.031031031 1.595596
## 31375 0.374374374 0.031031031 1.594595
## 31376 0.375375375 0.031031031 1.593594
## 31377 0.376376376 0.031031031 1.592593
## 31378 0.377377377 0.031031031 1.591592
```

```
## 31379 0.378378378 0.031031031 1.590591
## 31380 0.379379379 0.031031031 1.589590
## 31381 0.380380380 0.031031031 1.588589
## 31382 0.381381381 0.031031031 1.587588
## 31383 0.382382382 0.031031031 1.586587
## 31384 0.383383383 0.031031031 1.585586
## 31385 0.384384384 0.031031031 1.584585
## 31386 0.385385385 0.031031031 1.583584
## 31387 0.386386386 0.031031031 1.582583
## 31388 0.387387387 0.031031031 1.581582
## 31389 0.388388388 0.031031031 1.580581
## 31390 0.389389389 0.031031031 1.579580
## 31391 0.390390390 0.031031031 1.578579
## 31392 0.391391391 0.031031031 1.577578
## 31393 0.392392392 0.031031031 1.576577
## 31394 0.393393393 0.031031031 1.575576
## 31395 0.394394394 0.031031031 1.574575
## 31396 0.395395395 0.031031031 1.573574
## 31397 0.396396396 0.031031031 1.572573
## 31398 0.397397397 0.031031031 1.571572
## 31399 0.398398398 0.031031031 1.570571
## 31400 0.399399399 0.031031031 1.569570
## 31401 0.400400400 0.031031031 1.568569
## 31402 0.401401401 0.031031031 1.567568
## 31403 0.402402402 0.031031031 1.566567
## 31404 0.403403403 0.031031031 1.565566
## 31405 0.404404404 0.031031031 1.564565
## 31406 0.405405405 0.031031031 1.563564
## 31407 0.406406406 0.031031031 1.562563
## 31408 0.407407407 0.031031031 1.561562
## 31409 0.408408408 0.031031031 1.560561
## 31410 0.409409409 0.031031031 1.559560
## 31411 0.410410410 0.031031031 1.558559
## 31412 0.411411411 0.031031031 1.557558
## 31413 0.412412412 0.031031031 1.556557
## 31414 0.413413413 0.031031031 1.555556
## 31415 0.414414414 0.031031031 1.554555
## 31416 0.415415415 0.031031031 1.553554
## 31417 0.416416416 0.031031031 1.552553
## 31418 0.417417417 0.031031031 1.551552
## 31419 0.418418418 0.031031031 1.550551
## 31420 0.419419419 0.031031031 1.549550
## 31421 0.420420420 0.031031031 1.548549
## 31422 0.421421421 0.031031031 1.547548
## 31423 0.422422422 0.031031031 1.546547
## 31424 0.423423423 0.031031031 1.545546
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 795

```
## 31425 0.424424424 0.031031031 1.544545
## 31426 0.425425425 0.031031031 1.543544
## 31427 0.426426426 0.031031031 1.542543
## 31428 0.427427427 0.031031031 1.541542
## 31429 0.428428428 0.031031031 1.540541
## 31430 0.429429429 0.031031031 1.539540
## 31431 0.430430430 0.031031031 1.538539
## 31432 0.431431431 0.031031031 1.537538
## 31433 0.432432432 0.031031031 1.536537
## 31434 0.433433433 0.031031031 1.535536
## 31435 0.434434434 0.031031031 1.534535
## 31436 0.435435435 0.031031031 1.533534
## 31437 0.436436436 0.031031031 1.532533
## 31438 0.437437437 0.031031031 1.531532
## 31439 0.438438438 0.031031031 1.530531
## 31440 0.439439439 0.031031031 1.529530
## 31441 0.440440440 0.031031031 1.528529
## 31442 0.441441441 0.031031031 1.527528
## 31443 0.442442442 0.031031031 1.526527
## 31444 0.443443443 0.031031031 1.525526
## 31445 0.444444444 0.031031031 1.524525
## 31446 0.445445445 0.031031031 1.523524
## 31447 0.446446446 0.031031031 1.522523
## 31448 0.447447447 0.031031031 1.521522
## 31449 0.448448448 0.031031031 1.520521
## 31450 0.449449449 0.031031031 1.519520
## 31451 0.450450450 0.031031031 1.518519
## 31452 0.451451451 0.031031031 1.517518
## 31453 0.452452452 0.031031031 1.516517
## 31454 0.453453453 0.031031031 1.515516
## 31455 0.454454454 0.031031031 1.514515
## 31456 0.455455455 0.031031031 1.513514
## 31457 0.456456456 0.031031031 1.512513
## 31458 0.457457457 0.031031031 1.511512
## 31459 0.458458458 0.031031031 1.510511
## 31460 0.459459459 0.031031031 1.509510
## 31461 0.460460460 0.031031031 1.508509
## 31462 0.461461461 0.031031031 1.507508
## 31463 0.462462462 0.031031031 1.506507
## 31464 0.463463463 0.031031031 1.505506
## 31465 0.464464464 0.031031031 1.504505
## 31466 0.465465465 0.031031031 1.503504
## 31467 0.466466466 0.031031031 1.502503
## 31468 0.467467467 0.031031031 1.501502
## 31469 0.468468468 0.031031031 1.500501
## 31470 0.469469469 0.031031031 1.499499
```

```
## 31471 0.470470470 0.031031031 1.498498
## 31472 0.471471471 0.031031031 1.497497
## 31473 0.472472472 0.031031031 1.496496
## 31474 0.473473473 0.031031031 1.495495
## 31475 0.474474474 0.031031031 1.494494
## 31476 0.475475475 0.031031031 1.493493
## 31477 0.476476476 0.031031031 1.492492
## 31478 0.477477477 0.031031031 1.491491
## 31479 0.478478478 0.031031031 1.490490
## 31480 0.479479479 0.031031031 1.489489
## 31481 0.480480480 0.031031031 1.488488
## 31482 0.481481481 0.031031031 1.487487
## 31483 0.482482482 0.031031031 1.486486
## 31484 0.483483483 0.031031031 1.485485
## 31485 0.484484484 0.031031031 1.484484
## 31486 0.485485485 0.031031031 1.483483
## 31487 0.486486486 0.031031031 1.482482
## 31488 0.487487487 0.031031031 1.481481
## 31489 0.488488488 0.031031031 1.480480
## 31490 0.489489489 0.031031031 1.479479
## 31491 0.490490490 0.031031031 1.478478
## 31492 0.491491491 0.031031031 1.477477
## 31493 0.492492492 0.031031031 1.476476
## 31494 0.493493493 0.031031031 1.475475
## 31495 0.494494494 0.031031031 1.474474
## 31496 0.495495495 0.031031031 1.473473
## 31497 0.496496496 0.031031031 1.472472
## 31498 0.497497497 0.031031031 1.471471
## 31499 0.498498498 0.031031031 1.470470
## 31500 0.499499499 0.031031031 1.469469
## 31501 0.500500501 0.031031031 1.468468
## 31502 0.501501502 0.031031031 1.467467
## 31503 0.502502503 0.031031031 1.466466
## 31504 0.503503504 0.031031031 1.465465
## 31505 0.504504505 0.031031031 1.464464
## 31506 0.505505506 0.031031031 1.463463
## 31507 0.506506507 0.031031031 1.462462
## 31508 0.507507508 0.031031031 1.461461
## 31509 0.508508509 0.031031031 1.460460
## 31510 0.509509510 0.031031031 1.459459
## 31511 0.510510511 0.031031031 1.458458
## 31512 0.511511512 0.031031031 1.457457
## 31513 0.512512513 0.031031031 1.456456
## 31514 0.513513514 0.031031031 1.455455
## 31515 0.514514515 0.031031031 1.454454
## 31516 0.515515516 0.031031031 1.453453
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 797

```
## 31517 0.516516517 0.031031031 1.452452
## 31518 0.517517518 0.031031031 1.451451
## 31519 0.518518519 0.031031031 1.450450
## 31520 0.519519520 0.031031031 1.449449
## 31521 0.520520521 0.031031031 1.448448
## 31522 0.521521522 0.031031031 1.447447
## 31523 0.522522523 0.031031031 1.446446
## 31524 0.523523524 0.031031031 1.445445
## 31525 0.524524525 0.031031031 1.444444
## 31526 0.525525526 0.031031031 1.443443
## 31527 0.526526527 0.031031031 1.442442
## 31528 0.527527528 0.031031031 1.441441
## 31529 0.528528529 0.031031031 1.440440
## 31530 0.529529530 0.031031031 1.439439
## 31531 0.530530531 0.031031031 1.438438
## 31532 0.531531532 0.031031031 1.437437
## 31533 0.532532533 0.031031031 1.436436
## 31534 0.533533534 0.031031031 1.435435
## 31535 0.534534535 0.031031031 1.434434
## 31536 0.535535536 0.031031031 1.433433
## 31537 0.536536537 0.031031031 1.432432
## 31538 0.537537538 0.031031031 1.431431
## 31539 0.538538539 0.031031031 1.430430
## 31540 0.539539540 0.031031031 1.429429
## 31541 0.540540541 0.031031031 1.428428
## 31542 0.541541542 0.031031031 1.427427
## 31543 0.542542543 0.031031031 1.426426
## 31544 0.543543544 0.031031031 1.425425
## 31545 0.544544545 0.031031031 1.424424
## 31546 0.545545546 0.031031031 1.423423
## 31547 0.546546547 0.031031031 1.422422
## 31548 0.547547548 0.031031031 1.421421
## 31549 0.548548549 0.031031031 1.420420
## 31550 0.549549550 0.031031031 1.419419
## 31551 0.550550551 0.031031031 1.418418
## 31552 0.551551552 0.031031031 1.417417
## 31553 0.552552553 0.031031031 1.416416
## 31554 0.553553554 0.031031031 1.415415
## 31555 0.554554555 0.031031031 1.414414
## 31556 0.555555556 0.031031031 1.413413
## 31557 0.556556557 0.031031031 1.412412
## 31558 0.557557558 0.031031031 1.411411
## 31559 0.558558559 0.031031031 1.410410
## 31560 0.559559560 0.031031031 1.409409
## 31561 0.560560561 0.031031031 1.408408
## 31562 0.561561562 0.031031031 1.407407
```

```
## 31563 0.562562563 0.031031031 1.406406
## 31564 0.563563564 0.031031031 1.405405
## 31565 0.564564565 0.031031031 1.404404
## 31566 0.565565566 0.031031031 1.403403
## 31567 0.566566567 0.031031031 1.402402
## 31568 0.567567568 0.031031031 1.401401
## 31569 0.568568569 0.031031031 1.400400
## 31570 0.569569570 0.031031031 1.399399
## 31571 0.570570571 0.031031031 1.398398
## 31572 0.571571572 0.031031031 1.397397
## 31573 0.572572573 0.031031031 1.396396
## 31574 0.573573574 0.031031031 1.395395
## 31575 0.574574575 0.031031031 1.394394
## 31576 0.575575576 0.031031031 1.393393
## 31577 0.576576577 0.031031031 1.392392
## 31578 0.577577578 0.031031031 1.391391
## 31579 0.578578579 0.031031031 1.390390
## 31580 0.579579580 0.031031031 1.389389
## 31581 0.580580581 0.031031031 1.388388
## 31582 0.581581582 0.031031031 1.387387
## 31583 0.582582583 0.031031031 1.386386
## 31584 0.583583584 0.031031031 1.385385
## 31585 0.584584585 0.031031031 1.384384
## 31586 0.585585586 0.031031031 1.383383
## 31587 0.586586587 0.031031031 1.382382
## 31588 0.587587588 0.031031031 1.381381
## 31589 0.588588589 0.031031031 1.380380
## 31590 0.589589590 0.031031031 1.379379
## 31591 0.590590591 0.031031031 1.378378
## 31592 0.591591592 0.031031031 1.377377
## 31593 0.592592593 0.031031031 1.376376
## 31594 0.593593594 0.031031031 1.375375
## 31595 0.594594595 0.031031031 1.374374
## 31596 0.595595596 0.031031031 1.373373
## 31597 0.596596597 0.031031031 1.372372
## 31598 0.597597598 0.031031031 1.371371
## 31599 0.598598599 0.031031031 1.370370
## 31600 0.599599600 0.031031031 1.369369
## 31601 0.600600601 0.031031031 1.368368
## 31602 0.601601602 0.031031031 1.367367
## 31603 0.602602603 0.031031031 1.366366
## 31604 0.603603604 0.031031031 1.365365
## 31605 0.604604605 0.031031031 1.364364
## 31606 0.605605606 0.031031031 1.363363
## 31607 0.606606607 0.031031031 1.362362
## 31608 0.607607608 0.031031031 1.361361
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 799

```

## 31609 0.608608609 0.031031031 1.360360
## 31610 0.609609610 0.031031031 1.359359
## 31611 0.610610611 0.031031031 1.358358
## 31612 0.611611612 0.031031031 1.357357
## 31613 0.612612613 0.031031031 1.356356
## 31614 0.613613614 0.031031031 1.355355
## 31615 0.614614615 0.031031031 1.354354
## 31616 0.615615616 0.031031031 1.353353
## 31617 0.616616617 0.031031031 1.352352
## 31618 0.617617618 0.031031031 1.351351
## 31619 0.618618619 0.031031031 1.350350
## 31620 0.619619620 0.031031031 1.349349
## 31621 0.620620621 0.031031031 1.348348
## 31622 0.621621622 0.031031031 1.347347
## 31623 0.622622623 0.031031031 1.346346
## 31624 0.623623624 0.031031031 1.345345
## 31625 0.624624625 0.031031031 1.344344
## 31626 0.625625626 0.031031031 1.343343
## 31627 0.626626627 0.031031031 1.342342
## 31628 0.627627628 0.031031031 1.341341
## 31629 0.628628629 0.031031031 1.340340
## 31630 0.629629630 0.031031031 1.339339
## 31631 0.630630631 0.031031031 1.338338
## 31632 0.631631632 0.031031031 1.337337
## 31633 0.632632633 0.031031031 1.336336
## 31634 0.633633634 0.031031031 1.335335
## 31635 0.634634635 0.031031031 1.334334
## 31636 0.635635636 0.031031031 1.333333
## 31637 0.636636637 0.031031031 1.332332
## 31638 0.637637638 0.031031031 1.331331
## 31639 0.638638639 0.031031031 1.330330
## 31640 0.639639640 0.031031031 1.329329
## 31641 0.640640641 0.031031031 1.328328
## 31642 0.641641642 0.031031031 1.327327
## 31643 0.642642643 0.031031031 1.326326
## 31644 0.643643644 0.031031031 1.325325
## 31645 0.644644645 0.031031031 1.324324
## 31646 0.645645646 0.031031031 1.323323
## 31647 0.646646647 0.031031031 1.322322
## 31648 0.647647648 0.031031031 1.321321
## 31649 0.648648649 0.031031031 1.320320
## 31650 0.649649650 0.031031031 1.319319
## 31651 0.650650651 0.031031031 1.318318
## 31652 0.651651652 0.031031031 1.317317
## 31653 0.652652653 0.031031031 1.316316
## 31654 0.653653654 0.031031031 1.315315

```

```
## 31655 0.654654655 0.031031031 1.314314
## 31656 0.655655656 0.031031031 1.313313
## 31657 0.656656657 0.031031031 1.312312
## 31658 0.657657658 0.031031031 1.311311
## 31659 0.658658659 0.031031031 1.310310
## 31660 0.659659660 0.031031031 1.309309
## 31661 0.660660661 0.031031031 1.308308
## 31662 0.661661662 0.031031031 1.307307
## 31663 0.662662663 0.031031031 1.306306
## 31664 0.663663664 0.031031031 1.305305
## 31665 0.664664665 0.031031031 1.304304
## 31666 0.665665666 0.031031031 1.303303
## 31667 0.666666667 0.031031031 1.302302
## 31668 0.667667668 0.031031031 1.301301
## 31669 0.668668669 0.031031031 1.300300
## 31670 0.669669670 0.031031031 1.299299
## 31671 0.670670671 0.031031031 1.298298
## 31672 0.671671672 0.031031031 1.297297
## 31673 0.672672673 0.031031031 1.296296
## 31674 0.673673674 0.031031031 1.295295
## 31675 0.674674675 0.031031031 1.294294
## 31676 0.675675676 0.031031031 1.293293
## 31677 0.676676677 0.031031031 1.292292
## 31678 0.677677678 0.031031031 1.291291
## 31679 0.678678679 0.031031031 1.290290
## 31680 0.679679680 0.031031031 1.289289
## 31681 0.680680681 0.031031031 1.288288
## 31682 0.681681682 0.031031031 1.287287
## 31683 0.682682683 0.031031031 1.286286
## 31684 0.683683684 0.031031031 1.285285
## 31685 0.684684685 0.031031031 1.284284
## 31686 0.685685686 0.031031031 1.283283
## 31687 0.686686687 0.031031031 1.282282
## 31688 0.687687688 0.031031031 1.281281
## 31689 0.688688689 0.031031031 1.280280
## 31690 0.689689690 0.031031031 1.279279
## 31691 0.690690691 0.031031031 1.278278
## 31692 0.691691692 0.031031031 1.277277
## 31693 0.692692693 0.031031031 1.276276
## 31694 0.693693694 0.031031031 1.275275
## 31695 0.694694695 0.031031031 1.274274
## 31696 0.695695696 0.031031031 1.273273
## 31697 0.696696697 0.031031031 1.272272
## 31698 0.697697698 0.031031031 1.271271
## 31699 0.698698699 0.031031031 1.270270
## 31700 0.699699700 0.031031031 1.269269
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR801

```
## 31701 0.700700701 0.031031031 1.268268
## 31702 0.701701702 0.031031031 1.267267
## 31703 0.702702703 0.031031031 1.266266
## 31704 0.703703704 0.031031031 1.265265
## 31705 0.704704705 0.031031031 1.264264
## 31706 0.705705706 0.031031031 1.263263
## 31707 0.706706707 0.031031031 1.262262
## 31708 0.707707708 0.031031031 1.261261
## 31709 0.708708709 0.031031031 1.260260
## 31710 0.709709710 0.031031031 1.259259
## 31711 0.710710711 0.031031031 1.258258
## 31712 0.711711712 0.031031031 1.257257
## 31713 0.712712713 0.031031031 1.256256
## 31714 0.713713714 0.031031031 1.255255
## 31715 0.714714715 0.031031031 1.254254
## 31716 0.715715716 0.031031031 1.253253
## 31717 0.716716717 0.031031031 1.252252
## 31718 0.717717718 0.031031031 1.251251
## 31719 0.718718719 0.031031031 1.250250
## 31720 0.719719720 0.031031031 1.249249
## 31721 0.720720721 0.031031031 1.248248
## 31722 0.721721722 0.031031031 1.247247
## 31723 0.722722723 0.031031031 1.246246
## 31724 0.723723724 0.031031031 1.245245
## 31725 0.724724725 0.031031031 1.244244
## 31726 0.725725726 0.031031031 1.243243
## 31727 0.726726727 0.031031031 1.242242
## 31728 0.727727728 0.031031031 1.241241
## 31729 0.728728729 0.031031031 1.240240
## 31730 0.729729730 0.031031031 1.239239
## 31731 0.730730731 0.031031031 1.238238
## 31732 0.731731732 0.031031031 1.237237
## 31733 0.732732733 0.031031031 1.236236
## 31734 0.733733734 0.031031031 1.235235
## 31735 0.734734735 0.031031031 1.234234
## 31736 0.735735736 0.031031031 1.233233
## 31737 0.736736737 0.031031031 1.232232
## 31738 0.737737738 0.031031031 1.231231
## 31739 0.738738739 0.031031031 1.230230
## 31740 0.739739740 0.031031031 1.229229
## 31741 0.740740741 0.031031031 1.228228
## 31742 0.741741742 0.031031031 1.227227
## 31743 0.742742743 0.031031031 1.226226
## 31744 0.743743744 0.031031031 1.225225
## 31745 0.744744745 0.031031031 1.224224
## 31746 0.745745746 0.031031031 1.223223
```

```
## 31747 0.746746747 0.031031031 1.222222
## 31748 0.747747748 0.031031031 1.221221
## 31749 0.748748749 0.031031031 1.220220
## 31750 0.749749750 0.031031031 1.219219
## 31751 0.750750751 0.031031031 1.218218
## 31752 0.751751752 0.031031031 1.217217
## 31753 0.752752753 0.031031031 1.216216
## 31754 0.753753754 0.031031031 1.215215
## 31755 0.754754755 0.031031031 1.214214
## 31756 0.755755756 0.031031031 1.213213
## 31757 0.756756757 0.031031031 1.212212
## 31758 0.757757758 0.031031031 1.211211
## 31759 0.758758759 0.031031031 1.210210
## 31760 0.759759760 0.031031031 1.209209
## 31761 0.760760761 0.031031031 1.208208
## 31762 0.761761762 0.031031031 1.207207
## 31763 0.762762763 0.031031031 1.206206
## 31764 0.763763764 0.031031031 1.205205
## 31765 0.764764765 0.031031031 1.204204
## 31766 0.765765766 0.031031031 1.203203
## 31767 0.766766767 0.031031031 1.202202
## 31768 0.767767768 0.031031031 1.201201
## 31769 0.768768769 0.031031031 1.200200
## 31770 0.769769770 0.031031031 1.199199
## 31771 0.770770771 0.031031031 1.198198
## 31772 0.771771772 0.031031031 1.197197
## 31773 0.772772773 0.031031031 1.196196
## 31774 0.773773774 0.031031031 1.195195
## 31775 0.774774775 0.031031031 1.194194
## 31776 0.775775776 0.031031031 1.193193
## 31777 0.776776777 0.031031031 1.192192
## 31778 0.777777778 0.031031031 1.191191
## 31779 0.778778779 0.031031031 1.190190
## 31780 0.779779780 0.031031031 1.189189
## 31781 0.780780781 0.031031031 1.188188
## 31782 0.781781782 0.031031031 1.187187
## 31783 0.782782783 0.031031031 1.186186
## 31784 0.783783784 0.031031031 1.185185
## 31785 0.784784785 0.031031031 1.184184
## 31786 0.785785786 0.031031031 1.183183
## 31787 0.786786787 0.031031031 1.182182
## 31788 0.787787788 0.031031031 1.181181
## 31789 0.788788789 0.031031031 1.180180
## 31790 0.789789790 0.031031031 1.179179
## 31791 0.790790791 0.031031031 1.178178
## 31792 0.791791792 0.031031031 1.177177
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR803

```
## 31793 0.792792793 0.031031031 1.176176
## 31794 0.793793794 0.031031031 1.175175
## 31795 0.794794795 0.031031031 1.174174
## 31796 0.795795796 0.031031031 1.173173
## 31797 0.796796797 0.031031031 1.172172
## 31798 0.797797798 0.031031031 1.171171
## 31799 0.798798799 0.031031031 1.170170
## 31800 0.799799800 0.031031031 1.169169
## 31801 0.800800801 0.031031031 1.168168
## 31802 0.801801802 0.031031031 1.167167
## 31803 0.802802803 0.031031031 1.166166
## 31804 0.803803804 0.031031031 1.165165
## 31805 0.804804805 0.031031031 1.164164
## 31806 0.805805806 0.031031031 1.163163
## 31807 0.806806807 0.031031031 1.162162
## 31808 0.807807808 0.031031031 1.161161
## 31809 0.808808809 0.031031031 1.160160
## 31810 0.809809810 0.031031031 1.159159
## 31811 0.810810811 0.031031031 1.158158
## 31812 0.811811812 0.031031031 1.157157
## 31813 0.812812813 0.031031031 1.156156
## 31814 0.813813814 0.031031031 1.155155
## 31815 0.814814815 0.031031031 1.154154
## 31816 0.815815816 0.031031031 1.153153
## 31817 0.816816817 0.031031031 1.152152
## 31818 0.817817818 0.031031031 1.151151
## 31819 0.818818819 0.031031031 1.150150
## 31820 0.819819820 0.031031031 1.149149
## 31821 0.820820821 0.031031031 1.148148
## 31822 0.821821822 0.031031031 1.147147
## 31823 0.822822823 0.031031031 1.146146
## 31824 0.823823824 0.031031031 1.145145
## 31825 0.824824825 0.031031031 1.144144
## 31826 0.825825826 0.031031031 1.143143
## 31827 0.826826827 0.031031031 1.142142
## 31828 0.827827828 0.031031031 1.141141
## 31829 0.828828829 0.031031031 1.140140
## 31830 0.829829830 0.031031031 1.139139
## 31831 0.830830831 0.031031031 1.138138
## 31832 0.831831832 0.031031031 1.137137
## 31833 0.832832833 0.031031031 1.136136
## 31834 0.833833834 0.031031031 1.135135
## 31835 0.834834835 0.031031031 1.134134
## 31836 0.835835836 0.031031031 1.133133
## 31837 0.836836837 0.031031031 1.132132
## 31838 0.837837838 0.031031031 1.131131
```

```
## 31839 0.838838839 0.031031031 1.130130
## 31840 0.839839840 0.031031031 1.129129
## 31841 0.840840841 0.031031031 1.128128
## 31842 0.841841842 0.031031031 1.127127
## 31843 0.842842843 0.031031031 1.126126
## 31844 0.843843844 0.031031031 1.125125
## 31845 0.844844845 0.031031031 1.124124
## 31846 0.845845846 0.031031031 1.123123
## 31847 0.846846847 0.031031031 1.122122
## 31848 0.847847848 0.031031031 1.121121
## 31849 0.848848849 0.031031031 1.120120
## 31850 0.849849850 0.031031031 1.119119
## 31851 0.850850851 0.031031031 1.118118
## 31852 0.851851852 0.031031031 1.117117
## 31853 0.852852853 0.031031031 1.116116
## 31854 0.853853854 0.031031031 1.115115
## 31855 0.854854855 0.031031031 1.114114
## 31856 0.855855856 0.031031031 1.113113
## 31857 0.856856857 0.031031031 1.112112
## 31858 0.857857858 0.031031031 1.111111
## 31859 0.858858859 0.031031031 1.110110
## 31860 0.859859860 0.031031031 1.109109
## 31861 0.860860861 0.031031031 1.108108
## 31862 0.861861862 0.031031031 1.107107
## 31863 0.862862863 0.031031031 1.106106
## 31864 0.863863864 0.031031031 1.105105
## 31865 0.864864865 0.031031031 1.104104
## 31866 0.865865866 0.031031031 1.103103
## 31867 0.866866867 0.031031031 1.102102
## 31868 0.867867868 0.031031031 1.101101
## 31869 0.868868869 0.031031031 1.100100
## 31870 0.869869870 0.031031031 1.099099
## 31871 0.870870871 0.031031031 1.098098
## 31872 0.871871872 0.031031031 1.097097
## 31873 0.872872873 0.031031031 1.096096
## 31874 0.873873874 0.031031031 1.095095
## 31875 0.874874875 0.031031031 1.094094
## 31876 0.875875876 0.031031031 1.093093
## 31877 0.876876877 0.031031031 1.092092
## 31878 0.877877878 0.031031031 1.091091
## 31879 0.878878879 0.031031031 1.090090
## 31880 0.879879880 0.031031031 1.089089
## 31881 0.880880881 0.031031031 1.088088
## 31882 0.881881882 0.031031031 1.087087
## 31883 0.882882883 0.031031031 1.086086
## 31884 0.883883884 0.031031031 1.085085
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR805

```
## 31885 0.884884885 0.031031031 1.084084
## 31886 0.885885886 0.031031031 1.083083
## 31887 0.886886887 0.031031031 1.082082
## 31888 0.887887888 0.031031031 1.081081
## 31889 0.888888889 0.031031031 1.080080
## 31890 0.889889890 0.031031031 1.079079
## 31891 0.890890891 0.031031031 1.078078
## 31892 0.891891892 0.031031031 1.077077
## 31893 0.892892893 0.031031031 1.076076
## 31894 0.893893894 0.031031031 1.075075
## 31895 0.894894895 0.031031031 1.074074
## 31896 0.895895896 0.031031031 1.073073
## 31897 0.896896897 0.031031031 1.072072
## 31898 0.897897898 0.031031031 1.071071
## 31899 0.898898899 0.031031031 1.070070
## 31900 0.899899900 0.031031031 1.069069
## 31901 0.900900901 0.031031031 1.068068
## 31902 0.901901902 0.031031031 1.067067
## 31903 0.902902903 0.031031031 1.066066
## 31904 0.903903904 0.031031031 1.065065
## 31905 0.904904905 0.031031031 1.064064
## 31906 0.905905906 0.031031031 1.063063
## 31907 0.906906907 0.031031031 1.062062
## 31908 0.907907908 0.031031031 1.061061
## 31909 0.908908909 0.031031031 1.060060
## 31910 0.909909910 0.031031031 1.059059
## 31911 0.910910911 0.031031031 1.058058
## 31912 0.911911912 0.031031031 1.057057
## 31913 0.912912913 0.031031031 1.056056
## 31914 0.913913914 0.031031031 1.055055
## 31915 0.914914915 0.031031031 1.054054
## 31916 0.915915916 0.031031031 1.053053
## 31917 0.916916917 0.031031031 1.052052
## 31918 0.917917918 0.031031031 1.051051
## 31919 0.918918919 0.031031031 1.050050
## 31920 0.919919920 0.031031031 1.049049
## 31921 0.920920921 0.031031031 1.048048
## 31922 0.921921922 0.031031031 1.047047
## 31923 0.922922923 0.031031031 1.046046
## 31924 0.923923924 0.031031031 1.045045
## 31925 0.924924925 0.031031031 1.044044
## 31926 0.925925926 0.031031031 1.043043
## 31927 0.926926927 0.031031031 1.042042
## 31928 0.927927928 0.031031031 1.041041
## 31929 0.928928929 0.031031031 1.040040
## 31930 0.929929930 0.031031031 1.039039
```

```
## 31931 0.930930931 0.031031031 1.038038
## 31932 0.931931932 0.031031031 1.037037
## 31933 0.932932933 0.031031031 1.036036
## 31934 0.9339333934 0.031031031 1.035035
## 31935 0.934934935 0.031031031 1.034034
## 31936 0.935935936 0.031031031 1.033033
## 31937 0.936936937 0.031031031 1.032032
## 31938 0.937937938 0.031031031 1.031031
## 31939 0.938938939 0.031031031 1.030030
## 31940 0.939939940 0.031031031 1.029029
## 31941 0.940940941 0.031031031 1.028028
## 31942 0.941941942 0.031031031 1.027027
## 31943 0.942942943 0.031031031 1.026026
## 31944 0.943943944 0.031031031 1.025025
## 31945 0.944944945 0.031031031 1.024024
## 31946 0.945945946 0.031031031 1.023023
## 31947 0.946946947 0.031031031 1.022022
## 31948 0.947947948 0.031031031 1.021021
## 31949 0.948948949 0.031031031 1.020020
## 31950 0.949949950 0.031031031 1.019019
## 31951 0.950950951 0.031031031 1.018018
## 31952 0.951951952 0.031031031 1.017017
## 31953 0.952952953 0.031031031 1.016016
## 31954 0.953953954 0.031031031 1.015015
## 31955 0.954954955 0.031031031 1.014014
## 31956 0.9559555956 0.031031031 1.013013
## 31957 0.956956957 0.031031031 1.012012
## 31958 0.957957958 0.031031031 1.011011
## 31959 0.958958959 0.031031031 1.010010
## 31960 0.959959960 0.031031031 1.009009
## 31961 0.960960961 0.031031031 1.008008
## 31962 0.961961962 0.031031031 1.007007
## 31963 0.962962963 0.031031031 1.006006
## 31964 0.963963964 0.031031031 1.005005
## 31965 0.964964965 0.031031031 1.004004
## 31966 0.965965966 0.031031031 1.003003
## 31967 0.966966967 0.031031031 1.002002
## 31968 0.967967968 0.031031031 1.001001
## 31969 0.968968969 0.031031031 1.000000
## 31970 0.969969970 0.031031031 0.998999
## 31971 0.970970971 0.031031031 0.997998
## 31972 0.971971972 0.031031031 0.996997
## 31973 0.972972973 0.031031031 0.995996
## 31974 0.973973974 0.031031031 0.994995
## 31975 0.974974975 0.031031031 0.993994
## 31976 0.975975976 0.031031031 0.992993
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR807

```
## 31977 0.976976977 0.031031031 0.991992
## 31978 0.977977978 0.031031031 0.990991
## 31979 0.978978979 0.031031031 0.989990
## 31980 0.979979980 0.031031031 0.988989
## 31981 0.980980981 0.031031031 0.987988
## 31982 0.981981982 0.031031031 0.986987
## 31983 0.982982983 0.031031031 0.985986
## 31984 0.983983984 0.031031031 0.984985
## 31985 0.984984985 0.031031031 0.983984
## 31986 0.985985986 0.031031031 0.982983
## 31987 0.986986987 0.031031031 0.981982
## 31988 0.987987988 0.031031031 0.980981
## 31989 0.988988989 0.031031031 0.979980
## 31990 0.989989990 0.031031031 0.978979
## 31991 0.990990991 0.031031031 0.977978
## 31992 0.991991992 0.031031031 0.976977
## 31993 0.992992993 0.031031031 0.975976
## 31994 0.993993994 0.031031031 0.974975
## 31995 0.994994995 0.031031031 0.973974
## 31996 0.995995996 0.031031031 0.972973
## 31997 0.996996997 0.031031031 0.971972
## 31998 0.997997998 0.031031031 0.970971
## 31999 0.998998999 0.031031031 0.969970
## 32000 1.000000000 0.031031031 0.968969
## 32001 0.000000000 0.032032032 1.967968
## 32002 0.001001001 0.032032032 1.966967
## 32003 0.002002002 0.032032032 1.965966
## 32004 0.003003003 0.032032032 1.964965
## 32005 0.004004004 0.032032032 1.963964
## 32006 0.005005005 0.032032032 1.962963
## 32007 0.006006006 0.032032032 1.961962
## 32008 0.007007007 0.032032032 1.960961
## 32009 0.008008008 0.032032032 1.959960
## 32010 0.009009009 0.032032032 1.958959
## 32011 0.010010010 0.032032032 1.957958
## 32012 0.011011011 0.032032032 1.956957
## 32013 0.012012012 0.032032032 1.955956
## 32014 0.013013013 0.032032032 1.954955
## 32015 0.014014014 0.032032032 1.953954
## 32016 0.015015015 0.032032032 1.952953
## 32017 0.016016016 0.032032032 1.951952
## 32018 0.017017017 0.032032032 1.950951
## 32019 0.018018018 0.032032032 1.949950
## 32020 0.019019019 0.032032032 1.948949
## 32021 0.020020020 0.032032032 1.947948
## 32022 0.021021021 0.032032032 1.946947
```

```
## 32023 0.022022022 0.032032032 1.945946
## 32024 0.023023023 0.032032032 1.944945
## 32025 0.024024024 0.032032032 1.943944
## 32026 0.025025025 0.032032032 1.942943
## 32027 0.026026026 0.032032032 1.941942
## 32028 0.027027027 0.032032032 1.940941
## 32029 0.028028028 0.032032032 1.939940
## 32030 0.029029029 0.032032032 1.938939
## 32031 0.030030030 0.032032032 1.937938
## 32032 0.031031031 0.032032032 1.936937
## 32033 0.032032032 0.032032032 1.935936
## 32034 0.033033033 0.032032032 1.934935
## 32035 0.034034034 0.032032032 1.933934
## 32036 0.035035035 0.032032032 1.932933
## 32037 0.036036036 0.032032032 1.931932
## 32038 0.037037037 0.032032032 1.930931
## 32039 0.038038038 0.032032032 1.929930
## 32040 0.039039039 0.032032032 1.928929
## 32041 0.040040040 0.032032032 1.927928
## 32042 0.041041041 0.032032032 1.926927
## 32043 0.042042042 0.032032032 1.925926
## 32044 0.043043043 0.032032032 1.924925
## 32045 0.044044044 0.032032032 1.923924
## 32046 0.045045045 0.032032032 1.922923
## 32047 0.046046046 0.032032032 1.921922
## 32048 0.047047047 0.032032032 1.920921
## 32049 0.048048048 0.032032032 1.919920
## 32050 0.049049049 0.032032032 1.918919
## 32051 0.050050050 0.032032032 1.917918
## 32052 0.051051051 0.032032032 1.916917
## 32053 0.052052052 0.032032032 1.915916
## 32054 0.053053053 0.032032032 1.914915
## 32055 0.054054054 0.032032032 1.913914
## 32056 0.055055055 0.032032032 1.912913
## 32057 0.056056056 0.032032032 1.911912
## 32058 0.057057057 0.032032032 1.910911
## 32059 0.058058058 0.032032032 1.909910
## 32060 0.059059059 0.032032032 1.908909
## 32061 0.060060060 0.032032032 1.907908
## 32062 0.061061061 0.032032032 1.906907
## 32063 0.062062062 0.032032032 1.905906
## 32064 0.063063063 0.032032032 1.904905
## 32065 0.064064064 0.032032032 1.903904
## 32066 0.065065065 0.032032032 1.902903
## 32067 0.066066066 0.032032032 1.901902
## 32068 0.067067067 0.032032032 1.900901
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR809

```
## 32069 0.068068068 0.032032032 1.899900
## 32070 0.069069069 0.032032032 1.898899
## 32071 0.070070070 0.032032032 1.897898
## 32072 0.071071071 0.032032032 1.896897
## 32073 0.072072072 0.032032032 1.895896
## 32074 0.073073073 0.032032032 1.894895
## 32075 0.074074074 0.032032032 1.893894
## 32076 0.075075075 0.032032032 1.892893
## 32077 0.076076076 0.032032032 1.891892
## 32078 0.077077077 0.032032032 1.890891
## 32079 0.078078078 0.032032032 1.889890
## 32080 0.079079079 0.032032032 1.888889
## 32081 0.080080080 0.032032032 1.887888
## 32082 0.081081081 0.032032032 1.886887
## 32083 0.082082082 0.032032032 1.885886
## 32084 0.083083083 0.032032032 1.884885
## 32085 0.084084084 0.032032032 1.883884
## 32086 0.085085085 0.032032032 1.882883
## 32087 0.086086086 0.032032032 1.881882
## 32088 0.087087087 0.032032032 1.880881
## 32089 0.088088088 0.032032032 1.879880
## 32090 0.089089089 0.032032032 1.878879
## 32091 0.090090090 0.032032032 1.877878
## 32092 0.091091091 0.032032032 1.876877
## 32093 0.092092092 0.032032032 1.875876
## 32094 0.093093093 0.032032032 1.874875
## 32095 0.094094094 0.032032032 1.873874
## 32096 0.095095095 0.032032032 1.872873
## 32097 0.096096096 0.032032032 1.871872
## 32098 0.097097097 0.032032032 1.870871
## 32099 0.098098098 0.032032032 1.869870
## 32100 0.099099099 0.032032032 1.868869
## 32101 0.100100100 0.032032032 1.867868
## 32102 0.101101101 0.032032032 1.866867
## 32103 0.102102102 0.032032032 1.865866
## 32104 0.103103103 0.032032032 1.864865
## 32105 0.104104104 0.032032032 1.863864
## 32106 0.105105105 0.032032032 1.862863
## 32107 0.106106106 0.032032032 1.861862
## 32108 0.107107107 0.032032032 1.860861
## 32109 0.108108108 0.032032032 1.859860
## 32110 0.109109109 0.032032032 1.858859
## 32111 0.110110110 0.032032032 1.857858
## 32112 0.111111111 0.032032032 1.856857
## 32113 0.112112112 0.032032032 1.855856
## 32114 0.113113113 0.032032032 1.854855
```

```
## 32115 0.114114114 0.032032032 1.853854
## 32116 0.115115115 0.032032032 1.852853
## 32117 0.116116116 0.032032032 1.851852
## 32118 0.117117117 0.032032032 1.850851
## 32119 0.118118118 0.032032032 1.849850
## 32120 0.119119119 0.032032032 1.848849
## 32121 0.120120120 0.032032032 1.847848
## 32122 0.121121121 0.032032032 1.846847
## 32123 0.122122122 0.032032032 1.845846
## 32124 0.123123123 0.032032032 1.844845
## 32125 0.124124124 0.032032032 1.843844
## 32126 0.125125125 0.032032032 1.842843
## 32127 0.126126126 0.032032032 1.841842
## 32128 0.127127127 0.032032032 1.840841
## 32129 0.128128128 0.032032032 1.839840
## 32130 0.129129129 0.032032032 1.838839
## 32131 0.130130130 0.032032032 1.837838
## 32132 0.131131131 0.032032032 1.836837
## 32133 0.132132132 0.032032032 1.835836
## 32134 0.133133133 0.032032032 1.834835
## 32135 0.134134134 0.032032032 1.833834
## 32136 0.135135135 0.032032032 1.832833
## 32137 0.136136136 0.032032032 1.831832
## 32138 0.137137137 0.032032032 1.830831
## 32139 0.138138138 0.032032032 1.829830
## 32140 0.139139139 0.032032032 1.828829
## 32141 0.140140140 0.032032032 1.827828
## 32142 0.141141141 0.032032032 1.826827
## 32143 0.142142142 0.032032032 1.825826
## 32144 0.143143143 0.032032032 1.824825
## 32145 0.144144144 0.032032032 1.823824
## 32146 0.145145145 0.032032032 1.822823
## 32147 0.146146146 0.032032032 1.821822
## 32148 0.147147147 0.032032032 1.820821
## 32149 0.148148148 0.032032032 1.819820
## 32150 0.149149149 0.032032032 1.818819
## 32151 0.150150150 0.032032032 1.817818
## 32152 0.151151151 0.032032032 1.816817
## 32153 0.152152152 0.032032032 1.815816
## 32154 0.153153153 0.032032032 1.814815
## 32155 0.154154154 0.032032032 1.813814
## 32156 0.155155155 0.032032032 1.812813
## 32157 0.156156156 0.032032032 1.811812
## 32158 0.157157157 0.032032032 1.810811
## 32159 0.158158158 0.032032032 1.809810
## 32160 0.159159159 0.032032032 1.808809
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 811

```
## 32161 0.160160160 0.032032032 1.807808
## 32162 0.161161161 0.032032032 1.806807
## 32163 0.162162162 0.032032032 1.805806
## 32164 0.163163163 0.032032032 1.804805
## 32165 0.164164164 0.032032032 1.803804
## 32166 0.165165165 0.032032032 1.802803
## 32167 0.166166166 0.032032032 1.801802
## 32168 0.167167167 0.032032032 1.800801
## 32169 0.168168168 0.032032032 1.799800
## 32170 0.169169169 0.032032032 1.798799
## 32171 0.170170170 0.032032032 1.797798
## 32172 0.171171171 0.032032032 1.796797
## 32173 0.172172172 0.032032032 1.795796
## 32174 0.173173173 0.032032032 1.794795
## 32175 0.174174174 0.032032032 1.793794
## 32176 0.175175175 0.032032032 1.792793
## 32177 0.176176176 0.032032032 1.791792
## 32178 0.177177177 0.032032032 1.790791
## 32179 0.178178178 0.032032032 1.789790
## 32180 0.179179179 0.032032032 1.788789
## 32181 0.180180180 0.032032032 1.787788
## 32182 0.181181181 0.032032032 1.786787
## 32183 0.182182182 0.032032032 1.785786
## 32184 0.183183183 0.032032032 1.784785
## 32185 0.184184184 0.032032032 1.783784
## 32186 0.185185185 0.032032032 1.782783
## 32187 0.186186186 0.032032032 1.781782
## 32188 0.187187187 0.032032032 1.780781
## 32189 0.188188188 0.032032032 1.779780
## 32190 0.189189189 0.032032032 1.778779
## 32191 0.190190190 0.032032032 1.777778
## 32192 0.191191191 0.032032032 1.776777
## 32193 0.192192192 0.032032032 1.775776
## 32194 0.193193193 0.032032032 1.774775
## 32195 0.194194194 0.032032032 1.773774
## 32196 0.195195195 0.032032032 1.772773
## 32197 0.196196196 0.032032032 1.771772
## 32198 0.197197197 0.032032032 1.770771
## 32199 0.198198198 0.032032032 1.769770
## 32200 0.199199199 0.032032032 1.768769
## 32201 0.200200200 0.032032032 1.767768
## 32202 0.201201201 0.032032032 1.766767
## 32203 0.202202202 0.032032032 1.765766
## 32204 0.203203203 0.032032032 1.764765
## 32205 0.204204204 0.032032032 1.763764
## 32206 0.205205205 0.032032032 1.762763
```

```
## 32207 0.206206206 0.032032032 1.761762
## 32208 0.207207207 0.032032032 1.760761
## 32209 0.208208208 0.032032032 1.759760
## 32210 0.209209209 0.032032032 1.758759
## 32211 0.210210210 0.032032032 1.757758
## 32212 0.211211211 0.032032032 1.756757
## 32213 0.212212212 0.032032032 1.755756
## 32214 0.213213213 0.032032032 1.754755
## 32215 0.214214214 0.032032032 1.753754
## 32216 0.215215215 0.032032032 1.752753
## 32217 0.216216216 0.032032032 1.751752
## 32218 0.217217217 0.032032032 1.750751
## 32219 0.218218218 0.032032032 1.749750
## 32220 0.219219219 0.032032032 1.748749
## 32221 0.220220220 0.032032032 1.747748
## 32222 0.221221221 0.032032032 1.746747
## 32223 0.222222222 0.032032032 1.745746
## 32224 0.223223223 0.032032032 1.744745
## 32225 0.224224224 0.032032032 1.743744
## 32226 0.225225225 0.032032032 1.742743
## 32227 0.226226226 0.032032032 1.741742
## 32228 0.227227227 0.032032032 1.740741
## 32229 0.228228228 0.032032032 1.739740
## 32230 0.229229229 0.032032032 1.738739
## 32231 0.230230230 0.032032032 1.737738
## 32232 0.231231231 0.032032032 1.736737
## 32233 0.232232232 0.032032032 1.735736
## 32234 0.233233233 0.032032032 1.734735
## 32235 0.234234234 0.032032032 1.733734
## 32236 0.235235235 0.032032032 1.732733
## 32237 0.236236236 0.032032032 1.731732
## 32238 0.237237237 0.032032032 1.730731
## 32239 0.238238238 0.032032032 1.729730
## 32240 0.239239239 0.032032032 1.728729
## 32241 0.240240240 0.032032032 1.727728
## 32242 0.241241241 0.032032032 1.726727
## 32243 0.242242242 0.032032032 1.725726
## 32244 0.243243243 0.032032032 1.724725
## 32245 0.244244244 0.032032032 1.723724
## 32246 0.245245245 0.032032032 1.722723
## 32247 0.246246246 0.032032032 1.721722
## 32248 0.247247247 0.032032032 1.720721
## 32249 0.248248248 0.032032032 1.719720
## 32250 0.249249249 0.032032032 1.718719
## 32251 0.250250250 0.032032032 1.717718
## 32252 0.251251251 0.032032032 1.716717
```

```
## 32253 0.252252252 0.032032032 1.715716
## 32254 0.253253253 0.032032032 1.714715
## 32255 0.254254254 0.032032032 1.713714
## 32256 0.255255255 0.032032032 1.712713
## 32257 0.256256256 0.032032032 1.711712
## 32258 0.257257257 0.032032032 1.710711
## 32259 0.258258258 0.032032032 1.709710
## 32260 0.259259259 0.032032032 1.708709
## 32261 0.260260260 0.032032032 1.707708
## 32262 0.261261261 0.032032032 1.706707
## 32263 0.262262262 0.032032032 1.705706
## 32264 0.263263263 0.032032032 1.704705
## 32265 0.264264264 0.032032032 1.703704
## 32266 0.265265265 0.032032032 1.702703
## 32267 0.266266266 0.032032032 1.701702
## 32268 0.267267267 0.032032032 1.700701
## 32269 0.268268268 0.032032032 1.699700
## 32270 0.269269269 0.032032032 1.698699
## 32271 0.270270270 0.032032032 1.697698
## 32272 0.271271271 0.032032032 1.696697
## 32273 0.272272272 0.032032032 1.695696
## 32274 0.273273273 0.032032032 1.694695
## 32275 0.274274274 0.032032032 1.693694
## 32276 0.275275275 0.032032032 1.692693
## 32277 0.276276276 0.032032032 1.691692
## 32278 0.277277277 0.032032032 1.690691
## 32279 0.278278278 0.032032032 1.689690
## 32280 0.279279279 0.032032032 1.688689
## 32281 0.280280280 0.032032032 1.687688
## 32282 0.281281281 0.032032032 1.686687
## 32283 0.282282282 0.032032032 1.685686
## 32284 0.283283283 0.032032032 1.684685
## 32285 0.284284284 0.032032032 1.683684
## 32286 0.285285285 0.032032032 1.682683
## 32287 0.286286286 0.032032032 1.681682
## 32288 0.287287287 0.032032032 1.680681
## 32289 0.288288288 0.032032032 1.679680
## 32290 0.289289289 0.032032032 1.678679
## 32291 0.290290290 0.032032032 1.677678
## 32292 0.291291291 0.032032032 1.676677
## 32293 0.292292292 0.032032032 1.675676
## 32294 0.293293293 0.032032032 1.674675
## 32295 0.294294294 0.032032032 1.673674
## 32296 0.295295295 0.032032032 1.672673
## 32297 0.296296296 0.032032032 1.671672
## 32298 0.297297297 0.032032032 1.670671
```

```
## 32299 0.298298298 0.032032032 1.669670
## 32300 0.299299299 0.032032032 1.668669
## 32301 0.300300300 0.032032032 1.667668
## 32302 0.301301301 0.032032032 1.666667
## 32303 0.302302302 0.032032032 1.665666
## 32304 0.303303303 0.032032032 1.664665
## 32305 0.304304304 0.032032032 1.663664
## 32306 0.305305305 0.032032032 1.662663
## 32307 0.306306306 0.032032032 1.661662
## 32308 0.307307307 0.032032032 1.660661
## 32309 0.308308308 0.032032032 1.659660
## 32310 0.309309309 0.032032032 1.658659
## 32311 0.310310310 0.032032032 1.657658
## 32312 0.311311311 0.032032032 1.656657
## 32313 0.312312312 0.032032032 1.655656
## 32314 0.313313313 0.032032032 1.654655
## 32315 0.314314314 0.032032032 1.653654
## 32316 0.315315315 0.032032032 1.652653
## 32317 0.316316316 0.032032032 1.651652
## 32318 0.317317317 0.032032032 1.650651
## 32319 0.318318318 0.032032032 1.649650
## 32320 0.319319319 0.032032032 1.648649
## 32321 0.320320320 0.032032032 1.647648
## 32322 0.321321321 0.032032032 1.646647
## 32323 0.322322322 0.032032032 1.645646
## 32324 0.323323323 0.032032032 1.644645
## 32325 0.324324324 0.032032032 1.643644
## 32326 0.325325325 0.032032032 1.642643
## 32327 0.326326326 0.032032032 1.641642
## 32328 0.327327327 0.032032032 1.640641
## 32329 0.328328328 0.032032032 1.639640
## 32330 0.329329329 0.032032032 1.638639
## 32331 0.330330330 0.032032032 1.637638
## 32332 0.331331331 0.032032032 1.636637
## 32333 0.332332332 0.032032032 1.635636
## 32334 0.333333333 0.032032032 1.634635
## 32335 0.334334334 0.032032032 1.633634
## 32336 0.335335335 0.032032032 1.632633
## 32337 0.336336336 0.032032032 1.631632
## 32338 0.337337337 0.032032032 1.630631
## 32339 0.338338338 0.032032032 1.629630
## 32340 0.339339339 0.032032032 1.628629
## 32341 0.340340340 0.032032032 1.627628
## 32342 0.341341341 0.032032032 1.626627
## 32343 0.342342342 0.032032032 1.625626
## 32344 0.343343343 0.032032032 1.624625
```

```

## 32345 0.344344344 0.032032032 1.623624
## 32346 0.345345345 0.032032032 1.622623
## 32347 0.346346346 0.032032032 1.621622
## 32348 0.347347347 0.032032032 1.620621
## 32349 0.348348348 0.032032032 1.619620
## 32350 0.349349349 0.032032032 1.618619
## 32351 0.350350350 0.032032032 1.617618
## 32352 0.351351351 0.032032032 1.616617
## 32353 0.352352352 0.032032032 1.615616
## 32354 0.353353353 0.032032032 1.614615
## 32355 0.354354354 0.032032032 1.613614
## 32356 0.355355355 0.032032032 1.612613
## 32357 0.356356356 0.032032032 1.611612
## 32358 0.357357357 0.032032032 1.610611
## 32359 0.358358358 0.032032032 1.609610
## 32360 0.359359359 0.032032032 1.608609
## 32361 0.360360360 0.032032032 1.607608
## 32362 0.361361361 0.032032032 1.606607
## 32363 0.362362362 0.032032032 1.605606
## 32364 0.363363363 0.032032032 1.604605
## 32365 0.364364364 0.032032032 1.603604
## 32366 0.365365365 0.032032032 1.602603
## 32367 0.366366366 0.032032032 1.601602
## 32368 0.367367367 0.032032032 1.600601
## 32369 0.368368368 0.032032032 1.599600
## 32370 0.369369369 0.032032032 1.598599
## 32371 0.370370370 0.032032032 1.597598
## 32372 0.371371371 0.032032032 1.596597
## 32373 0.372372372 0.032032032 1.595596
## 32374 0.373373373 0.032032032 1.594595
## 32375 0.374374374 0.032032032 1.593594
## 32376 0.375375375 0.032032032 1.592593
## 32377 0.376376376 0.032032032 1.591592
## 32378 0.377377377 0.032032032 1.590591
## 32379 0.378378378 0.032032032 1.589590
## 32380 0.379379379 0.032032032 1.588589
## 32381 0.380380380 0.032032032 1.587588
## 32382 0.381381381 0.032032032 1.586587
## 32383 0.382382382 0.032032032 1.585586
## 32384 0.383383383 0.032032032 1.584585
## 32385 0.384384384 0.032032032 1.583584
## 32386 0.385385385 0.032032032 1.582583
## 32387 0.386386386 0.032032032 1.581582
## 32388 0.387387387 0.032032032 1.580581
## 32389 0.388388388 0.032032032 1.579580
## 32390 0.389389389 0.032032032 1.578579

```

```
## 32391 0.390390390 0.032032032 1.577578
## 32392 0.391391391 0.032032032 1.576577
## 32393 0.392392392 0.032032032 1.575576
## 32394 0.393393393 0.032032032 1.574575
## 32395 0.394394394 0.032032032 1.573574
## 32396 0.395395395 0.032032032 1.572573
## 32397 0.396396396 0.032032032 1.571572
## 32398 0.397397397 0.032032032 1.570571
## 32399 0.398398398 0.032032032 1.569570
## 32400 0.399399399 0.032032032 1.568569
## 32401 0.400400400 0.032032032 1.567568
## 32402 0.401401401 0.032032032 1.566567
## 32403 0.402402402 0.032032032 1.565566
## 32404 0.403403403 0.032032032 1.564565
## 32405 0.404404404 0.032032032 1.563564
## 32406 0.405405405 0.032032032 1.562563
## 32407 0.406406406 0.032032032 1.561562
## 32408 0.407407407 0.032032032 1.560561
## 32409 0.408408408 0.032032032 1.559560
## 32410 0.409409409 0.032032032 1.558559
## 32411 0.410410410 0.032032032 1.557558
## 32412 0.411411411 0.032032032 1.556557
## 32413 0.412412412 0.032032032 1.555556
## 32414 0.413413413 0.032032032 1.554555
## 32415 0.414414414 0.032032032 1.553554
## 32416 0.415415415 0.032032032 1.552553
## 32417 0.416416416 0.032032032 1.551552
## 32418 0.417417417 0.032032032 1.550551
## 32419 0.418418418 0.032032032 1.549550
## 32420 0.419419419 0.032032032 1.548549
## 32421 0.420420420 0.032032032 1.547548
## 32422 0.421421421 0.032032032 1.546547
## 32423 0.422422422 0.032032032 1.545546
## 32424 0.423423423 0.032032032 1.544545
## 32425 0.424424424 0.032032032 1.543544
## 32426 0.425425425 0.032032032 1.542543
## 32427 0.426426426 0.032032032 1.541542
## 32428 0.427427427 0.032032032 1.540541
## 32429 0.428428428 0.032032032 1.539540
## 32430 0.429429429 0.032032032 1.538539
## 32431 0.430430430 0.032032032 1.537538
## 32432 0.431431431 0.032032032 1.536537
## 32433 0.432432432 0.032032032 1.535536
## 32434 0.433433433 0.032032032 1.534535
## 32435 0.434434434 0.032032032 1.533534
## 32436 0.435435435 0.032032032 1.532533
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 817

```
## 32437 0.436436436 0.032032032 1.531532
## 32438 0.437437437 0.032032032 1.530531
## 32439 0.438438438 0.032032032 1.529530
## 32440 0.439439439 0.032032032 1.528529
## 32441 0.440440440 0.032032032 1.527528
## 32442 0.441441441 0.032032032 1.526527
## 32443 0.442442442 0.032032032 1.525526
## 32444 0.443443443 0.032032032 1.524525
## 32445 0.444444444 0.032032032 1.523524
## 32446 0.445445445 0.032032032 1.522523
## 32447 0.446446446 0.032032032 1.521522
## 32448 0.447447447 0.032032032 1.520521
## 32449 0.448448448 0.032032032 1.519520
## 32450 0.449449449 0.032032032 1.518519
## 32451 0.450450450 0.032032032 1.517518
## 32452 0.451451451 0.032032032 1.516517
## 32453 0.452452452 0.032032032 1.515516
## 32454 0.453453453 0.032032032 1.514515
## 32455 0.454454454 0.032032032 1.513514
## 32456 0.455455455 0.032032032 1.512513
## 32457 0.456456456 0.032032032 1.511512
## 32458 0.457457457 0.032032032 1.510511
## 32459 0.458458458 0.032032032 1.509510
## 32460 0.459459459 0.032032032 1.508509
## 32461 0.460460460 0.032032032 1.507508
## 32462 0.461461461 0.032032032 1.506507
## 32463 0.462462462 0.032032032 1.505506
## 32464 0.463463463 0.032032032 1.504505
## 32465 0.464464464 0.032032032 1.503504
## 32466 0.465465465 0.032032032 1.502503
## 32467 0.466466466 0.032032032 1.501502
## 32468 0.467467467 0.032032032 1.500501
## 32469 0.468468468 0.032032032 1.499499
## 32470 0.469469469 0.032032032 1.498498
## 32471 0.470470470 0.032032032 1.497497
## 32472 0.471471471 0.032032032 1.496496
## 32473 0.472472472 0.032032032 1.495495
## 32474 0.473473473 0.032032032 1.494494
## 32475 0.474474474 0.032032032 1.493493
## 32476 0.475475475 0.032032032 1.492492
## 32477 0.476476476 0.032032032 1.491491
## 32478 0.477477477 0.032032032 1.490490
## 32479 0.478478478 0.032032032 1.489489
## 32480 0.479479479 0.032032032 1.488488
## 32481 0.480480480 0.032032032 1.487487
## 32482 0.481481481 0.032032032 1.486486
```

```
## 32483 0.482482482 0.032032032 1.485485
## 32484 0.483483483 0.032032032 1.484484
## 32485 0.484484484 0.032032032 1.483483
## 32486 0.485485485 0.032032032 1.482482
## 32487 0.486486486 0.032032032 1.481481
## 32488 0.487487487 0.032032032 1.480480
## 32489 0.488488488 0.032032032 1.479479
## 32490 0.489489489 0.032032032 1.478478
## 32491 0.490490490 0.032032032 1.477477
## 32492 0.491491491 0.032032032 1.476476
## 32493 0.492492492 0.032032032 1.475475
## 32494 0.493493493 0.032032032 1.474474
## 32495 0.494494494 0.032032032 1.473473
## 32496 0.495495495 0.032032032 1.472472
## 32497 0.496496496 0.032032032 1.471471
## 32498 0.497497497 0.032032032 1.470470
## 32499 0.498498498 0.032032032 1.469469
## 32500 0.499499499 0.032032032 1.468468
## 32501 0.500500501 0.032032032 1.467467
## 32502 0.501501502 0.032032032 1.466466
## 32503 0.502502503 0.032032032 1.465465
## 32504 0.503503504 0.032032032 1.464464
## 32505 0.504504505 0.032032032 1.463463
## 32506 0.505505506 0.032032032 1.462462
## 32507 0.506506507 0.032032032 1.461461
## 32508 0.507507508 0.032032032 1.460460
## 32509 0.508508509 0.032032032 1.459459
## 32510 0.509509510 0.032032032 1.458458
## 32511 0.510510511 0.032032032 1.457457
## 32512 0.511511512 0.032032032 1.456456
## 32513 0.512512513 0.032032032 1.455455
## 32514 0.513513514 0.032032032 1.454454
## 32515 0.514514515 0.032032032 1.453453
## 32516 0.515515516 0.032032032 1.452452
## 32517 0.516516517 0.032032032 1.451451
## 32518 0.517517518 0.032032032 1.450450
## 32519 0.518518519 0.032032032 1.449449
## 32520 0.519519520 0.032032032 1.448448
## 32521 0.520520521 0.032032032 1.447447
## 32522 0.521521522 0.032032032 1.446446
## 32523 0.522522523 0.032032032 1.445445
## 32524 0.523523524 0.032032032 1.444444
## 32525 0.524524525 0.032032032 1.443443
## 32526 0.525525526 0.032032032 1.442442
## 32527 0.526526527 0.032032032 1.441441
## 32528 0.527527528 0.032032032 1.440440
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 819

```
## 32529 0.528528529 0.032032032 1.439439
## 32530 0.529529530 0.032032032 1.438438
## 32531 0.530530531 0.032032032 1.437437
## 32532 0.531531532 0.032032032 1.436436
## 32533 0.532532533 0.032032032 1.435435
## 32534 0.533533534 0.032032032 1.434434
## 32535 0.534534535 0.032032032 1.433433
## 32536 0.535535536 0.032032032 1.432432
## 32537 0.536536537 0.032032032 1.431431
## 32538 0.537537538 0.032032032 1.430430
## 32539 0.538538539 0.032032032 1.429429
## 32540 0.539539540 0.032032032 1.428428
## 32541 0.540540541 0.032032032 1.427427
## 32542 0.541541542 0.032032032 1.426426
## 32543 0.542542543 0.032032032 1.425425
## 32544 0.543543544 0.032032032 1.424424
## 32545 0.544544545 0.032032032 1.423423
## 32546 0.545545546 0.032032032 1.422422
## 32547 0.546546547 0.032032032 1.421421
## 32548 0.547547548 0.032032032 1.420420
## 32549 0.548548549 0.032032032 1.419419
## 32550 0.549549550 0.032032032 1.418418
## 32551 0.550550551 0.032032032 1.417417
## 32552 0.551551552 0.032032032 1.416416
## 32553 0.552552553 0.032032032 1.415415
## 32554 0.553553554 0.032032032 1.414414
## 32555 0.554554555 0.032032032 1.413413
## 32556 0.555555556 0.032032032 1.412412
## 32557 0.556556557 0.032032032 1.411411
## 32558 0.557557558 0.032032032 1.410410
## 32559 0.558558559 0.032032032 1.409409
## 32560 0.559559560 0.032032032 1.408408
## 32561 0.560560561 0.032032032 1.407407
## 32562 0.561561562 0.032032032 1.406406
## 32563 0.562562563 0.032032032 1.405405
## 32564 0.563563564 0.032032032 1.404404
## 32565 0.564564565 0.032032032 1.403403
## 32566 0.565565566 0.032032032 1.402402
## 32567 0.566566567 0.032032032 1.401401
## 32568 0.567567568 0.032032032 1.400400
## 32569 0.568568569 0.032032032 1.399399
## 32570 0.569569570 0.032032032 1.398398
## 32571 0.570570571 0.032032032 1.397397
## 32572 0.571571572 0.032032032 1.396396
## 32573 0.572572573 0.032032032 1.395395
## 32574 0.573573574 0.032032032 1.394394
```

```
## 32575 0.574574575 0.032032032 1.393393
## 32576 0.575575576 0.032032032 1.392392
## 32577 0.576576577 0.032032032 1.391391
## 32578 0.577577578 0.032032032 1.390390
## 32579 0.578578579 0.032032032 1.389389
## 32580 0.579579580 0.032032032 1.388388
## 32581 0.580580581 0.032032032 1.387387
## 32582 0.581581582 0.032032032 1.386386
## 32583 0.582582583 0.032032032 1.385385
## 32584 0.583583584 0.032032032 1.384384
## 32585 0.584584585 0.032032032 1.383383
## 32586 0.585585586 0.032032032 1.382382
## 32587 0.586586587 0.032032032 1.381381
## 32588 0.587587588 0.032032032 1.380380
## 32589 0.588588589 0.032032032 1.379379
## 32590 0.589589590 0.032032032 1.378378
## 32591 0.590590591 0.032032032 1.377377
## 32592 0.591591592 0.032032032 1.376376
## 32593 0.592592593 0.032032032 1.375375
## 32594 0.593593594 0.032032032 1.374374
## 32595 0.594594595 0.032032032 1.373373
## 32596 0.595595596 0.032032032 1.372372
## 32597 0.596596597 0.032032032 1.371371
## 32598 0.597597598 0.032032032 1.370370
## 32599 0.598598599 0.032032032 1.369369
## 32600 0.599599600 0.032032032 1.368368
## 32601 0.600600601 0.032032032 1.367367
## 32602 0.601601602 0.032032032 1.366366
## 32603 0.602602603 0.032032032 1.365365
## 32604 0.603603604 0.032032032 1.364364
## 32605 0.604604605 0.032032032 1.363363
## 32606 0.605605606 0.032032032 1.362362
## 32607 0.606606607 0.032032032 1.361361
## 32608 0.607607608 0.032032032 1.360360
## 32609 0.608608609 0.032032032 1.359359
## 32610 0.609609610 0.032032032 1.358358
## 32611 0.610610611 0.032032032 1.357357
## 32612 0.611611612 0.032032032 1.356356
## 32613 0.612612613 0.032032032 1.355355
## 32614 0.613613614 0.032032032 1.354354
## 32615 0.614614615 0.032032032 1.353353
## 32616 0.615615616 0.032032032 1.352352
## 32617 0.616616617 0.032032032 1.351351
## 32618 0.617617618 0.032032032 1.350350
## 32619 0.618618619 0.032032032 1.349349
## 32620 0.619619620 0.032032032 1.348348
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 821

```

## 32621 0.620620621 0.032032032 1.347347
## 32622 0.621621622 0.032032032 1.346346
## 32623 0.622622623 0.032032032 1.345345
## 32624 0.623623624 0.032032032 1.344344
## 32625 0.624624625 0.032032032 1.343343
## 32626 0.625625626 0.032032032 1.342342
## 32627 0.626626627 0.032032032 1.341341
## 32628 0.627627628 0.032032032 1.340340
## 32629 0.628628629 0.032032032 1.339339
## 32630 0.629629630 0.032032032 1.338338
## 32631 0.630630631 0.032032032 1.337337
## 32632 0.631631632 0.032032032 1.336336
## 32633 0.632632633 0.032032032 1.335335
## 32634 0.633633634 0.032032032 1.334334
## 32635 0.634634635 0.032032032 1.333333
## 32636 0.635635636 0.032032032 1.332332
## 32637 0.636636637 0.032032032 1.331331
## 32638 0.637637638 0.032032032 1.330330
## 32639 0.638638639 0.032032032 1.329329
## 32640 0.639639640 0.032032032 1.328328
## 32641 0.640640641 0.032032032 1.327327
## 32642 0.641641642 0.032032032 1.326326
## 32643 0.642642643 0.032032032 1.325325
## 32644 0.643643644 0.032032032 1.324324
## 32645 0.644644645 0.032032032 1.323323
## 32646 0.645645646 0.032032032 1.322322
## 32647 0.646646647 0.032032032 1.321321
## 32648 0.647647648 0.032032032 1.320320
## 32649 0.648648649 0.032032032 1.319319
## 32650 0.649649650 0.032032032 1.318318
## 32651 0.650650651 0.032032032 1.317317
## 32652 0.651651652 0.032032032 1.316316
## 32653 0.652652653 0.032032032 1.315315
## 32654 0.653653654 0.032032032 1.314314
## 32655 0.654654655 0.032032032 1.313313
## 32656 0.655655656 0.032032032 1.312312
## 32657 0.656656657 0.032032032 1.311311
## 32658 0.657657658 0.032032032 1.310310
## 32659 0.658658659 0.032032032 1.309309
## 32660 0.659659660 0.032032032 1.308308
## 32661 0.660660661 0.032032032 1.307307
## 32662 0.661661662 0.032032032 1.306306
## 32663 0.662662663 0.032032032 1.305305
## 32664 0.663663664 0.032032032 1.304304
## 32665 0.664664665 0.032032032 1.303303
## 32666 0.665665666 0.032032032 1.302302

```

```
## 32667 0.6666666667 0.032032032 1.301301
## 32668 0.6676676668 0.032032032 1.300300
## 32669 0.6686686669 0.032032032 1.299299
## 32670 0.669669670 0.032032032 1.298298
## 32671 0.670670671 0.032032032 1.297297
## 32672 0.671671672 0.032032032 1.296296
## 32673 0.672672673 0.032032032 1.295295
## 32674 0.673673674 0.032032032 1.294294
## 32675 0.674674675 0.032032032 1.293293
## 32676 0.675675676 0.032032032 1.292292
## 32677 0.676676677 0.032032032 1.291291
## 32678 0.677677678 0.032032032 1.290290
## 32679 0.678678679 0.032032032 1.289289
## 32680 0.679679680 0.032032032 1.288288
## 32681 0.680680681 0.032032032 1.287287
## 32682 0.681681682 0.032032032 1.286286
## 32683 0.682682683 0.032032032 1.285285
## 32684 0.683683684 0.032032032 1.284284
## 32685 0.684684685 0.032032032 1.283283
## 32686 0.685685686 0.032032032 1.282282
## 32687 0.686686687 0.032032032 1.281281
## 32688 0.687687688 0.032032032 1.280280
## 32689 0.688688689 0.032032032 1.279279
## 32690 0.689689690 0.032032032 1.278278
## 32691 0.690690691 0.032032032 1.277277
## 32692 0.691691692 0.032032032 1.276276
## 32693 0.692692693 0.032032032 1.275275
## 32694 0.693693694 0.032032032 1.274274
## 32695 0.694694695 0.032032032 1.273273
## 32696 0.695695696 0.032032032 1.272272
## 32697 0.696696697 0.032032032 1.271271
## 32698 0.697697698 0.032032032 1.270270
## 32699 0.698698699 0.032032032 1.269269
## 32700 0.699699700 0.032032032 1.268268
## 32701 0.700700701 0.032032032 1.267267
## 32702 0.701701702 0.032032032 1.266266
## 32703 0.702702703 0.032032032 1.265265
## 32704 0.703703704 0.032032032 1.264264
## 32705 0.704704705 0.032032032 1.263263
## 32706 0.705705706 0.032032032 1.262262
## 32707 0.706706707 0.032032032 1.261261
## 32708 0.707707708 0.032032032 1.260260
## 32709 0.708708709 0.032032032 1.259259
## 32710 0.709709710 0.032032032 1.258258
## 32711 0.710710711 0.032032032 1.257257
## 32712 0.711711712 0.032032032 1.256256
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 823

```

## 32713 0.712712713 0.032032032 1.255255
## 32714 0.713713714 0.032032032 1.254254
## 32715 0.714714715 0.032032032 1.253253
## 32716 0.715715716 0.032032032 1.252252
## 32717 0.716716717 0.032032032 1.251251
## 32718 0.717717718 0.032032032 1.250250
## 32719 0.718718719 0.032032032 1.249249
## 32720 0.719719720 0.032032032 1.248248
## 32721 0.720720721 0.032032032 1.247247
## 32722 0.721721722 0.032032032 1.246246
## 32723 0.722722723 0.032032032 1.245245
## 32724 0.723723724 0.032032032 1.244244
## 32725 0.724724725 0.032032032 1.243243
## 32726 0.725725726 0.032032032 1.242242
## 32727 0.726726727 0.032032032 1.241241
## 32728 0.727727728 0.032032032 1.240240
## 32729 0.728728729 0.032032032 1.239239
## 32730 0.729729730 0.032032032 1.238238
## 32731 0.730730731 0.032032032 1.237237
## 32732 0.731731732 0.032032032 1.236236
## 32733 0.732732733 0.032032032 1.235235
## 32734 0.733733734 0.032032032 1.234234
## 32735 0.734734735 0.032032032 1.233233
## 32736 0.735735736 0.032032032 1.232232
## 32737 0.736736737 0.032032032 1.231231
## 32738 0.737737738 0.032032032 1.230230
## 32739 0.738738739 0.032032032 1.229229
## 32740 0.739739740 0.032032032 1.228228
## 32741 0.740740741 0.032032032 1.227227
## 32742 0.741741742 0.032032032 1.226226
## 32743 0.742742743 0.032032032 1.225225
## 32744 0.743743744 0.032032032 1.224224
## 32745 0.744744745 0.032032032 1.223223
## 32746 0.745745746 0.032032032 1.222222
## 32747 0.746746747 0.032032032 1.221221
## 32748 0.747747748 0.032032032 1.220220
## 32749 0.748748749 0.032032032 1.219219
## 32750 0.749749750 0.032032032 1.218218
## 32751 0.750750751 0.032032032 1.217217
## 32752 0.751751752 0.032032032 1.216216
## 32753 0.752752753 0.032032032 1.215215
## 32754 0.753753754 0.032032032 1.214214
## 32755 0.754754755 0.032032032 1.213213
## 32756 0.755755756 0.032032032 1.212212
## 32757 0.756756757 0.032032032 1.211211
## 32758 0.757757758 0.032032032 1.210210

```

```
## 32759 0.758758759 0.032032032 1.209209
## 32760 0.759759760 0.032032032 1.208208
## 32761 0.760760761 0.032032032 1.207207
## 32762 0.761761762 0.032032032 1.206206
## 32763 0.762762763 0.032032032 1.205205
## 32764 0.763763764 0.032032032 1.204204
## 32765 0.764764765 0.032032032 1.203203
## 32766 0.765765766 0.032032032 1.202202
## 32767 0.766766767 0.032032032 1.201201
## 32768 0.767767768 0.032032032 1.200200
## 32769 0.768768769 0.032032032 1.199199
## 32770 0.769769770 0.032032032 1.198198
## 32771 0.770770771 0.032032032 1.197197
## 32772 0.771771772 0.032032032 1.196196
## 32773 0.772772773 0.032032032 1.195195
## 32774 0.773773774 0.032032032 1.194194
## 32775 0.774774775 0.032032032 1.193193
## 32776 0.775775776 0.032032032 1.192192
## 32777 0.776776777 0.032032032 1.191191
## 32778 0.777777778 0.032032032 1.190190
## 32779 0.778778779 0.032032032 1.189189
## 32780 0.779779780 0.032032032 1.188188
## 32781 0.780780781 0.032032032 1.187187
## 32782 0.781781782 0.032032032 1.186186
## 32783 0.782782783 0.032032032 1.185185
## 32784 0.783783784 0.032032032 1.184184
## 32785 0.784784785 0.032032032 1.183183
## 32786 0.785785786 0.032032032 1.182182
## 32787 0.786786787 0.032032032 1.181181
## 32788 0.787787788 0.032032032 1.180180
## 32789 0.788788789 0.032032032 1.179179
## 32790 0.789789790 0.032032032 1.178178
## 32791 0.790790791 0.032032032 1.177177
## 32792 0.791791792 0.032032032 1.176176
## 32793 0.792792793 0.032032032 1.175175
## 32794 0.793793794 0.032032032 1.174174
## 32795 0.794794795 0.032032032 1.173173
## 32796 0.795795796 0.032032032 1.172172
## 32797 0.796796797 0.032032032 1.171171
## 32798 0.797797798 0.032032032 1.170170
## 32799 0.798798799 0.032032032 1.169169
## 32800 0.799799800 0.032032032 1.168168
## 32801 0.800800801 0.032032032 1.167167
## 32802 0.801801802 0.032032032 1.166166
## 32803 0.802802803 0.032032032 1.165165
## 32804 0.803803804 0.032032032 1.164164
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR825

```

## 32805 0.804804805 0.032032032 1.163163
## 32806 0.805805806 0.032032032 1.162162
## 32807 0.806806807 0.032032032 1.161161
## 32808 0.807807808 0.032032032 1.160160
## 32809 0.808808809 0.032032032 1.159159
## 32810 0.809809810 0.032032032 1.158158
## 32811 0.810810811 0.032032032 1.157157
## 32812 0.811811812 0.032032032 1.156156
## 32813 0.812812813 0.032032032 1.155155
## 32814 0.813813814 0.032032032 1.154154
## 32815 0.814814815 0.032032032 1.153153
## 32816 0.815815816 0.032032032 1.152152
## 32817 0.816816817 0.032032032 1.151151
## 32818 0.817817818 0.032032032 1.150150
## 32819 0.818818819 0.032032032 1.149149
## 32820 0.819819820 0.032032032 1.148148
## 32821 0.820820821 0.032032032 1.147147
## 32822 0.821821822 0.032032032 1.146146
## 32823 0.822822823 0.032032032 1.145145
## 32824 0.823823824 0.032032032 1.144144
## 32825 0.824824825 0.032032032 1.143143
## 32826 0.825825826 0.032032032 1.142142
## 32827 0.826826827 0.032032032 1.141141
## 32828 0.827827828 0.032032032 1.140140
## 32829 0.828828829 0.032032032 1.139139
## 32830 0.829829830 0.032032032 1.138138
## 32831 0.830830831 0.032032032 1.137137
## 32832 0.831831832 0.032032032 1.136136
## 32833 0.832832833 0.032032032 1.135135
## 32834 0.833833834 0.032032032 1.134134
## 32835 0.834834835 0.032032032 1.133133
## 32836 0.835835836 0.032032032 1.132132
## 32837 0.836836837 0.032032032 1.131131
## 32838 0.837837838 0.032032032 1.130130
## 32839 0.838838839 0.032032032 1.129129
## 32840 0.839839840 0.032032032 1.128128
## 32841 0.840840841 0.032032032 1.127127
## 32842 0.841841842 0.032032032 1.126126
## 32843 0.842842843 0.032032032 1.125125
## 32844 0.843843844 0.032032032 1.124124
## 32845 0.844844845 0.032032032 1.123123
## 32846 0.845845846 0.032032032 1.122122
## 32847 0.846846847 0.032032032 1.121121
## 32848 0.847847848 0.032032032 1.120120
## 32849 0.848848849 0.032032032 1.119119
## 32850 0.849849850 0.032032032 1.118118

```

```
## 32851 0.850850851 0.032032032 1.117117
## 32852 0.851851852 0.032032032 1.116116
## 32853 0.852852853 0.032032032 1.115115
## 32854 0.853853854 0.032032032 1.114114
## 32855 0.854854855 0.032032032 1.113113
## 32856 0.855855856 0.032032032 1.112112
## 32857 0.856856857 0.032032032 1.111111
## 32858 0.857857858 0.032032032 1.110110
## 32859 0.858858859 0.032032032 1.109109
## 32860 0.859859860 0.032032032 1.108108
## 32861 0.860860861 0.032032032 1.107107
## 32862 0.861861862 0.032032032 1.106106
## 32863 0.862862863 0.032032032 1.105105
## 32864 0.863863864 0.032032032 1.104104
## 32865 0.864864865 0.032032032 1.103103
## 32866 0.865865866 0.032032032 1.102102
## 32867 0.866866867 0.032032032 1.101101
## 32868 0.867867868 0.032032032 1.100100
## 32869 0.868868869 0.032032032 1.099099
## 32870 0.869869870 0.032032032 1.098098
## 32871 0.870870871 0.032032032 1.097097
## 32872 0.871871872 0.032032032 1.096096
## 32873 0.872872873 0.032032032 1.095095
## 32874 0.873873874 0.032032032 1.094094
## 32875 0.874874875 0.032032032 1.093093
## 32876 0.875875876 0.032032032 1.092092
## 32877 0.876876877 0.032032032 1.091091
## 32878 0.877877878 0.032032032 1.090090
## 32879 0.878878879 0.032032032 1.089089
## 32880 0.879879880 0.032032032 1.088088
## 32881 0.880880881 0.032032032 1.087087
## 32882 0.881881882 0.032032032 1.086086
## 32883 0.882882883 0.032032032 1.085085
## 32884 0.883883884 0.032032032 1.084084
## 32885 0.884884885 0.032032032 1.083083
## 32886 0.885885886 0.032032032 1.082082
## 32887 0.886886887 0.032032032 1.081081
## 32888 0.887887888 0.032032032 1.080080
## 32889 0.888888889 0.032032032 1.079079
## 32890 0.889889890 0.032032032 1.078078
## 32891 0.890890891 0.032032032 1.077077
## 32892 0.891891892 0.032032032 1.076076
## 32893 0.892892893 0.032032032 1.075075
## 32894 0.893893894 0.032032032 1.074074
## 32895 0.894894895 0.032032032 1.073073
## 32896 0.895895896 0.032032032 1.072072
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 827

```
## 32897 0.896896897 0.032032032 1.071071
## 32898 0.897897898 0.032032032 1.070070
## 32899 0.898898899 0.032032032 1.069069
## 32900 0.899899900 0.032032032 1.068068
## 32901 0.900900901 0.032032032 1.067067
## 32902 0.901901902 0.032032032 1.066066
## 32903 0.902902903 0.032032032 1.065065
## 32904 0.903903904 0.032032032 1.064064
## 32905 0.904904905 0.032032032 1.063063
## 32906 0.905905906 0.032032032 1.062062
## 32907 0.906906907 0.032032032 1.061061
## 32908 0.907907908 0.032032032 1.060060
## 32909 0.908908909 0.032032032 1.059059
## 32910 0.909909910 0.032032032 1.058058
## 32911 0.910910911 0.032032032 1.057057
## 32912 0.911911912 0.032032032 1.056056
## 32913 0.912912913 0.032032032 1.055055
## 32914 0.913913914 0.032032032 1.054054
## 32915 0.914914915 0.032032032 1.053053
## 32916 0.915915916 0.032032032 1.052052
## 32917 0.916916917 0.032032032 1.051051
## 32918 0.917917918 0.032032032 1.050050
## 32919 0.918918919 0.032032032 1.049049
## 32920 0.919919920 0.032032032 1.048048
## 32921 0.920920921 0.032032032 1.047047
## 32922 0.921921922 0.032032032 1.046046
## 32923 0.922922923 0.032032032 1.045045
## 32924 0.923923924 0.032032032 1.044044
## 32925 0.924924925 0.032032032 1.043043
## 32926 0.925925926 0.032032032 1.042042
## 32927 0.926926927 0.032032032 1.041041
## 32928 0.927927928 0.032032032 1.040040
## 32929 0.928928929 0.032032032 1.039039
## 32930 0.929929930 0.032032032 1.038038
## 32931 0.930930931 0.032032032 1.037037
## 32932 0.931931932 0.032032032 1.036036
## 32933 0.932932933 0.032032032 1.035035
## 32934 0.933933934 0.032032032 1.034034
## 32935 0.934934935 0.032032032 1.033033
## 32936 0.935935936 0.032032032 1.032032
## 32937 0.936936937 0.032032032 1.031031
## 32938 0.937937938 0.032032032 1.030030
## 32939 0.938938939 0.032032032 1.029029
## 32940 0.939939940 0.032032032 1.028028
## 32941 0.940940941 0.032032032 1.027027
## 32942 0.941941942 0.032032032 1.026026
```

```
## 32943 0.942942943 0.032032032 1.025025
## 32944 0.943943944 0.032032032 1.024024
## 32945 0.944944945 0.032032032 1.023023
## 32946 0.945945946 0.032032032 1.022022
## 32947 0.946946947 0.032032032 1.021021
## 32948 0.947947948 0.032032032 1.020020
## 32949 0.948948949 0.032032032 1.019019
## 32950 0.949949950 0.032032032 1.018018
## 32951 0.950950951 0.032032032 1.017017
## 32952 0.951951952 0.032032032 1.016016
## 32953 0.952952953 0.032032032 1.015015
## 32954 0.953953954 0.032032032 1.014014
## 32955 0.954954955 0.032032032 1.013013
## 32956 0.955955956 0.032032032 1.012012
## 32957 0.956956957 0.032032032 1.011011
## 32958 0.957957958 0.032032032 1.010010
## 32959 0.958958959 0.032032032 1.009009
## 32960 0.959959960 0.032032032 1.008008
## 32961 0.960960961 0.032032032 1.007007
## 32962 0.961961962 0.032032032 1.006006
## 32963 0.962962963 0.032032032 1.005005
## 32964 0.963963964 0.032032032 1.004004
## 32965 0.964964965 0.032032032 1.003003
## 32966 0.965965966 0.032032032 1.002002
## 32967 0.966966967 0.032032032 1.001001
## 32968 0.967967968 0.032032032 1.000000
## 32969 0.968968969 0.032032032 0.998999
## 32970 0.969969970 0.032032032 0.997998
## 32971 0.970970971 0.032032032 0.996997
## 32972 0.971971972 0.032032032 0.995996
## 32973 0.972972973 0.032032032 0.994995
## 32974 0.973973974 0.032032032 0.993994
## 32975 0.974974975 0.032032032 0.992993
## 32976 0.975975976 0.032032032 0.991992
## 32977 0.976976977 0.032032032 0.990991
## 32978 0.977977978 0.032032032 0.989990
## 32979 0.978978979 0.032032032 0.988989
## 32980 0.979979980 0.032032032 0.987988
## 32981 0.980980981 0.032032032 0.986987
## 32982 0.981981982 0.032032032 0.985986
## 32983 0.982982983 0.032032032 0.984985
## 32984 0.983983984 0.032032032 0.983984
## 32985 0.984984985 0.032032032 0.982983
## 32986 0.985985986 0.032032032 0.981982
## 32987 0.986986987 0.032032032 0.980981
## 32988 0.987987988 0.032032032 0.979980
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 829

```

## 32989 0.988988989 0.032032032 0.978979
## 32990 0.989989990 0.032032032 0.977978
## 32991 0.990990991 0.032032032 0.976977
## 32992 0.991991992 0.032032032 0.975976
## 32993 0.992992993 0.032032032 0.974975
## 32994 0.993993994 0.032032032 0.973974
## 32995 0.994994995 0.032032032 0.972973
## 32996 0.995995996 0.032032032 0.971972
## 32997 0.996996997 0.032032032 0.970971
## 32998 0.997997998 0.032032032 0.969970
## 32999 0.998998999 0.032032032 0.968969
## 33000 1.000000000 0.032032032 0.967968
## 33001 0.000000000 0.033033033 1.966967
## 33002 0.001001001 0.033033033 1.965966
## 33003 0.002002002 0.033033033 1.964965
## 33004 0.003003003 0.033033033 1.963964
## 33005 0.004004004 0.033033033 1.962963
## 33006 0.005005005 0.033033033 1.961962
## 33007 0.006006006 0.033033033 1.960961
## 33008 0.007007007 0.033033033 1.959960
## 33009 0.008008008 0.033033033 1.958959
## 33010 0.009009009 0.033033033 1.957958
## 33011 0.010010010 0.033033033 1.956957
## 33012 0.011011011 0.033033033 1.955956
## 33013 0.012012012 0.033033033 1.954955
## 33014 0.013013013 0.033033033 1.953954
## 33015 0.014014014 0.033033033 1.952953
## 33016 0.015015015 0.033033033 1.951952
## 33017 0.016016016 0.033033033 1.950951
## 33018 0.017017017 0.033033033 1.949950
## 33019 0.018018018 0.033033033 1.948949
## 33020 0.019019019 0.033033033 1.947948
## 33021 0.020020020 0.033033033 1.946947
## 33022 0.021021021 0.033033033 1.945946
## 33023 0.022022022 0.033033033 1.944945
## 33024 0.023023023 0.033033033 1.943944
## 33025 0.024024024 0.033033033 1.942943
## 33026 0.025025025 0.033033033 1.941942
## 33027 0.026026026 0.033033033 1.940941
## 33028 0.027027027 0.033033033 1.939940
## 33029 0.028028028 0.033033033 1.938939
## 33030 0.029029029 0.033033033 1.937938
## 33031 0.030030030 0.033033033 1.936937
## 33032 0.031031031 0.033033033 1.935936
## 33033 0.032032032 0.033033033 1.934935
## 33034 0.033033033 0.033033033 1.933934

```

```
## 33035 0.034034034 0.033033033 1.932933
## 33036 0.035035035 0.033033033 1.931932
## 33037 0.036036036 0.033033033 1.930931
## 33038 0.037037037 0.033033033 1.929930
## 33039 0.038038038 0.033033033 1.928929
## 33040 0.039039039 0.033033033 1.927928
## 33041 0.040040040 0.033033033 1.926927
## 33042 0.041041041 0.033033033 1.925926
## 33043 0.042042042 0.033033033 1.924925
## 33044 0.043043043 0.033033033 1.923924
## 33045 0.044044044 0.033033033 1.922923
## 33046 0.045045045 0.033033033 1.921922
## 33047 0.046046046 0.033033033 1.920921
## 33048 0.047047047 0.033033033 1.919920
## 33049 0.048048048 0.033033033 1.918919
## 33050 0.049049049 0.033033033 1.917918
## 33051 0.050050050 0.033033033 1.916917
## 33052 0.051051051 0.033033033 1.915916
## 33053 0.052052052 0.033033033 1.914915
## 33054 0.053053053 0.033033033 1.913914
## 33055 0.054054054 0.033033033 1.912913
## 33056 0.055055055 0.033033033 1.911912
## 33057 0.056056056 0.033033033 1.910911
## 33058 0.057057057 0.033033033 1.909910
## 33059 0.058058058 0.033033033 1.908909
## 33060 0.059059059 0.033033033 1.907908
## 33061 0.060060060 0.033033033 1.906907
## 33062 0.061061061 0.033033033 1.905906
## 33063 0.062062062 0.033033033 1.904905
## 33064 0.063063063 0.033033033 1.903904
## 33065 0.064064064 0.033033033 1.902903
## 33066 0.065065065 0.033033033 1.901902
## 33067 0.066066066 0.033033033 1.900901
## 33068 0.067067067 0.033033033 1.899900
## 33069 0.068068068 0.033033033 1.898899
## 33070 0.069069069 0.033033033 1.897898
## 33071 0.070070070 0.033033033 1.896897
## 33072 0.071071071 0.033033033 1.895896
## 33073 0.072072072 0.033033033 1.894895
## 33074 0.073073073 0.033033033 1.893894
## 33075 0.074074074 0.033033033 1.892893
## 33076 0.075075075 0.033033033 1.891892
## 33077 0.076076076 0.033033033 1.890891
## 33078 0.077077077 0.033033033 1.889890
## 33079 0.078078078 0.033033033 1.888889
## 33080 0.079079079 0.033033033 1.887888
```

8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 831

```

## 33081 0.080080080 0.033033033 1.886887
## 33082 0.081081081 0.033033033 1.885886
## 33083 0.082082082 0.033033033 1.884885
## 33084 0.083083083 0.033033033 1.883884
## 33085 0.084084084 0.033033033 1.882883
## 33086 0.085085085 0.033033033 1.881882
## 33087 0.086086086 0.033033033 1.880881
## 33088 0.087087087 0.033033033 1.879880
## 33089 0.088088088 0.033033033 1.878879
## 33090 0.089089089 0.033033033 1.877878
## 33091 0.090090090 0.033033033 1.876877
## 33092 0.091091091 0.033033033 1.875876
## 33093 0.092092092 0.033033033 1.874875
## 33094 0.093093093 0.033033033 1.873874
## 33095 0.094094094 0.033033033 1.872873
## 33096 0.095095095 0.033033033 1.871872
## 33097 0.096096096 0.033033033 1.870871
## 33098 0.097097097 0.033033033 1.869870
## 33099 0.098098098 0.033033033 1.868869
## 33100 0.099099099 0.033033033 1.867868
## 33101 0.100100100 0.033033033 1.866867
## 33102 0.101101101 0.033033033 1.865866
## 33103 0.102102102 0.033033033 1.864865
## 33104 0.103103103 0.033033033 1.863864
## 33105 0.104104104 0.033033033 1.862863
## 33106 0.105105105 0.033033033 1.861862
## 33107 0.106106106 0.033033033 1.860861
## 33108 0.107107107 0.033033033 1.859860
## 33109 0.108108108 0.033033033 1.858859
## 33110 0.109109109 0.033033033 1.857858
## 33111 0.110110110 0.033033033 1.856857
## 33112 0.111111111 0.033033033 1.855856
## 33113 0.112112112 0.033033033 1.854855
## 33114 0.113113113 0.033033033 1.853854
## 33115 0.114114114 0.033033033 1.852853
## 33116 0.115115115 0.033033033 1.851852
## 33117 0.116116116 0.033033033 1.850851
## 33118 0.117117117 0.033033033 1.849850
## 33119 0.118118118 0.033033033 1.848849
## 33120 0.119119119 0.033033033 1.847848
## 33121 0.120120120 0.033033033 1.846847
## 33122 0.121121121 0.033033033 1.845846
## 33123 0.122122122 0.033033033 1.844845
## 33124 0.123123123 0.033033033 1.843844
## 33125 0.124124124 0.033033033 1.842843
## 33126 0.125125125 0.033033033 1.841842

```

```
## 33127 0.126126126 0.033033033 1.840841
## 33128 0.127127127 0.033033033 1.839840
## 33129 0.128128128 0.033033033 1.838839
## 33130 0.129129129 0.033033033 1.837838
## 33131 0.130130130 0.033033033 1.836837
## 33132 0.131131131 0.033033033 1.835836
## 33133 0.132132132 0.033033033 1.834835
## 33134 0.133133133 0.033033033 1.833834
## 33135 0.134134134 0.033033033 1.832833
## 33136 0.135135135 0.033033033 1.831832
## 33137 0.136136136 0.033033033 1.830831
## 33138 0.137137137 0.033033033 1.829830
## 33139 0.138138138 0.033033033 1.828829
## 33140 0.139139139 0.033033033 1.827828
## 33141 0.140140140 0.033033033 1.826827
## 33142 0.141141141 0.033033033 1.825826
## 33143 0.142142142 0.033033033 1.824825
## 33144 0.143143143 0.033033033 1.823824
## 33145 0.144144144 0.033033033 1.822823
## 33146 0.145145145 0.033033033 1.821822
## 33147 0.146146146 0.033033033 1.820821
## 33148 0.147147147 0.033033033 1.819820
## 33149 0.148148148 0.033033033 1.818819
## 33150 0.149149149 0.033033033 1.817818
## 33151 0.150150150 0.033033033 1.816817
## 33152 0.151151151 0.033033033 1.815816
## 33153 0.152152152 0.033033033 1.814815
## 33154 0.153153153 0.033033033 1.813814
## 33155 0.154154154 0.033033033 1.812813
## 33156 0.155155155 0.033033033 1.811812
## 33157 0.156156156 0.033033033 1.810811
## 33158 0.157157157 0.033033033 1.809810
## 33159 0.158158158 0.033033033 1.808809
## 33160 0.159159159 0.033033033 1.807808
## 33161 0.160160160 0.033033033 1.806807
## 33162 0.161161161 0.033033033 1.805806
## 33163 0.162162162 0.033033033 1.804805
## 33164 0.163163163 0.033033033 1.803804
## 33165 0.164164164 0.033033033 1.802803
## 33166 0.165165165 0.033033033 1.801802
## 33167 0.166166166 0.033033033 1.800801
## 33168 0.167167167 0.033033033 1.799800
## 33169 0.168168168 0.033033033 1.798799
## 33170 0.169169169 0.033033033 1.797798
## 33171 0.170170170 0.033033033 1.796797
## 33172 0.171171171 0.033033033 1.795796
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 833

```
## 33173 0.172172172 0.033033033 1.794795
## 33174 0.173173173 0.033033033 1.793794
## 33175 0.174174174 0.033033033 1.792793
## 33176 0.175175175 0.033033033 1.791792
## 33177 0.176176176 0.033033033 1.790791
## 33178 0.177177177 0.033033033 1.789790
## 33179 0.178178178 0.033033033 1.788789
## 33180 0.179179179 0.033033033 1.787788
## 33181 0.180180180 0.033033033 1.786787
## 33182 0.181181181 0.033033033 1.785786
## 33183 0.182182182 0.033033033 1.784785
## 33184 0.183183183 0.033033033 1.783784
## 33185 0.184184184 0.033033033 1.782783
## 33186 0.185185185 0.033033033 1.781782
## 33187 0.186186186 0.033033033 1.780781
## 33188 0.187187187 0.033033033 1.779780
## 33189 0.188188188 0.033033033 1.778779
## 33190 0.189189189 0.033033033 1.777778
## 33191 0.190190190 0.033033033 1.776777
## 33192 0.191191191 0.033033033 1.775776
## 33193 0.192192192 0.033033033 1.774775
## 33194 0.193193193 0.033033033 1.773774
## 33195 0.194194194 0.033033033 1.772773
## 33196 0.195195195 0.033033033 1.771772
## 33197 0.196196196 0.033033033 1.770771
## 33198 0.197197197 0.033033033 1.769770
## 33199 0.198198198 0.033033033 1.768769
## 33200 0.199199199 0.033033033 1.767768
## 33201 0.200200200 0.033033033 1.766767
## 33202 0.201201201 0.033033033 1.765766
## 33203 0.202202202 0.033033033 1.764765
## 33204 0.203203203 0.033033033 1.763764
## 33205 0.204204204 0.033033033 1.762763
## 33206 0.205205205 0.033033033 1.761762
## 33207 0.206206206 0.033033033 1.760761
## 33208 0.207207207 0.033033033 1.759760
## 33209 0.208208208 0.033033033 1.758759
## 33210 0.209209209 0.033033033 1.757758
## 33211 0.210210210 0.033033033 1.756757
## 33212 0.211211211 0.033033033 1.755756
## 33213 0.212212212 0.033033033 1.754755
## 33214 0.213213213 0.033033033 1.753754
## 33215 0.214214214 0.033033033 1.752753
## 33216 0.215215215 0.033033033 1.751752
## 33217 0.216216216 0.033033033 1.750751
## 33218 0.217217217 0.033033033 1.749750
```

```
## 33219 0.218218218 0.033033033 1.748749
## 33220 0.219219219 0.033033033 1.747748
## 33221 0.220220220 0.033033033 1.746747
## 33222 0.221221221 0.033033033 1.745746
## 33223 0.222222222 0.033033033 1.744745
## 33224 0.223223223 0.033033033 1.743744
## 33225 0.224224224 0.033033033 1.742743
## 33226 0.225225225 0.033033033 1.741742
## 33227 0.226226226 0.033033033 1.740741
## 33228 0.227227227 0.033033033 1.739740
## 33229 0.228228228 0.033033033 1.738739
## 33230 0.229229229 0.033033033 1.737738
## 33231 0.230230230 0.033033033 1.736737
## 33232 0.231231231 0.033033033 1.735736
## 33233 0.232232232 0.033033033 1.734735
## 33234 0.233233233 0.033033033 1.733734
## 33235 0.234234234 0.033033033 1.732733
## 33236 0.235235235 0.033033033 1.731732
## 33237 0.236236236 0.033033033 1.730731
## 33238 0.237237237 0.033033033 1.729730
## 33239 0.238238238 0.033033033 1.728729
## 33240 0.239239239 0.033033033 1.727728
## 33241 0.240240240 0.033033033 1.726727
## 33242 0.241241241 0.033033033 1.725726
## 33243 0.242242242 0.033033033 1.724725
## 33244 0.243243243 0.033033033 1.723724
## 33245 0.244244244 0.033033033 1.722723
## 33246 0.245245245 0.033033033 1.721722
## 33247 0.246246246 0.033033033 1.720721
## 33248 0.247247247 0.033033033 1.719720
## 33249 0.248248248 0.033033033 1.718719
## 33250 0.249249249 0.033033033 1.717718
## 33251 0.250250250 0.033033033 1.716717
## 33252 0.251251251 0.033033033 1.715716
## 33253 0.252252252 0.033033033 1.714715
## 33254 0.253253253 0.033033033 1.713714
## 33255 0.254254254 0.033033033 1.712713
## 33256 0.255255255 0.033033033 1.711712
## 33257 0.256256256 0.033033033 1.710711
## 33258 0.257257257 0.033033033 1.709710
## 33259 0.258258258 0.033033033 1.708709
## 33260 0.259259259 0.033033033 1.707708
## 33261 0.260260260 0.033033033 1.706707
## 33262 0.261261261 0.033033033 1.705706
## 33263 0.262262262 0.033033033 1.704705
## 33264 0.263263263 0.033033033 1.703704
```

## 8.5. BEST LINEAR PREDICTOR AND OLS REGRESSION AS A PREDICTOR 835

```
## 33265 0.264264264 0.033033033 1.702703
## 33266 0.265265265 0.033033033 1.701702
## 33267 0.266266266 0.033033033 1.700701
## 33268 0.267267267 0.033033033 1.699700
## 33269 0.268268268 0.033033033 1.698699
## 33270 0.269269269 0.033033033 1.697698
## 33271 0.270270270 0.033033033 1.696697
## 33272 0.271271271 0.033033033 1.695696
## 33273 0.272272272 0.033033033 1.694695
## 33274 0.273273273 0.033033033 1.693694
## 33275 0.274274274 0.033033033 1.692693
## 33276 0.275275275 0.033033033 1.691692
## 33277 0.276276276 0.033033033 1.690691
## 33278 0.277277277 0.033033033 1.689690
## 33279 0.278278278 0.033033033 1.688689
## 33280 0.279279279 0.033033033 1.687688
## 33281 0.280280280 0.033033033 1.686687
## 33282 0.281281281 0.033033033 1.685686
## 33283 0.282282282 0.033033033 1.684685
## 33284 0.283283283 0.033033033 1.683684
## 33285 0.284284284 0.033033033 1.682683
## 33286 0.285285285 0.033033033 1.681682
## 33287 0.286286286 0.033033033 1.680681
## 33288 0.287287287 0.033033033 1.679680
## 33289 0.288288288 0.033033033 1.678679
## 33290 0.289289289 0.033033033 1.677678
## 33291 0.290290290 0.033033033 1.676677
## 33292 0.291291291 0.033033033 1.675676
## 33293 0.292292292 0.033033033 1.674675
## 33294 0.293293293 0.033033033 1.673674
## 33295 0.294294294 0.033033033 1.672673
## 33296 0.295295295 0.033033033 1.671672
## 33297 0.296296296 0.033033033 1.670671
## 33298 0.297297297 0.033033033 1.669670
## 33299 0.298298298 0.033033033 1.668669
## 33300 0.299299299 0.033033033 1.667668
## 33301 0.300300300 0.033033033 1.666667
## 33302 0.301301301 0.033033033 1.665666
## 33303 0.302302302 0.033033033 1.664665
## 33304 0.303303303 0.033033033 1.663664
## 33305 0.304304304 0.033033033 1.662663
## 33306 0.305305305 0.033033033 1.661662
## 33307 0.306306306 0.033033033 1.660661
## 33308 0.307307307 0.033033033 1.659660
## 33309 0.308308308 0.033033033 1.658659
## 33310 0.309309309 0.033033033 1.657658
```

```

## 33311 0.310310310 0.033033033 1.656657
## 33312 0.311311311 0.033033033 1.655656
## 33313 0.312312312 0.033033033 1.654655
## 33314 0.313313313 0.033033033 1.653654
## 33315 0.314314314 0.033033033 1.652653
## 33316 0.315315315 0.033033033 1.651652
## 33317 0.316316316 0.033033033 1.650651
## 33318 0.317317317 0.033033033 1.649650
## 33319 0.318318318 0.033033033 1.648649
## 33320 0.319319319 0.033033033 1.647648
## 33321 0.320320320 0.033033033 1.646647
## 33322 0.321321321 0.033033033 1.645646
## 33323 0.322322322 0.033033033 1.644645
## 33324 0.323323323 0.033033033 1.643644
## 33325 0.324324324 0.033033033 1.642643
## 33326 0.325325325 0.033033033 1.641642
## 33327 0.326326326 0.033033033 1.640641
## 33328 0.327327327 0.033033033 1.639640
## 33329 0.328328328 0.033033033 1.638639
## 33330 0.329329329 0.033033033 1.637638
## 33331 0.330330330 0.033033033 1.636637
## 33332 0.331331331 0.033033033 1.635636
## 33333 0.332332332 0.033033033 1.634635
## [ reached 'max' / getOption("max.print") -- omitted 966667 rows ]

```

With that put together, we can take samples from this data:

```

sample_10 <- d |> slice_sample(n = 10, weight_by = prob)
sample_20 <- d |> slice_sample(n = 20, weight_by = prob)
sample_100 <- d |> slice_sample(n = 100, weight_by = prob)
sample_200 <- d |> slice_sample(n = 200, weight_by = prob)

sample_10000 <- d |> slice_sample(n = 10000, weight_by = prob)

plot_10 <-
  sample_10 |>
    ggplot() +
    aes(x=x, y=y) +
    geom_point()
plot_20 <-
  sample_20 |>
    ggplot() +
    aes(x=x, y=y) +
    geom_point()
plot_100 <-
  sample_100 |>
    ggplot() +

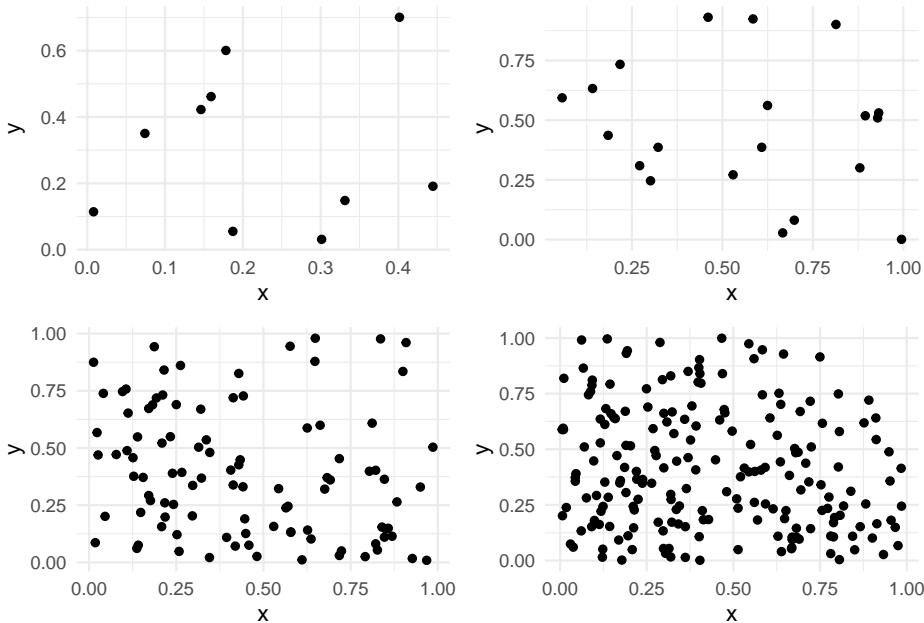
```

```

aes(x=x, y=y) +
geom_point()
plot_200 <-
sample_200 |>
ggplot() +
aes(x=x, y=y) +
geom_point()

(plot_10 | plot_20) /
(plot_100 | plot_200)

```



```

model_100 <- lm(y ~ x, data = sample_100)
model_200 <- lm(y ~ x, data = sample_200)
model_10000 <- lm(y ~ x, data = sample_10000)

```

```
coef(model_10000)
```

```

## (Intercept)           x
##  0.45559819 -0.09431475

```

## 8.6 The Regression Anatomy Formula

We make the claim in live session that we can re-represent a coefficient that we're interested in as a function of all the other variable in a regression. That is, suppose that we were interested, initially, in estimating the model:

$$Y = \hat{\beta}_0 + \hat{\beta}_1 X_1 + \hat{\beta}_2 X_2 + \hat{\beta}_3 X_3 + e$$

that we can produce an estimate for  $\hat{\beta}_1$  by fitting this auxiliary regression,

$$X_1 = \hat{\delta}_0 + \hat{\delta}_2 X_2 + \hat{\delta}_3 X_3 + r_1$$

And then using the residuals, noted as  $r_1$  above, in a second auxiliary regression,

$$Y = \gamma_0 + \gamma_1 r_1$$

The claim that we make in the live session is that there is a guarantee that  $\beta_1 = \gamma_1$ . Here, we are first going to show that this is true, and then we're going to reason about what this means, and why this feature is interesting (or at least useful) when we are estimating a regression.

Suppose that the population model is the following:

$$X_1 = \begin{cases} \frac{1}{10}, & 0 \leq x \leq 10, \\ 0, & \text{otherwise} \end{cases}, X_2 = \begin{cases} \frac{1}{10}, & 0 \leq x \leq 10, \\ 0, & \text{otherwise} \end{cases}, X_3 = \begin{cases} \frac{1}{10}, & 0 \leq x \leq 10, \\ 0, & \text{otherwise} \end{cases}$$

And, furthermore suppose that  $Y = g(X_1, X_2, X_3)$ , specifically, that:

$$Y = -3 + (1 \cdot X_1) + (2 \cdot X_2) + (3 \cdot X_3)$$

Then, because we know the population model, we can produce a single sample from it using the following code:

```
d <- data.frame(
  x1 = runif(n = 100, min = 0, max = 10),
  x2 = runif(n = 100, min = 0, max = 10),
  x3 = runif(n = 100, min = 0, max = 10)) %>%
  mutate(y = -3 + 1*x1 + 2*x2 + 3*x3 + rnorm(n = n(), mean = 0, sd = 1))

head(d)

##           x1         x2         x3         y
## 1 2.574453 2.0164855 5.864455 22.22699
## 2 3.533997 0.6302335 6.119277 19.27601
## 3 1.730922 1.9090746 3.126370 10.88401
## 4 5.977906 1.6324287 7.661009 29.98035
## 5 2.935329 3.9556559 8.179117 32.75561
## 6 4.530804 8.9397239 3.170691 25.86899
```

Notice that when we made this data, we included a set of random noise at the end. The idea here is that there are other “things” in this universe that also affect  $Y$ , but that we don’t have access to them. By assumption, what we *have* measured in this world,  $X_1, X_2, X_3$  are uncorrelated with these other features.

### 8.6.1 Estimate an OLS Regression

Let’s begin by producing an estimate of the OLS regression of  $Y$  on these  $X$  variables. Notice the way that we’re talking about this:

We are going to regress  $Y$  on  $X_1, X_2$ , and  $X_3$ .

```
model_main <- lm(y ~ x1 + x2 + x3, data = d)
coef(model_main)

## (Intercept)           x1           x2           x3
## -3.081193    1.010980   2.014148   2.986416
```

### 8.6.2 Regression Anatomy and Fritch Waugh Lovell

The claim is that we can produce an estimate of  $\hat{\beta}_1$  using an auxiliary set of regression estimates, and then using the regression from that auxiliary regression.

```
model_aux <- lm(x1 ~ x2 + x3, data = d)
```

If we look into the structure of `model_aux` we can see that there are *a ton* of pieces in here.

```
str(model_aux)

## List of 12
## $ coefficients : Named num [1:3] 4.9843 -0.1222 0.0528
##   ..- attr(*, "names")= chr [1:3] "(Intercept)" "x2" "x3"
## $ residuals   : Named num [1:100] -2.473 -1.696 -3.185 0.788 -1.998 ...
##   ..- attr(*, "names")= chr [1:100] "1" "2" "3" "4" ...
## $ effects     : Named num [1:100] -46.738 -3.391 1.375 0.934 -2.047 ...
##   ..- attr(*, "names")= chr [1:100] "(Intercept)" "x2" "x3" "" ...
## $ rank        : int 3
## $ fitted.values: Named num [1:100] 5.05 5.23 4.92 5.19 4.93 ...
##   ..- attr(*, "names")= chr [1:100] "1" "2" "3" "4" ...
## $ assign       : int [1:3] 0 1 2
## $ qr          :List of 5
##   ..$ qr   : num [1:100, 1:3] -10 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 ...
##   ... ..- attr(*, "dimnames")=List of 2
##   ... ...$ : chr [1:100] "1" "2" "3" "4" ...
##   ... ...$ : chr [1:3] "(Intercept)" "x2" "x3"
##   ... ..- attr(*, "assign")= int [1:3] 0 1 2
##   ..$ qraux: num [1:3] 1.1 1.15 1.09
##   ..$ pivot: int [1:3] 1 2 3
```

```

##   ..$ tol : num 1e-07
##   ..$ rank : int 3
##   ..- attr(*, "class")= chr "qr"
##   $ df.residual : int 97
##   $ xlevels      : Named list()
##   $ call          : language lm(formula = x1 ~ x2 + x3, data = d)
##   $ terms         :Classes 'terms', 'formula' language x1 ~ x2 + x3
##   ... .-. attr(*, "variables")= language list(x1, x2, x3)
##   ... .-. attr(*, "factors")= int [1:3, 1:2] 0 1 0 0 0 1
##   ... .-. attr(*, "dimnames")=List of 2
##   ... .-. ..$ : chr [1:3] "x1" "x2" "x3"
##   ... .-. ..$ : chr [1:2] "x2" "x3"
##   ... .-. attr(*, "term.labels")= chr [1:2] "x2" "x3"
##   ... .-. attr(*, "order")= int [1:2] 1 1
##   ... .-. attr(*, "intercept")= int 1
##   ... .-. attr(*, "response")= int 1
##   ... .-. attr(*, ".Environment")=<environment: R_GlobalEnv>
##   ... .-. attr(*, "predvars")= language list(x1, x2, x3)
##   ... .-. attr(*, "dataClasses")= Named chr [1:3] "numeric" "numeric" "numeric"
##   ... .-. attr(*, "names")= chr [1:3] "x1" "x2" "x3"
##   $ model        :'data.frame': 100 obs. of 3 variables:
##   ..$ x1: num [1:100] 2.57 3.53 1.73 5.98 2.94 ...
##   ..$ x2: num [1:100] 2.02 0.63 1.91 1.63 3.96 ...
##   ..$ x3: num [1:100] 5.86 6.12 3.13 7.66 8.18 ...
##   ... - attr(*, "terms")=Classes 'terms', 'formula' language x1 ~ x2 + x3
##   ... .-. attr(*, "variables")= language list(x1, x2, x3)
##   ... .-. attr(*, "factors")= int [1:3, 1:2] 0 1 0 0 0 1
##   ... .-. .-. attr(*, "dimnames")=List of 2
##   ... .-. ..$ : chr [1:3] "x1" "x2" "x3"
##   ... .-. ..$ : chr [1:2] "x2" "x3"
##   ... .-. attr(*, "term.labels")= chr [1:2] "x2" "x3"
##   ... .-. attr(*, "order")= int [1:2] 1 1
##   ... .-. attr(*, "intercept")= int 1
##   ... .-. attr(*, "response")= int 1
##   ... .-. attr(*, ".Environment")=<environment: R_GlobalEnv>
##   ... .-. attr(*, "predvars")= language list(x1, x2, x3)
##   ... .-. attr(*, "dataClasses")= Named chr [1:3] "numeric" "numeric" "numeric"
##   ... .-. .-. attr(*, "names")= chr [1:3] "x1" "x2" "x3"
##   - attr(*, "class")= chr "lm"

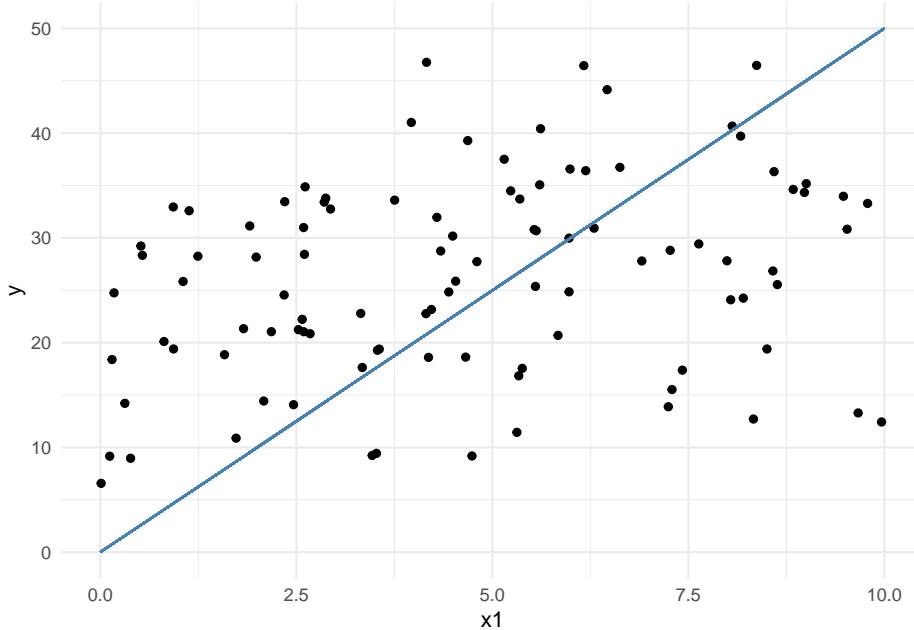
```

To evaluate our claim, we need to find the residuals from this regression. As a knowledge check, what is it that we mean when we say, “residual” in this sense?

To make talking about these easier, here is a plot that might be useful.

```
d %>%
  ggplot() +
  
```

```
aes(x = x1, y = y) +
  geom_point() +
  geom_segment(aes(x = 0, xend = 10, y = 0, yend = 50), color = 'steelblue')
```



In order to access these residuals, we can “augment” the dataframwe that we used in the model, using the `broom::augment` function call.

```
model_aux_augmented <- augment(model_aux)
```

Because the  $Y$  variable wasn’t included in the regression for `model_aux` we have to bring of over from the main dataset, which is a little bit... um, hacky. Forgive these sins.

```
model_aux_augmented$y <- d$y
model_aux_augmented
```

```
## # A tibble: 100 x 10
##       x1     x2     x3 .fitted .resid   .hat .sigma .cooksdi .std.resid      y
##   <dbl> <dbl> <dbl>   <dbl> <dbl> <dbl> <dbl>    <dbl> <dbl> <dbl>
## 1  2.57  2.02  5.86    5.05 -2.47  0.0208  2.76  0.00582 -0.906  22.2
## 2  3.53  0.630 6.12    5.23 -1.70  0.0344  2.77  0.00466 -0.626  19.3
## 3  1.73  1.91  3.13    4.92 -3.19  0.0286  2.75  0.0135  -1.17   10.9
## 4  5.98  1.63  7.66    5.19  0.788  0.0312  2.77  0.000906  0.290  30.0
## 5  2.94  3.96  8.18    4.93 -2.00  0.0246  2.77  0.00451  -0.733  32.8
## 6  4.53  8.94  3.17    4.06  0.471  0.0383  2.77  0.000402  0.174  25.9
## 7  0.811 8.74  2.40    4.04 -3.23  0.0401  2.75  0.0199  -1.20   20.1
```

```
##  8 0.517 8.67   4.13    4.14 -3.63  0.0326   2.75 0.0200     -1.34  29.2
##  9 4.34  1.34   8.09    5.25 -0.908 0.0369   2.77 0.00143     -0.335 28.8
## 10 8.17  7.79   6.39    4.37  3.80  0.0276   2.75 0.0184      1.40  39.7
## # i 90 more rows
```

Finally, with this augmented data that has information from the model, we can estimate the model that includes only the residuals as predictors of  $Y$ .

```
model_two <- lm(y ~ .resid, data = model_aux_augmented)
coef(model_two)

## (Intercept)      .resid
##     26.21733     1.01098
```

Our claim was that the coefficients from `model_main` and `model_two` should be the same.

```
test_that(
  'the model coefficients are equal',
  expect_equal(
    as.numeric(coef(model_main)['x1']),
    as.numeric(coef(model_two)['.resid']))
)
```

```
## Test passed
```

But, why is this an interesting, or at least useful, feature to appreciate?

This is actually a really famous, relatively recently “rediscovered” proof. If we have a number of variables, one called an outcome and the rest called features, then we can estimate the relationship between the outcome and one feature in the following way:

1. Estimate the relationship between all the other features and the one that we’re examining; save the information about the feature we’re examining which cannot be explained by the other features in some vector.
2. Regress the outcome on this leftover information.

Slightly more of what is happening? In the first model, the leftover information is orthogonal to the information possessed in the regression features. In the second model, we can use this orthogonal information to estimate the effect of one variable.

## 8.7 Coding Activity:R Cheat Sheet

Suppose `x` and `y` are variables in dataframe `d`.

To fit an ols regression of `Y` on `X`:

```
mod <- lm(y ~ x, data = d)
```

To access **coefficients** from the model object:

```
mod$coefficients  
or coef(mod)
```

To access **fitted values** from the model object:

```
mod$fitted  
or fitted(mod)  
or predict(mod)
```

To access **residuals** from the model object:

```
mod$residuals  
or resid(mod)
```

To create a scatterplot that includes the regression line:

```
plot(d['x'], d['y'])  
abline(mod)  
or  
d %>%  
  ggplot() +  
  aes(x = x, y = y) +  
  geom_point() +  
  geom_smooth(method = lm)
```

## 8.8 R Exercise

### Real Estate in Boston

The file `hprice1.Rdata` contains 88 observations of homes in the Boston area, taken from the real estate pages of the Boston Globe during 1990. This data was provided by Wooldridge.

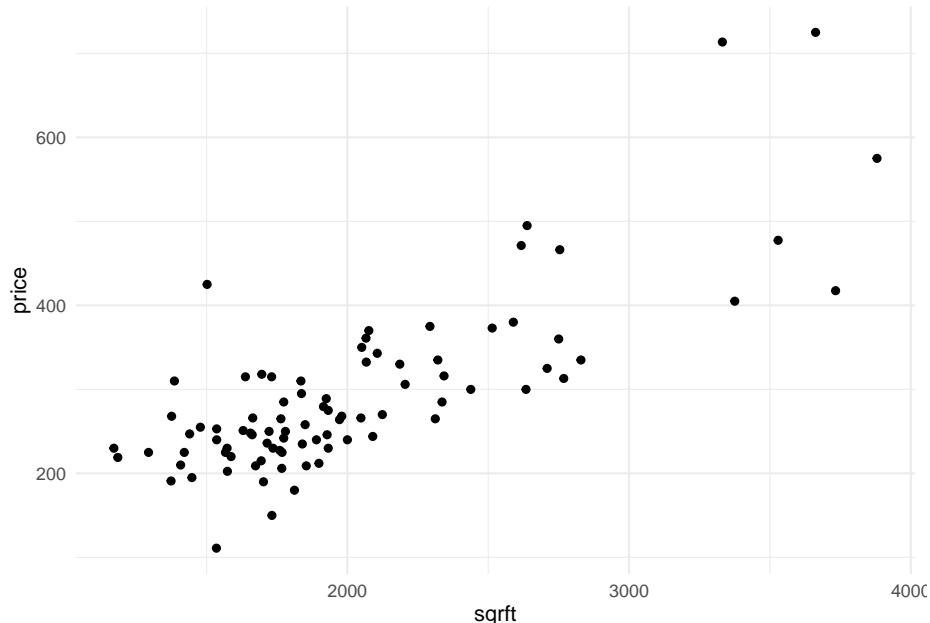
```
load('data/hprice1.RData') # provides 3 objects  
  
head(data)  
  
##      price assess bdrms lotsize sqrft colonial    lprice lassess llotsize  
## 1 300.000  349.1     4    6126   2438        1 5.703783 5.855359 8.720297  
## 2 370.000  351.5     3    9903   2076        1 5.913503 5.862210 9.200593  
## 3 191.000  217.7     3    5200   1374        0 5.252274 5.383118 8.556414  
## 4 195.000  231.8     3    4600   1448        1 5.273000 5.445875 8.433811  
## 5 373.000  319.1     4    6095   2514        1 5.921578 5.765504 8.715224  
## 6 466.275  414.5     5    8566   2754        1 6.144775 6.027073 9.055556  
##      lsqrft  
## 1 7.798934  
## 2 7.638198  
## 3 7.225482
```

```
## 4 7.277938
## 5 7.829630
## 6 7.920810
```

- Are there variables that would *not* be valid outcomes for an OLS regression?  
If so, why?
- Are there variables that would *not* be valid inputs for an OLS regression?  
If so, why?

### 8.8.1 Assess the Relationship between Price and Square Footage

```
data %>%
  ggplot() +
  aes(x=sqrft, y=price) +
  geom_point()
```



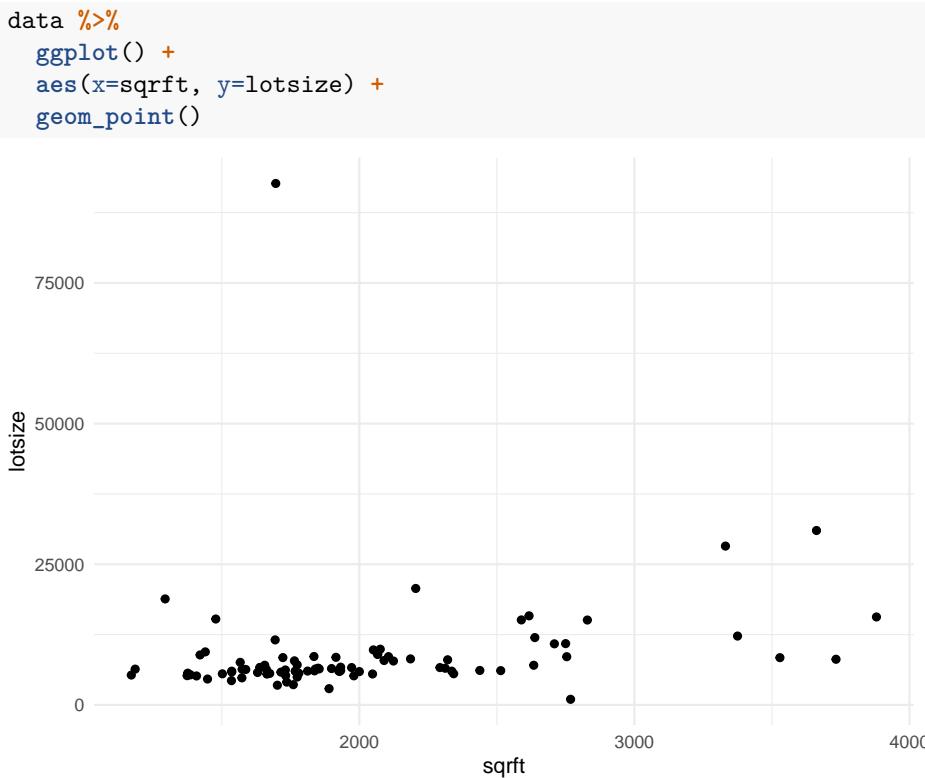
Suppose that you're interested in knowing the relationship between price and square footage.

0. Assess the assumptions of the Large-Sample Linear Model.
1. Create a scatterplot of `price` and `sqrft`. Like every plot you make, ensure that the plot *minimally* has a title and meaningful axes.
2. Find the correlation between the two variables.
3. Recall the equation for the slope of the OLS regression line – here you can

either use Variance and Covariance, or if you're bold, the linear algebra. Compute the slope manually (without using `lm()`)

4. Regress `price` on `sqrft` using the `lm` function. This will produce an estimate for the following model:

$$price = \beta_0 + \beta_1 \text{sqrft} + e$$



5. Create a scatterplot that includes the fitted regression.
6. Interpret what the coefficient means.
  - State what features you are allowing to change and what features you're requiring do not change.
  - For each additional square foot, how much more (or less) is the house worth?
7. Estimate a new model (and save it into another object) that includes the size of the lot and whether the house is a colonial. This will estimate the model:

$$price = \beta_0 + \beta_1 \text{sqrft} + \beta_2 \text{lotsize} + \beta_3 \text{colonial?} + e$$

- *BUT BEFORE YOU DO*, make a prediction: What do you think is going to happen to the coefficient that relates square footage and price?
  - Will the coefficient increase, decrease, or stay the same?
- 7. Compute the sample correlation between  $X$  and  $e_i$ . What guarantees do we have from the book about this correlation? Does the data seem to bear this out?

## 8.9 Regression Plots and Discussion

In this next set of notes, we're going to give some data, displayed in plots, and we will try to apply what we have learned in the async and reading for this week to answer questions about each of the scatter plots.

### 8.9.1 Plot 1

Consider data that is generated according to the following function:

$$Y = 1 + 2x_1 + 3x_2 + e,$$

where  $x_1 \sim N(0, 2)$ ,  $x_2 \sim N(0, 2)$  and  $e$  is a constant equal to zero.

From this population, you might consider taking a sample of 100 observations, and representing this data in the following 3d scatter plot. In this plot, there are three dimensions, an  $x_1$ ,  $x_2$ , and  $y$  dimensions.

```
knitr:::include_app(url = "http://www.statistics.wtf/minibeta01/")
```

1. Rotate the cube and explore the data, looking at each face of the cube, including from the top down.
2. One of the lessons that we learned during the random variables section of the course is that every random variable that has been measured can also be marginalized off. You might think of this as “casting down” data from three dimensions, to only two.
3. Sketch the following 2d scatter plots, taking care the label your axes. You need not represent all 100 points, but rather create the *gestalt* of what you see.
  1.  $Y = f(x_1)$  (but not  $x_2$ )
  2.  $Y = f(x_2)$  (but not  $x_1$ )
  3.  $x_2 = f(x_1)$
4. Once you have sketched the scatter plots, what line would you fit that minimizes the sum of squared residuals in the vertical direction. Define a residual,  $\epsilon$ , to be the vertical distance between the line you draw, and the corresponding point on the input data.
5. What is the *average* of the residuals for each of the lines that you have fitted? How does this correspond to the *moment conditions* discussed in the async? What would happen if you translated this line vertically?
6. Rotate the cube so that the points “fall into line”. When you see this line, how does it help you describe the function that governs this data?

# Chapter 9

## OLS Regression Inference



Figure 9.1: sunset on golden gate

### 9.1 Learning Objectives

After this week's learning, student will be able to

1. *Describe* how sampling based uncertainty is reflected in OLS regression parameter estimates.
2. *Report* standard errors, and *conduct* tests for NHST of regression coefficients against zero.

3. *Conduct* a regression based analysis, on real data, in ways that begin to explore regression as a modeling tool.

## 9.2 Class Announcements

1. Congratulations on finishing your first lab!
2. The next (and the last) lab is coming up in two weeks.
3. Homework 09 has been assigned today, and it is due in a week.

## 9.3 Roadmap

### Rear-View Mirror

- Statisticians create a population model to represent the world.
- Sometimes, the model includes an “outcome” random variable  $Y$  and “input” random variables  $X_1, X_2, \dots, X_k$ .
- The joint distribution of  $Y$  and  $X_1, X_2, \dots, X_k$  is complicated.
- The best linear predictor (BLP) is the canonical way to summarize the relationship.
- OLS provides a point estimate of the BLP

### Today

- Robust Standard Error: quantify the uncertainty of OLS coefficients
- Hypothesis testing with OLS coefficients
- Bootstrapping

### Looking Ahead

- Regression is a foundational tool that can be applied to different contexts
- The process of building a regression model looks different, depending on whether the goal is prediction, description, or explanation.

## 9.4 Uncertainty in OLS

### 9.4.1 Discussion Questions

- List as many differences between the BLP and the OLS line as you can.
- In the following regression table, explain in your own words what the standard error in parentheses means.

		outcome: sleep hours
mg. melatonin	0.52 (0.31)	

## 9.5 Understanding Uncertainty

Imagine three different regression models, each of the following form:

$$Y = 0 + \beta X + \epsilon$$

The only difference is in the error term. The conditional distribution is given by:

Model	Distribution of $\epsilon$ cond. on $X$
A	Uniform on $[-.5, +.5]$
B	Uniform on $[- X ,  X ]$
C	Uniform on $[-1 +  X , 1 -  X ]$

A is what we call a homoskedastic distribution. B and C are what we call heteroskedastic. Below, we define R functions that simulate draws from these three distributions.

```
rA <- function(n, slope=0){
  x      = runif(n, min=-1, max = 1)
  epsilon = runif(n, min=-.5, max=.5)
  y      = 0 + slope*x + epsilon
  return( data.frame(x=x,y=y) )
}

rB <- function(n, slope=0){
  x      = runif(n, min=-1, max = 1)
  epsilon = runif(n, min=- abs(x), max=abs(x))
  y      = 0 + slope*x + epsilon
  return( data.frame(x=x,y=y) )
}

rC <- function(n, slope=0){
  x      = runif(n, min=-1, max = 1)
  epsilon = runif(n, min= -1 + abs(x), max=1 - abs(x))
  y      = 0 + slope*x + epsilon
  return( data.frame(x=x,y=y) )
}

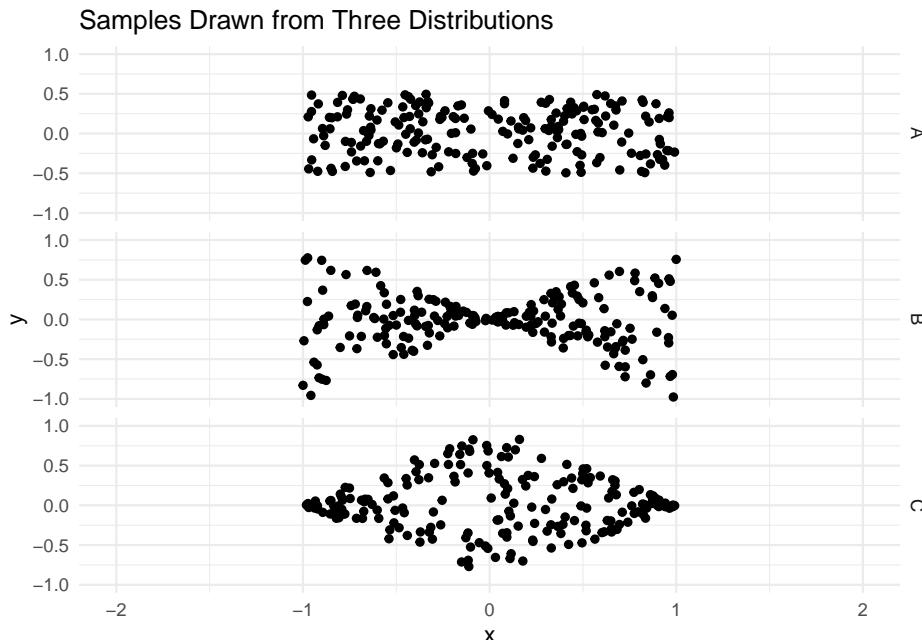
data <- rbind(
  data.frame( rA(200), label = 'A'),
  data.frame( rB(200), label = 'B'),
  data.frame( rC(200), label = 'C'))

data %>%
  ggplot(aes(x=x, y=y)) +
```

```

geom_point() +
lims(
  x = c(-2,2),
  y = c(-1,1)) +
labs(title = 'Samples Drawn from Three Distributions') +
facet_grid(rows=vars(label))

```



### 9.5.1 Question 1

The following code draws a sample from distribution A, fits a regression line, and plots it. Run it a few times to see what happens. Now explain how you would visually estimate the standard error of the slope coefficient. Why is this standard error important?

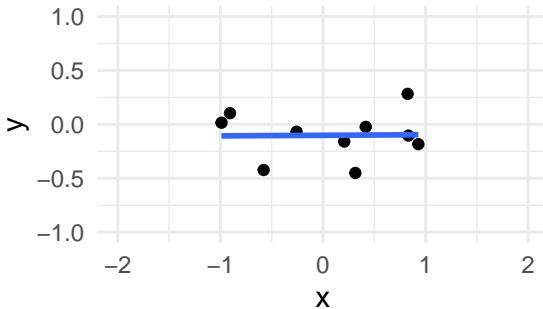
```

data <- rA(10, slope=0)

data %>%
  ggplot() +
  aes(x=x, y=y) +
  geom_point() +
  geom_smooth(method='lm', formula = 'y ~ x', se=FALSE) +
  lims(
    x = c(-2,2),
    y = c(-1,1)) +
  labs(title = 'Regression Fit to Distribution A')

```

### Regression Fit to Distribution A



```

data_points <- 200

base_plot_a <- rA(10) %>%
  ggplot() +
  aes(x=x, y=y) +
  geom_point() +
  scale_x_continuous(limits = c(-3, 3))

for(i in 1:100) {
  base_plot_a <- base_plot_a + rA(data_points) %>%
    stat_smooth(
      mapping = aes(x=x, y=y),
      method = 'lm',           se = FALSE,
      formula = 'y~x', fullrange = TRUE,
      color   = 'grey', alpha = 0.5,
      size    = 0.5
    )
}
}

## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use `linewidth` instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was generated.

base_plot_b <- rB(10) %>%
  ggplot() +
  aes(x=x, y=y) +
  geom_point() +
  scale_x_continuous(limits = c(-3, 3))

for(i in 1:100) {
  base_plot_b <- base_plot_b + rB(data_points) %>%
    stat_smooth(
      mapping = aes(x=x, y=y),
      method = 'lm',           se = FALSE,

```

```

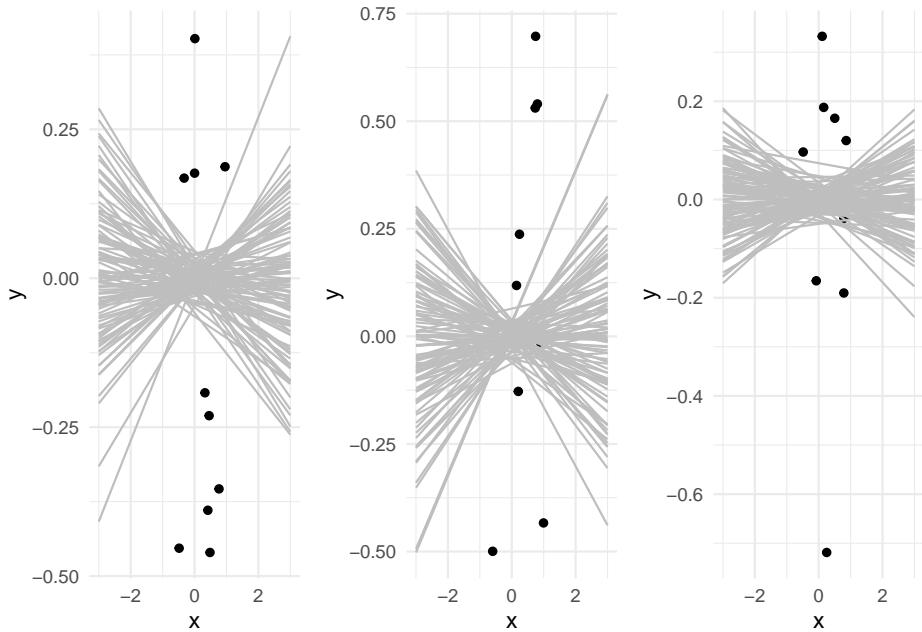
        formula = 'y~x', fullrange = TRUE,
        color    = 'grey',   alpha = 0.5,
        size     = 0.5
    )
}

base_plot_c <- rC(10) %>%
  ggplot() +
  aes(x=x, y=y) +
  geom_point() +
  scale_x_continuous(limits = c(-3, 3))

for(i in 1:100) {
  base_plot_c <- base_plot_c + rC(data_points) %>%
    stat_smooth(
      mapping = aes(x=x, y=y),
      method  = 'lm',           se = FALSE,
      formula = 'y~x', fullrange = TRUE,
      color   = 'grey',   alpha = 0.5,
      size     = 0.5
    )
}

base_plot_a | base_plot_b | base_plot_c

```



### 9.5.2 Question 2

You have a sample from each distribution, A, B, and C and you fit a regression of Y on X. Which will have the highest standard error for the slope coefficient? Which will have the lowest standard error? Why? (You may want to try experimenting with the function defined above)

### 9.5.3 Question 3

For distribution A, perform a simulated experiment. Draw a large number of samples, and for each sample fit a linear regression. Store the slope coefficient from each regression in a vector. Finally, compute the standard deviation for the slope coefficients.

Repeat this process for distributions B and C. Do the results match your intuition?

## 9.6 Understanding Uncertainty

Under the relatively stricter assumptions of constant error variance, the variance of a slope coefficient is given by

$$V(\hat{\beta}_j) = \frac{\sigma^2}{SST_j(1 - R_j^2)}$$

**Definition 9.1.** A similar formulation is given in *FOAS* as definition 4.2.3,

$$\hat{V}_C[\hat{\beta}] = \hat{\sigma}^2 (X^T X)^{-1} \rightsquigarrow \hat{\sigma}^2 (\mathbb{X}^T \mathbb{X}),$$

where  $\hat{\sigma}^2 = V[\hat{\epsilon}]$

Explain why each term makes the variance higher or lower:

- $\hat{\sigma}^2$  is the variance of the error  $\hat{\epsilon}$
- $SST_j$  is (unscaled) variance of  $X_j$
- $R_j^2$  is  $R^2$  for a regression of  $X_j$  on the other  $X$ 's

## 9.7 R Exercise

### Real Estate in Boston

The file `hprice1.RData` contains 88 observations of homes in the Boston area, taken from the real estate pages of the Boston Globe during 1990. This data was provided by Wooldridge.

```
load('data/hprice1.RData') # provides 3 objects
```

Last week, we fit a regression of price on square feet.

```
model_one <- lm(price ~ sqrft, data = data)
model_one$df.residual

## [1] 86
```

Can you use the pieces that you're familiar with to produce a p-value using robust standard errors?

```
regression_p_value <- function(model, variable) {
  ## this function takes a model
  ## and computes a test-statistic,
  ## then compares that test-statistic against the
  ## appropriate t-distribution

  ## you can use the following helper functions:
  ## - coef()
  ## - vcovHC()
  df <- model$df.residual

  # numerator   <- 'fill this in'
  # denominator <- 'fill this in'

  numerator   <- coef(model)[variable]
  denominator <- sqrt(diag(vcovHC(model)))[variable]

  test_stat_ <- numerator / denominator
  p_val_     <- 'fill this in'
  p_val_     <- pt(test_stat_, df = df, lower.tail = FALSE) * 2

  return(p_val_)
}
```

If you want to confirm that what you have written is correct, you can compare against the value that you receive from the line below.

```
coeftest(model_one, vcov. = vcovHC(model_one))

##
## t test of coefficients:
##
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 11.204145 39.450563 0.2840    0.7771
## sqrft       0.140211  0.021111  6.6417 2.673e-09 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
p_value_ <- broom::tidy(coeftest(model_one, vcov. = vcovHC(model_one))) %>%
  filter(term == 'sqrft') %>%
```

```

select('p.value') %>%
  as.numeric()

test_that(
  'test that hand coded p-value is the same as the pre-rolled',
  expect_equal(
    object  = as.numeric(regression_p_value(model_one, 'sqrft')),
    expected = p_value_
  )
)

## Test passed

```

### Questions

1. Estimate a new model (and save it into another object) that includes the size of the lot and whether the house is a colonial. This will estimate the model:

$$price = \beta_0 + \beta_1 \text{sqrft} + \beta_2 \text{lotsize} + \beta_3 \text{colonial?} + e$$

- *BUT BEFORE YOU DO*, make a prediction: What do you think is going to happen to the coefficient that relates square footage and price?
  - Will the coefficient increase, decrease, or stay the same?
  - Will the *uncertainty* about the coefficient increase, decrease, or stay the same?
  - Conduct an F-test that evaluates whether the model *as a whole* does better when the coefficients on `colonial` and `lotsize` are allowed to estimate freely, or instead are restricted to be zero (i.e.  $\beta_2 = \beta_3 = 0$ ).
- 2. Use the function `vcovHC` from the `sandwich` package to estimate (a) the heteroskedastic consistent (i.e. “robust”) variance covariance matrix; and (b) the robust standard errors for the intercept and slope of this regression. Recall, what is the relationship between the VCOV and SE in a regression?
- 3. Perform a hypothesis test to check whether the population relationship between `sqrft` and `price` is zero. Use `coeftest()` with the robust standard errors computed above.
- 4. Use the robust standard error and `qt` to compute a 95% confidence interval for the coefficient `sqrft` in the second model that you estimated.  $price = \beta_0 + \beta_1 \text{sqrft} + \beta_2 \text{lotsize} + \beta_3 \text{colonial}$ .
- 5. **Bootstrap.** The book *very* quickly talks about bootstrapping which is the process of sampling *with replacement* and fitting a model. The idea behind the bootstrap is that since the data is generated via an iid sample from the population, that you can simulate re-running your analysis by drawing repeated samples from the data that you have.

Below is code that will conduct a bootstrapping estimator of the uncertainty of the `sqrft` variable when `lotsize` and `colonial` are included in the model.

```
bootstrap_sqft <- function(d = data, number_of_bootstraps = 1000) {
  number_of_rows <- nrow(d)

  coef_sqft <- rep(NA, number_of_bootstraps)

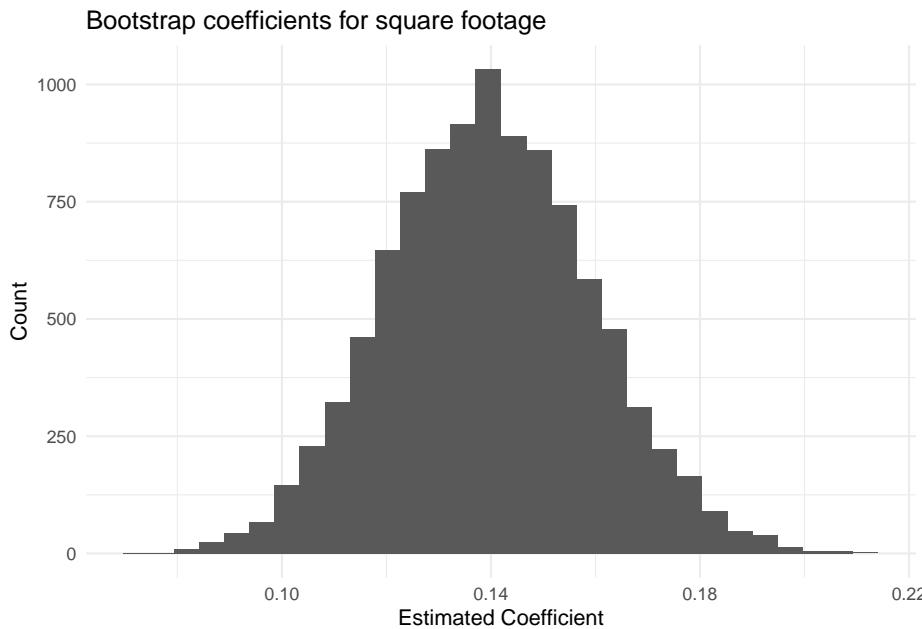
  for(i in 1:number_of_bootstraps) {
    bootstrap_data <- d[sample(x=1:number_of_rows, size=number_of_rows, replace=TRUE)
    estimated_model <- lm(price ~ sqrft, data = bootstrap_data)
    coef_sqft[i]     <- coef(estimated_model)['sqrft']
  }
  return(coef_sqft)
}

bootstrap_result <- bootstrap_sqft(d = data, number_of_bootstraps = 10000)
```

With this, it is possible to plot the distribution of these regression coefficients:

```
ggplot() +
  aes(x = bootstrap_result) +
  geom_histogram() +
  labs(
    x = 'Estimated Coefficient',
    y = 'Count',
    title = 'Bootstrap coefficients for square footage'
  )

## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



Compute the standard deviation of the bootstrapped regression coefficients. How does this compare to the robust standard errors you computed above?

```
coeftest(model_one, vcov. = vcovHC(model_one))

##
## t test of coefficients:
##
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 11.204145 39.450563 0.2840   0.7771
## sqrft       0.140211  0.021111 6.6417 2.673e-09 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
sd(bootstrap_result)

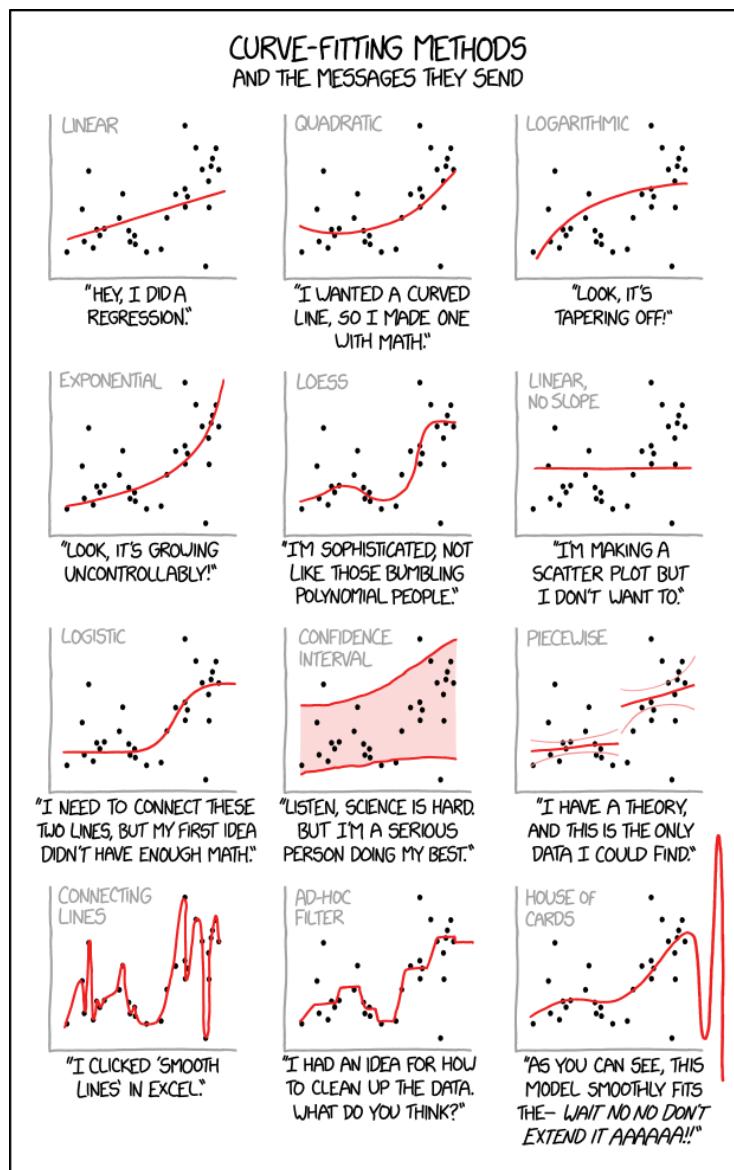
## [1] 0.01959866
```





## Chapter 10

# Descriptive Model Building



## 10.1 Learning Objectives

- 1.
- 2.
- 3.

## 10.2 Class Announcements

1. The Regression Lab begins next week.
  - Your instructor will divide you into teams.
  - As part of the lab, you will perform a statistical analysis using linear regression models.

## 10.3 Roadmap

### Rearview Mirror

- Statisticians create a population model to represent the world.
- The BLP is a useful way to summarize the relationship between one outcome random variable  $Y$  and input random variables  $X_1, \dots, X_k$
- OLS regression is an estimator for the Best Linear Predictor (BLP)
- We can capture the sampling uncertainty in an OLS regression with standard errors, and tests for model parameters.

### Today

- The research goal determines the strategy for building a linear model.
- Description means summarizing or representing data in a compact, human-understandable way.
- We will capture complex relationships by transforming data, including using indicator variables and interaction terms.

### Looking Ahead

- We will see how model building for explanation is different from building for description.
- The famous Classical Linear Model (CLM) allows us to apply regression to smaller samples.

## 10.4 Discussion

### 10.4.1 Three modes of model building

- Recall the three major modes of model building: Prediction, Description, Explanation.
- What is the appropriate mode for each of the following questions?
  1. What is going on?
  2. Why is something going on?
  3. What is going to happen?
- Think of a research question you are interested in. Which mode is it aligned with?

### 10.4.2 The statistical modeling process in different modes

- How does the modeling goal influence each of the following steps in the statistical modeling process?
  - Choice of variables and transformation
  - Choice of model (ols regression, neural nets, random forest, etc.)
  - Model evaluation

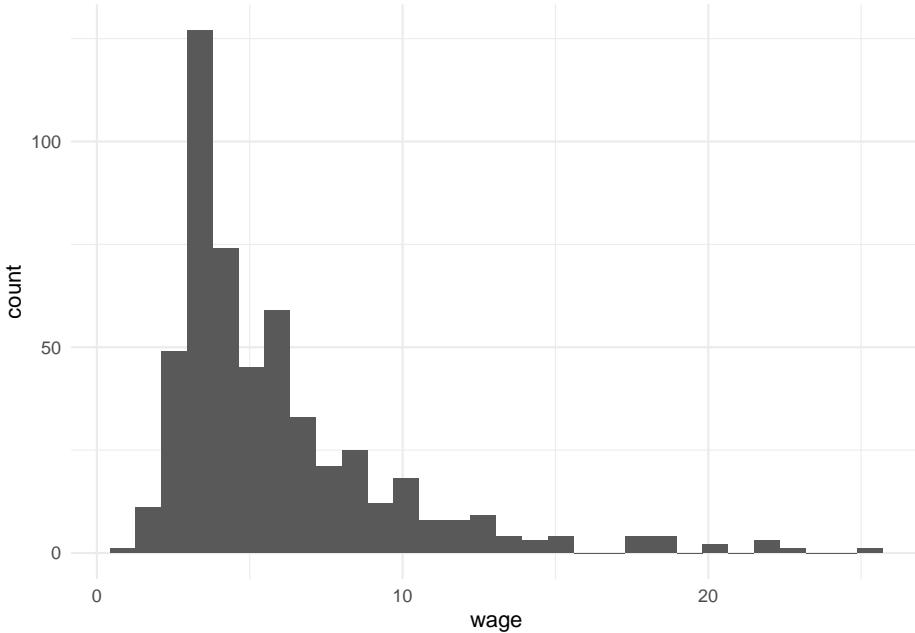
## 10.5 R Activity: Measuring the return to education

- In labor economics, a key concept is *returns to education*.
- Our goal is description: what is the relationship between education and wages? We will proceed in two steps:
  - First, we will discuss what the appropriate specifications are.
  - Then we will estimate the different models to answer this question.
- We will use wage1 dataset in the wooldridge package in the following sections.

```
wage1 <- wooldridge::wage1
#names(wage1)

wage1 %>%
  ggplot() +
  aes(x=wage) +
  geom_histogram()

## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



### 10.5.1 Transformations

#### 10.5.1.1 Applying and Interpreting Logarithms

- Which of the following specifications best capture the relationship between education and hourly wage? (Hint: Do a quick EDA)
  - level-level:  $wage = \beta_0 + \beta_1 educ + u$
  - Level-log:  $wage = \beta_0 + \beta_1 \ln(educ) + u$
  - log-level:  $\ln(wage) = \beta_0 + \beta_1 educ + u$
  - log-log:  $\ln(wage) = \beta_0 + \beta_1 \ln(educ) + u$
- What is the interpretation of  $\beta_0$  and  $\beta_1$  in your selected specification?
- Can we use  $R^2$  or Adjusted  $R^2$  to choose between level-level or log-level specifications?

#### Remember

- Doing a log transformation for any reason essentially implies a fundamentally different relationship between outcome (Y) and predictor (X) that we need to capture

#### 10.5.1.2 Applying and Interpreting Polynomials

- The following specifications include two control variables: years of experience (exper) and years at current company (tenure).

- Do a quick EDA and select the specification that better suits our description goal.
  - $wage = \beta_0 + \beta_1 educ + \beta_2 exper + \beta_3 tenure + u$
  - $wage = \beta_0 + \beta_1 educ + \beta_2 exper + \beta_3 exper^2 +$
  - $\beta_4 tenure + \beta_5 tenure^2 + u$
- How do you interpret the  $\beta$  coefficients?

#### 10.5.1.3 Applying and Interpreting Indicator variables and interaction terms

- In the following models, first, explain why the indicator variables or interaction terms have been included. Then identify the reference group (if any) and interpret all coefficients.
  - $wage = \beta_0 + \beta_1 educ + \beta_2 I(educ \geq 12) + u$
  - $wage = \beta_0 + \beta_1 educ + \beta_2 female + u$
  - $wage = \beta_0 + \beta_1 educ + \beta_2 female + \beta_3 educ * female + u$
  - $wage = \beta_0 + \beta_1 female + \beta_2 I(educ = 2) + \beta_3 I(educ = 3)$
  - $\dots + \beta_{20} I(educ = 20) + u$

#### 10.5.2 Estimation

##### Estimating Returns to Education

- Answer the following questions using an appropriate hypothesis test.
  1. Is a year of education associated with changes to hourly wage? (Include experience and tenure without polynomial terms).
  2. Is the association between wage and experience / wage and tenure non-linear?
  3. Is there evidence for gender wage discrimination in the U.S.?
  4. Is there any evidence for a graduation effect on wage?
- Display all estimated models in a regression table, and discuss the robustness of your results.

## Chapter 11

# Explanatory Model Building

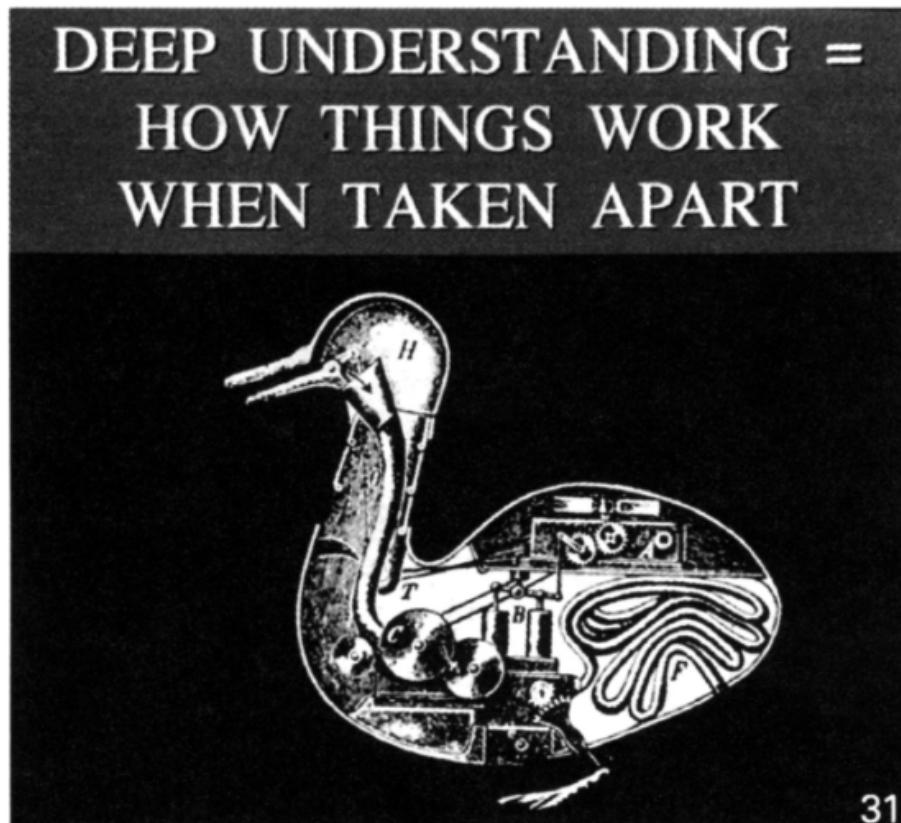


Figure 11.1: duck yeah

What does it mean for **this** to cause **that**? This question has flummoxed the discipline of statistics for a *very* long time; but, more than statistics, it has also flummoxed philosophers for even longer!

Why is something that seems so natural to us in our limited, daily lives, so difficult to formalize? If it is difficult for us to formalize in conversation, how can we hope to formalize this so that a model can *discover* and *evaluate* causal effects from data?

Of all the weeks in this class, this is perhaps the most conceptually challenging.

## 11.1 Learning Objectives

At the end of this week's learning, students will be able to

1. **Remember** that most interesting questions in their data analysis are actually causal questions.
2. **Articulate** a particular causal model that describes the world, and **evaluate** whether a research design and a statistical analysis does an adequate job answering a question about a causal model.
3. **Appreciate** the deep difficulty of causal questions, and how research design guides data collection.

## 11.2 Class Announcements

### Lab 2-Regression

#### Overview

- **Setting:** You are data scientists for a maker of products.
- **Task:** You select your own research question
  - Your X should be an aspect of product design
  - Your Y should be a metric of product success
- **Deliverable:** A statistical analysis that includes
  - An introduction that motivates your research question
  - A description of your model-building process
  - A discussion of statistical assumptions that may be problematic
  - A well-formatted regression table with a minimum of 3 specifications
  - A conclusion that extracts key lessons from your statistical results

#### The Report

- Writing for a collaborating data scientist, what research question have you asked, what answers have you found, and how did you find them?

Deliverable Name	Week Due	Grade Weight
Research Proposal	Week 12	10%
Within-Team Review	Week 14	5%

Deliverable Name	Week Due	Grade Weight
Final Presentation	Week 14	10%
Final Report	Week 14	75%

### Team Work Evaluation

- Most data science work happens on teams.
- Our educational goals include helping you improve in your role as a teammate.
- We'll ask you to fill out a confidential evaluation regarding your team dynamics.

### Final Presentation

- Team will present their work in live session 14.
  - Teams have between 10-15 min dedicated to discussing their work (depending on section size)
  - Two-thirds of the time can be the team presenting
  - **BUT** at least one-third should be asking and answering questions with your peers
  - For example, if teams have 15 minutes total, then plan to present for no more than 10 minutes and structure 5 minutes of questions.

## 11.3 Roadmap

### Rearview Mirror

- Statisticians create a population model to represent the world.
- The BLP is a useful way to summarize relationships in a model, and OLS regression is a way to estimate the BLP.
- OLS regression is a foundational tool that can be applied to questions of description

### Today

- Questions of explanation require a substantially different modeling process.
- To answer causal questions, we must work within a causal theory
- OLS regression is sometimes appropriate for measuring a causal effect,
- But, only when the model estimated matches the causal theory.
- So, we must watch out for omitted variable bias, reverse causality, and outcome variables on the right hand side.

### Looking Ahead

- The famous Classical Linear Model (CLM) allows us to apply regression to smaller samples.
- We will address the pervasive issue of false discovery, and ways to be a responsible member of the scientific community.

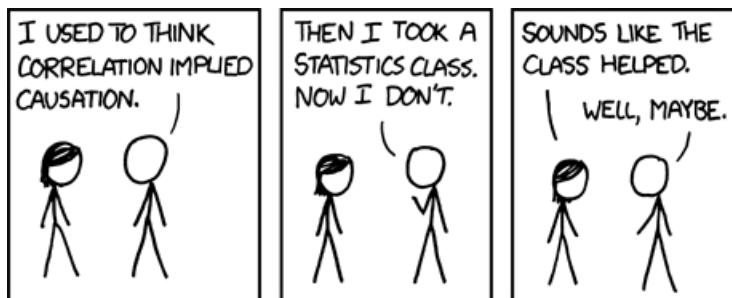
## 11.4 Discussion

### 11.4.1 Path Diagrams

Sleep → Feelings of Stress

- How would the following fit into this causal path diagram?
  1. All the other factors in the world that also cause stress but don't have a causal relationship with sleep.
  2. A factor: Coffee Intake
    - What happens if you omit it in your regression?
  3. Reverse causality
  4. An outcome variable on the RHS: Job Performance
    - What happens if you include it in your regression?

## 11.5 An Interlude



### 11.5.1 Omitted Variable Bias

- Recall the equation for omitted variable bias

$$\text{estimate} = \text{true parameter} + \text{omitted variable bias}$$

$$\alpha_1 = \beta_1 + \beta_2 \delta_1$$

How much does omitted variable affect outcome?

How related are measured and omitted variables?

- What specific regressions do  $\beta_2$  and  $\gamma_1$  come from?

## 11.6 R Exercise

### 11.6.1 Omitted Variable Bias in R

The file `htv.RData` contains data from the 1991 National Longitudinal Survey of Youth, provided by Wooldridge. All people in the sample are males age 26 to 34. The data is interesting here, because it includes education, stored in the variable `educ`, and also a score on an ability test, stored in the variable `abil`.

```
load('./data/htv.RData')

data <- data %>%
  rename(
    ability      = abil,
    education   = educ,
    north_east  = ne,
    north_cent  = nc,
    potential_experience = exper,
    edu_mother = motheduc,
    edu_father = fatheduc,
    divorce_14  = brkhme14,
    siblings     = sibs,
    tuition_17  = tuit17,
    tuition_18  = tuit18) %>%
  mutate(
    education_f = cut(education, breaks = c(0,12,16,100))) %>%
  select(-c(ctuit, expersq, lwage))

glimpse(data)

## #> #> Rows: 1,230
## #> #> Columns: 21
## #> #> $ wage                  <dbl> 12.019231, 8.912656, 15.514334, 13.333333, 11.070~  

## #> #> $ ability                <dbl> 5.0277381, 2.0371704, 2.4758952, 3.6092398, 2.636~  

## #> #> $ education              <int> 15, 13, 15, 15, 13, 18, 13, 12, 13, 12, 12, 12, 1~  

## #> #> $ north_east              <int> 0, 1, 1, 1, 1, 1, 0, 1, 1, 1, 0, 1, 1, 1, 1, 1~  

## #> #> $ north_cent              <int> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~  

## #> #> $ west                   <int> 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0~  

## #> #> $ south                  <int> 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0~  

## #> #> $ potential_experience <int> 9, 8, 11, 6, 15, 8, 13, 14, 9, 9, 13, 14, 4, 8, 7~  

## #> #> $ edu_mother              <int> 12, 12, 12, 12, 12, 13, 12, 10, 14, 9, 12, 17~  

## #> #> $ edu_father              <int> 12, 10, 16, 12, 15, 12, 12, 12, 12, 10, 16, 1~  

## #> #> $ divorce_14              <int> 0, 1, 0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 0, 0, 0, 0~  

## #> #> $ siblings                <int> 1, 4, 2, 1, 2, 2, 5, 4, 3, 1, 2, 1, 1, 3, 2, 2, 1~  

## #> #> $ urban                  <int> 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 0, 1, 1, 1, 1, 1~  

## #> #> $ ne18                   <int> 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1~  

## #> #> $ nc18                   <int> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
```

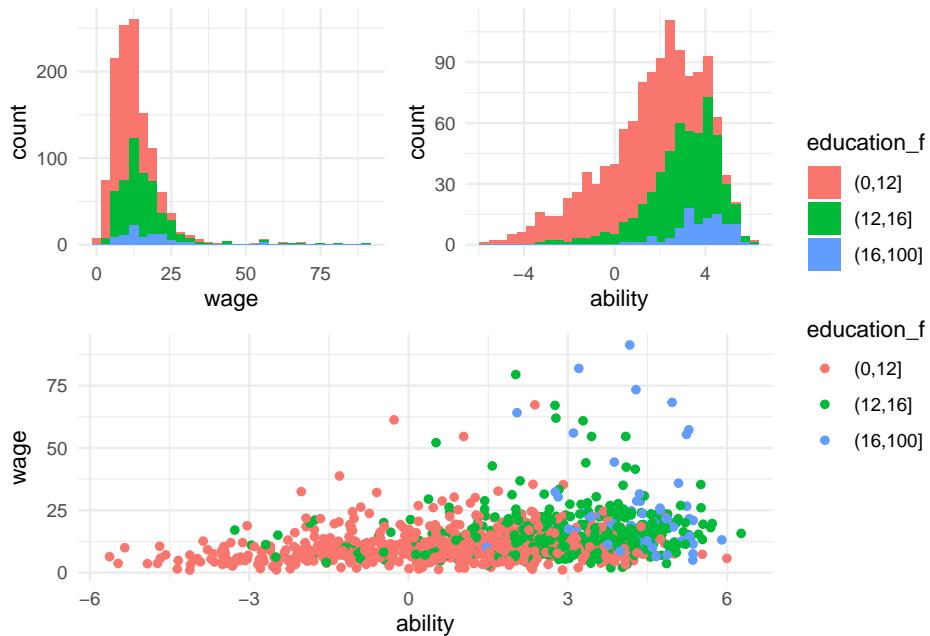
```

## $ south18          <int> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ west18           <int> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0~
## $ urban18          <int> 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1~
## $ tuition_17        <dbl> 7.582914, 8.595144, 7.311346, 9.499537, 7.311346, ~
## $ tuition_18        <dbl> 7.260242, 9.499537, 7.311346, 10.162070, 7.311346~
## $ education_f       <fct> "(12,16]", "(12,16]", "(12,16]", "(12,16]", "(12,~

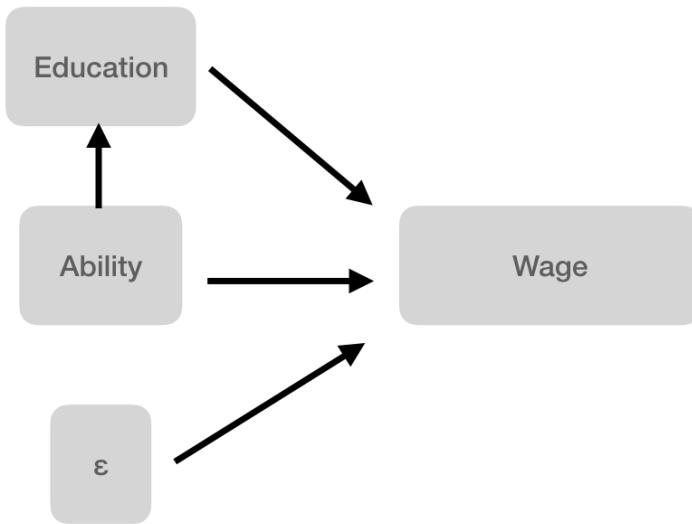
wage_plot <- data %>%
  ggplot() +
  aes(x=wage, fill=education_f) +
  geom_histogram(bins=30)
ability_plot <- data %>%
  ggplot() +
  aes(x=ability, fill=education_f) +
  geom_histogram(bins=30)
wage_by_ability_plot <- data %>%
  ggplot() +
  aes(x=ability, y=wage, color=education_f) +
  geom_point()

(wage_plot | ability_plot) /
  wage_by_ability_plot +
  plot_layout(guides = 'collect')

```



Assume that the true model is,



### 11.6.2 Questions:

1. Are we able to *directly* measure ability? If so, how would you propose to measure it?
2. If not, what *do* we measure and how is this measurement related to ability? And there is a lot of evidence to suggest that standardized tests are not a very good proxy. But for now, let's pretend that we really are measuring ability.
3. Using R, estimate (a) the true model, and (b) the regression of ability on education.
4. Write down the expression for what omitted variable bias would be if you couldn't measure ability.
5. Add this omitted variable bias to the coefficient for education to see what it would be.
6. Now evaluate your previous result by fitting the model,

$$wage = \alpha_0 + \alpha_1 educ + w$$

7. Does the coefficient for the relationship between education and wages match what you estimated earlier?
8. Why or why not?
9. Reflect on your results:
10. What does the direction of omitted variable bias suggest about OLS estimates of returns to education?
11. What does this suggest about the reported statistical significance of education?

## 11.7 Research Design Strategies

Hopefully you feel like, “Golly. It would be really, *really* hard to assert some causal model and *know that it is actually true.*” How does this lead you to think about the role of research design in setting up your data collection?

1. If you could **do the experiment** to determine the effect of education on wages, how would you do it?
2. If you cannot **do the experiment** to determine the effect of education on wages, what are some options for where to look for data? What would you hope these areas provide to you?

## 11.8 Discussion

### The Direction of Omitted Variable Bias

- For each regression, estimate whether omitted variable bias is towards zero or away from zero.

Regression Output	Omitted Variable
$\widehat{grade} = 72.1 + 0.4 \text{ attendance}$	<i>time_studying</i>
$\widehat{life\span} = 87.4 - 1.2 \text{ cigarettes}$	<i>exercise</i>
$\widehat{life\span} = 87.4 - 1.2 \text{ cigarettes}$	<i>time_socializing</i>
$\widehat{wage} = 14.0 + 2.1 \text{ grad_education}$	<i>experience</i>
$\widehat{wage} = 14.0 + 2.1 \text{ grad_education}$	desire to effect <i>social_good</i>
$\widehat{literacy} = 54 + 12 \text{ network_access}$	<i>wealth</i>

# Chapter 12

# The Classical Linear Model

```
# install.packages("corrgram")
```

## 12.1 Learning Objectives

At the end of this week's learning students will be able to

1. **Describe** the assumptions of the classical linear model (sometimes referred to as the Gauss-Markov Assumptions) and what each assumption contributes to the estimator.
2. **Evaluate** using empirical methods, whether each of the assumptions are likely to be true of the population data generating function.
3. **Assess** whether the guarantees that are provided by the classical linear model's requirements are likely to *ever* be true, including within data the student is likely to encounter.

## 12.2 Class Announcements

- Lab 2 Deliverable and Dates
  - Research Proposal (Today)
  - Within-Team Review (Week 14)
  - Final Report (Week 14)
  - Final Presentation (Week 14)

## 12.3 Roadmap

### Rearview Mirror

- Statisticians create a population model to represent the world.

- The BLP is a useful summary for a relationship among random variables.
- OLS regression is an estimator for the Best Linear Predictor (BLP).
- For a large sample, we only need two mild assumptions to work with OLS
  - To know coefficients are consistent
  - To have valid standard errors, hypothesis tests

### Today

- The Classical Linear Model (CLM) allows us to apply regression to smaller samples.
- The CLM requires more to be true of the data generating process, to make coefficients, standard errors, and tests *meaningful* in small samples.
- Understanding if the data meets these requirements (often called assumptions) requires considerable care.

### Looking Ahead

- The CLM – and the methods that we use to evaluate the CLM – are the basis of advanced models (*inter alia* time-series)
- (Week 13) In a regression studies (and other studies), false discovery is a widespread problem. Understanding its causes can make you a better member of the scientific community.

## 12.4 The Classical Linear Model

Comparing the Large Sample Model and the CLM

### 12.4.1 Part 1

- We say that in small samples, more needs be true of our data for OLS regression to “work.”
  - What do we mean when we say “work”?
    - \* If our goals are descriptive, how is a “working” estimator useful?
    - \* If our goals are explanatory, how is a “working” estimator useful?
    - \* If our goals are predictive, are the requirements the same?

### 12.4.2 Part 2

- Suppose that you’re interested in understanding how subsidized school meals benefit under-resourced students in San Francisco East Bay region.
  - Using the tools from DATASCI 201, refine this question to a data science question.
  - Suppose that there exists two possible data sources to answer the question you have formed:
    - \* A large amount (e.g. 10,000 data points) of individual-level data about income, nutrition and test scores, self-reported by

individual families who have opted in to the study.

- \* A relatively smaller amount (e.g. 500 data points) of Government data about school district characteristics, including district-level college achievement; county-level home prices, and state-level tax receipts.

- **What are the tradeoffs to using one or the other data source?**

#### 12.4.3 Part 3

- Suppose you elect to use the relatively larger sample of individual-level data.
  - Which of the large-sample assumptions do you expect are valid, and which are problematic?
- Or, suppose that you elect to use the relatively smaller sample of school-district-level data.
  - Which of the CLM assumptions do you expect are valid, and which do you expect are most problematic?
- **What was the research question that you identified?**
- **What would a successful answer accomplish?**

#### 12.4.4 Part 4

- **Which data source, the individual or the district-level, do you think is more likely to produce a successful answer?**

#### 12.4.5 Part 5

Problems with the CLM Requirements

- There are five requirements for the CLM
  1. IID Sampling
  2. Linear Conditional Expectation
  3. No Perfect Collinearity
  4. Homoskedastic Errors
  5. Normally Distributed Errors
- For each of these requirements:
  - Identify one **concrete** way that the data might not satisfy the requirement.
  - Identify what the consequence of failing to satisfy the requirement would be.
  - Identify a path forward to satisfy the requirement.

## 12.5 R Exercise

```
library(tidyverse)
library(wooldridge)
library(car)
library(lmtest)
library(sandwich)
library(stargazer)
```

If you haven't used the `mtcars` dataset, you haven't been through an intro applied stats class!

In this analysis, we will use the `mtcars` dataset which is a dataset that was extracted from the 1974 Motor Trend US magazine, and comprises fuel consumption and 10 aspects of automobile design and performance for 32 automobiles (1973-74 models). The dataset is automatically available when you start R.

For more information about the dataset, use the R command: `help(mtcars)`

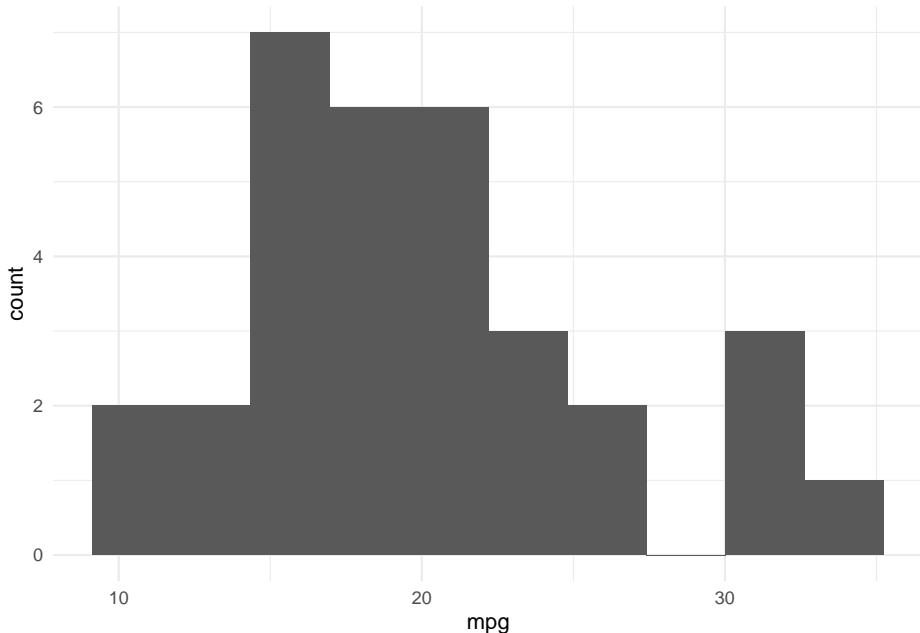
```
data(mtcars)
glimpse(mtcars)
```

```
## Rows: 32
## Columns: 11
## $ mpg <dbl> 21.0, 21.0, 22.8, 21.4, 18.7, 18.1, 14.3, 24.4, 22.8, 19.2, 17.8, ~
## $ cyl <dbl> 6, 6, 4, 6, 8, 6, 8, 4, 4, 6, 6, 8, 8, 8, 8, 4, 4, 4, 4, 4, 8, ~
## $ disp <dbl> 160.0, 160.0, 108.0, 258.0, 360.0, 225.0, 360.0, 146.7, 140.8, 16~
## $ hp <dbl> 110, 110, 93, 110, 175, 105, 245, 62, 95, 123, 123, 180, 180, 180~
## $ drat <dbl> 3.90, 3.90, 3.85, 3.08, 3.15, 2.76, 3.21, 3.69, 3.92, 3.92, 3.92, ~
## $ wt <dbl> 2.620, 2.875, 2.320, 3.215, 3.440, 3.460, 3.570, 3.190, 3.150, 3.~
## $ qsec <dbl> 16.46, 17.02, 18.61, 19.44, 17.02, 20.22, 15.84, 20.00, 22.90, 18~
## $ vs <dbl> 0, 0, 1, 1, 0, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 0, ~
## $ am <dbl> 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 0, ~
## $ gear <dbl> 4, 4, 4, 3, 3, 3, 4, 4, 4, 3, 3, 3, 3, 3, 4, 4, 4, 3, 3, ~
## $ carb <dbl> 4, 4, 1, 1, 2, 1, 4, 2, 2, 4, 4, 3, 3, 3, 4, 4, 4, 1, 2, 1, 1, 2, ~
```

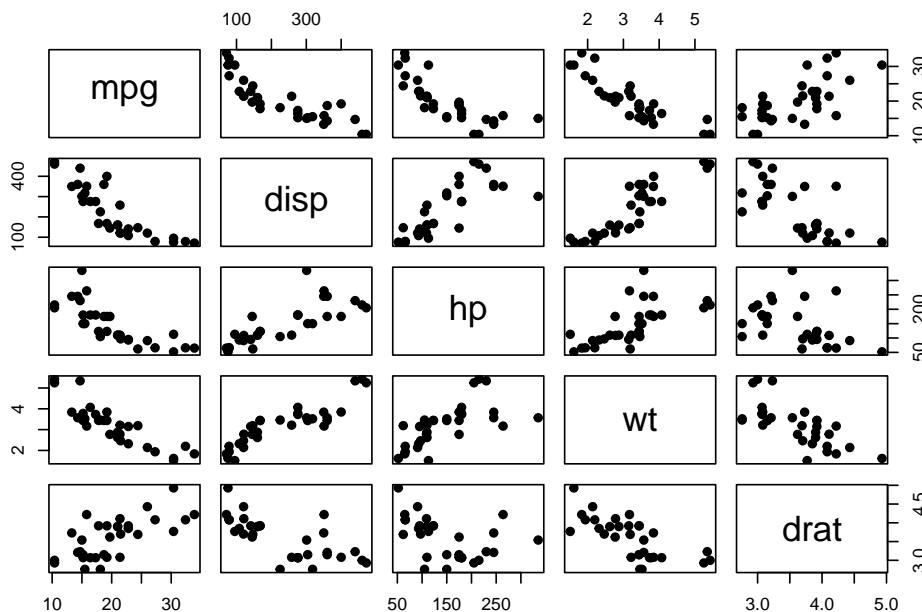
### 12.5.1 Questions:

- Using the `mtcars` data, quickly reason about the variables that we're interested in studying:

```
mtcars %>%
  ggplot() +
  aes(x=mpg) +
  geom_histogram(bins=10)
```



```
mtcars %>%
  select(mpg, disp, hp, wt, drat) %>%
  pairs(pch=19)
```



1. Using the mtcars data, run a linear regression to find the relationship between miles per gallon (mpg) on the left-hand-side as a function of

displacement (`disp`), gross horsepower (`hp`), weight (`wt`), and rear axle ratio (`drat`) on the right-hand-side. That is, fit a regression of the following form:

$$\widehat{mpg} = \hat{\beta}_0 + \hat{\beta}_1 disp + \hat{\beta}_2 horse\_power + \hat{\beta}_3 weight + \hat{\beta}_4 drive\_ratio$$

2. For **each** of the following CLM assumptions, assess whether the assumption holds. Where possible, demonstrate multiple ways of assessing an assumption. When an assumption appears violated, state what steps you would take in response.

- I.I.D. data
- Linear conditional expectation
- No perfect collinearity
- Homoskedastic errors
- Normally distributed errors

```
# goal:
```

```
# consequence if violated:
```

```
# goal:
```

```
# consequence if violated:
```

```
# goal:
```

```
# consequence if violated:
```

```
# goal:
```

```
# consequence if violated:
```

```
# goal:
```

```
# consequence if violated:
```

3. In addition to the above, assess to what extent (imperfect) collinearity is affecting your inference.

4. Interpret the coefficient on horsepower.

5. Perform a hypothesis test to assess whether rear axle ratio has an effect on mpg. What assumptions need to be true for this hypothesis test to be informative? Are they?

6. Choose variable transformations (if any) for each variable, and try to better meet the assumptions of the CLM (which also maintaining the readability of your model).

7. (As time allows) report the results of both models in a nicely formatted regression table.

# Chapter 13

## Reproducible Research

### 13.1 Learning Objectives

1.

2.

3.

### 13.2 Class Announcements

### 13.3 Roadmap

Rearview Mirror

Today

Looking Ahead

### 13.4 What data science hopes to accomplish

- As a data scientist, our goal is to learn about the world:
  - *Theorists* and *theologians* build systems of explanations that are consistent with themselves
  - *Analysts* build systems of explanations that are consistent with the past
  - *Scientists* build systems of explanations that usefully predict events, **or data**, that hasn't yet been seen

## 13.5 Learning from Data

- As a data scientist, the way we learn about the world is through the streams of data that **real world** events produce
  - Machine processes
  - Political outcomes
  - Customer actions
- The watershed moment in our field has been the profusion of data available, from many places, that is richer than at any other point in our past.
  - In 251, and 266 we place structure on data series like audio, video and text that are *transcendently* rich
  - In 261 we bring together flows of data that are generated at massive scales
  - In 209 we ask, “How can we take data, and produce a *new* form of it that is most effectively understood by the human visual and interactive mind?

## 13.6 Data Science and Statistics

- So why statistics?
- And why the way we've chosen to approach statistics in 203?

## 13.7 Why Statistics?: A Closing Argument for Statistics

- Business, policy, education and medical decisions are made *by humans* based on data
- A central task when we observe some pattern in data is to **infer** whether the pattern will occur in some novel context
- Statistics, as we practice it in 203, allows us to characterize:
  - What we have seen
  - What we *could have seen*
  - Whether any guarantees exist about what we have seen
  - What we can infer about the population
- So that we can either describe, explain or predict behavior.

## 13.8 Course Goals

### 13.8.1 Course Section III: Purpose-Driven Models

- Statistical models are unknowing transformations of data

- Because they’re built on the foundation of probability, we have certain guarantees what a model “says”
- Because they’re unknowing, the models themselves know-not what they say.
- As the data scientist, bring them alive to achieve our modeling goals
- In Lab 2 we have expanded our ability to parse the world using regression, built a model that accomplishes our goals, and done so in a way that brings the ability to test under a “*null*” scenario
  - **Key insight:** regression is little more than conditional averages

### 13.8.2 Course Section II: Sampling Theory and Testing

- Under **very** general assumptions, sample averages follow a predictable, known, distribution – the *Gaussian distribution*
- This is true, even when the underlying probability distribution is *very* complex, or unknown!
- Due to this common distribution, we can produce reliable, general tests!
- In Lab 1 we computed simple statistics, and used guarantees from sampling theory to **test** whether these differences were likely to arise under a “*null*” scenario

### 13.8.3 Course Section I: Probability Theory

- Probability theory
  - Underlies modeling and regression (Part III);
  - Underlies sampling, inference, and testing (Part II)
  - **Every** model built in **every** corner of data science

We can:

- Model the complex world that we live in using probability theory;
- Move from a probability density function that is defined in terms of a single variable, into a function that is defined in terms of many variables
- Compute useful summaries – i.e. the BLP, expected value, and covariance – even with *highly* complex probability density functions.

### 13.8.4 Statistics as a Foundation for MIDS

- In w203, we hope to have laid a foundation in probability that can be used not only in statistical applications, but also in every other machine learning application that are likely to ever encounter

## 13.9 Reproducibility Discussion

Green Jelly Beans

What went wrong here?

### 13.9.1 Discussion

**Status Update** You have a dataset of the number of Facebook status updates by day of the week. You run 7 different t-tests, one for posts on Monday (versus all other days), or for Tuesday (versus all other days), etc. Only the test for Sunday is significant, with a p-value of .045, so you throw out the other tests.

Should you conclude that Sunday has a significant effect on number of posts? (How can you address this situation responsibly when you publish your results?)

**Such Update** As before, you have a dataset of the number of Facebook status updates by day of the week. You do a little EDA and notice that Sunday seems to have more “status updates” than all other days, so you recode your “day of the week” variable into a binary one: Sunday = 1, All other days = 0. You run a t-test and get a p-value of .045. Should you conclude that Sunday has a significant effect on number of posts?

**Sunday Funday** Suppose researcher A tests if Monday has an effect (versus all other days), Researcher B tests Tuesday (versus all other days), and so forth. Only Researcher G, who tests Sunday finds a significant effect with a p-value of .045. Only Researcher G gets to publish her work. If you read the paper, should you conclude that Sunday has a significant effect on number of posts?

**Sunday Repentence** What if researcher G above is a sociologist that chooses to measure the effect of Sunday based on years of observing the way people behave on weekends? Researcher G is not interested in the other tests, because Sunday is the interesting day from her perspective, and she wouldn’t expect any of the other tests to be significant.

**Decreasing Effect Sizes** Many observers have noted that as studies yielding statistically significant results are repeated, estimated effect sizes go down and often become insignificant. Why is this the case?

## Chapter 14

# Maximum Likelihood Estimation



Figure 14.1: salvation mountain

## 14.1 Learning Objectives

- 1.
- 2.
- 3.

## 14.2 Class Announcements

## 14.3 Roadmap

### Rearview Mirror: What We've Seen

- **WLLN:**  $\lim_{n \rightarrow \infty} \bar{X}_n \xrightarrow{P} E[X]$
- **CLT**  $\lim_{n \rightarrow \infty} \bar{X}_n \xrightarrow{d} N(E[X], \text{Var}[X])$

### Today

- Use maximum likelihood to generate a good guess for model parameters;
- Use a confidence interval to indicate a range of plausible parameter values

## 14.4 What is a model?

- A data science model is:
  - A representation of the world built from random variables
  - FOIS: “agnostic” models place minimal restrictions on joint distribution
  - Parametric models (i.e. MLE) are models based on a family of distributions.
  - $f_{Y|X}(y|x) \sim g(y, x; \theta)$

## 14.5 Estimation

- We have the tools to use data to infer information about the (joint) distribution
- Because the joint distribution is complicated, we'll usually estimate simpler summaries of the joint distribution – e.g.  $E[X]$ ,  $V[X]$ ,  $E[Y|X]$ ,  $Cov[X, Y]$
- There are a number of techniques that you can use to develop an estimator for a parameter. These techniques vary in terms of the principle used to arrive at the estimator and the strength of the assumptions needed to support it.
- However, all of these estimators are statistics meaning they are functions of the data  $\{X_i\}_{i=1}^n$

## 14.6 Discussion of Maximum Likelihood Estimation

1. What is the goal of estimating a parameter? Why is this something that we are interested in as data scientists?
2. In your own words, describe how the method of maximum likelihood is used to estimate the unknown parameters.
3. Why does a likelihood function have a  $\Pi$  (product operator) within it?
4. Is it possible to estimate using maximum likelihood without writing down a model for the data?
5. What happens if your model for the data is wrong? Are your estimates for the parameters “incorrect”? Or, are they “correct” within the context of the model that you’ve written down?

## 14.7 Optimization in R

- The method of maximum likelihood requires an optimization routine.
- For a few very simple probability models, a closed-form solution exists and the MLE can be derived by hand. (This is also *potentially* the case for OLS regression.)
- But, instead lets use some machine learning to find the estimates that maximize the likelihood function.
- There are many optimizers (e.g. `optimize`, and `optim`). `optimize` is the simplest to use, but only works in one dimension.

### 14.7.1 Optimization Example: Optimum Price

- Suppose that a firm’s profit from selling a product is related to price,  $p$ , and cost,  $c$ , as follows:

$$\text{profit} = (p - p^2) - c + 100$$

1. Explain how you would use calculus to find the maximizing price. Assume that cost is fixed.
2. What is the firms revenue as  $p=0$ ,  $\text{cost} = 2$ ? What is it at  $p=10$ ,  $\text{cost} = 2$ ?
3. Create a plot with the following characteristics:
  - On the x-axis is a sequence (`seq()`) of prices from [0, 10].
  - On the y-axis is the revenue as a function of those prices. Hold cost constant at  $c=2$ .
  - What does the best price seem to be?
4. Solve this numerically in R, using the `optimize()` function.

- Take note: using the default arguments, will `optimize` try to find a maximum or a minimum?
- Check into the help documentation.

```
profit <- function(p, c) {
  r = (p - p^2) - c + 100
  return(r)
}

profit(p=2, c=2)

## [1] 96

best_price <- optimize(
  profit,                      # profit is the function
  lower = 0, upper = 1000,       # this is the low and high we consider
  c = 2,                         # here, we're passing cost into profit
  maximum = TRUE)                # we'd like to maximize, not minimize

best_price

## $maximum
## [1] 0.5
##
## $objective
## [1] 98.25
```

## 14.8 MLE for Poisson Random Variables

- Suppose we use a camera to record an intersection for a particular length of time, and we write down the number of cars accidents in that interval.
- This process can be modeled by a *Poisson* random variable (now we are non-agnostic), that has a well-known probability mass function given by,

$$f(x; \lambda) = \frac{\lambda^x e^{-\lambda}}{x!}$$

Here is an example of a string of outcomes generated by a Poisson RV, with parameter  $\lambda = 2$ .

```
rpois(n = 10, lambda = 2)

## [1] 0 4 1 1 3 3 0 1 1 1
```

### 14.8.1 MLE for Poisson Random Variables: Data

- Suppose that we conduct an iid sample, and gather the following number of accidents. (It is a busy street!)

```

data <- c(
  2, 6, 2, 1, 3, 3, 4, 4, 24, 1, 5, 4, 5, 1, 2, 2, 5, 2, 1, 5,
  2, 1, 2, 9, 9, 1, 3, 2, 1, 1, 3, 1, 3, 2, 2, 4, 1, 1, 5, 3,
  3, 2, 2, 1, 1, 1, 5, 1, 3, 1, 1, 1, 2, 2, 4, 2, 1, 2, 2,
  3, 1, 2, 6, 2, 2, 3, 2, 3, 5, 1, 3, 2, 5, 2, 1, 3, 2, 1, 2,
  4, 2, 6, 1, 2, 2, 3, 5, 2, 1, 4, 2, 2, 1, 3, 2, 2, 4, 1, 1,
  1, 1, 2, 3, 5, 1, 2, 2, 3, 1, 4, 1, 3, 2, 2, 2, 2, 2, 2, 3,
  3, 1, 1, 2, 2, 4, 1, 5, 2, 7, 5, 2, 3, 2, 5, 3, 1, 2, 1, 1,
  2, 3, 1, 5, 3, 4, 6, 3, 3, 2, 2, 1, 2, 2, 4, 2, 3, 4, 3, 1,
  6, 3, 1, 2, 3, 2, 2, 3, 1, 1, 1, 1, 10, 3, 2, 1, 1, 3, 2,
  2, 3, 1, 1, 2, 2, 2, 4, 2, 2, 3, 3, 6, 1, 3, 2, 3, 2, 2, 2
)

table(data)

## data
##  1  2  3  4  5  6  7  9 10 24
## 54 69 38 14 14  6  1  2  1  1

```

### 14.8.2 MLE Estimation

- Use the data that is stored in `data`, together with a Poisson model to estimate the  $\lambda$  values that produce the “good” model from the Poisson family.
- That is, use MLE to estimate  $\lambda$ .
- Here is your work flow:
  1. Define your random variables.
  2. Write down the likelihood function for a sample of data that is generated by a *Poisson* process.
  3. To make the math easier, take the log of this likelihood function.
  4. Optimize this log-likelihood using calculus – what is the value of  $\lambda$  that results? Compute this value, given the data that you have.
  5. Maximize this log-likelihood numerically, and report the value for  $\lambda$  that produces the highest likelihood of seeing this data.
  6. Comment on your answers from parts 4 and 5. Are you surprised or not by what you see?

```

poisson_ll <- function(data, lambda) {
  ## fill this in:
  lambda # this is a placeholder, change this
}

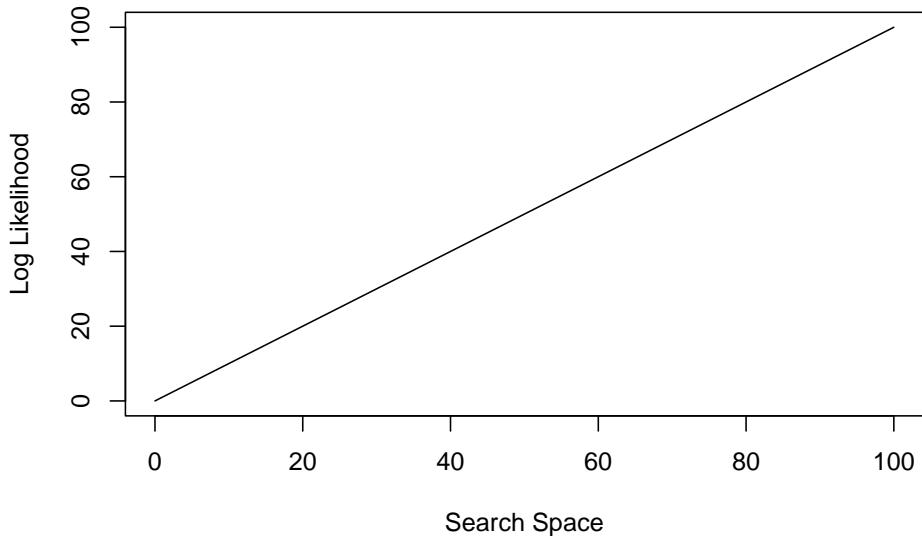
search_space <- seq(0,100, by = 0.1)
plot(
  x = search_space, xlab = 'Search Space',

```

```

y = poisson_ll(data=data, lambda=search_space), ylab = 'Log Likelihood',
type = 'l'
)

```



```
# optimize(poisson_ll, lower = 0, upper = 100, data = data, maximum = TRUE)
```

## 14.9 Confidence Intervals

This exercise is meant to demonstrate what the confidence level in a confidence interval represents. We will assume a standard normal population distribution and simulate what happens when we draw a sample and compute a confidence interval.

Your task is to complete the following function so that it,

- 1) simulates and stores draws from a standard normal distribution
- 2) based on those draws, computes a valid confidence interval with confidence level  $\alpha$ , a parameter that you pass to the function.

Your function should return a vector of length 2, containing the lower bound and upper bound of the confidence interval.

$$CI_\alpha = \bar{X} \pm t_{\alpha/2} \cdot \frac{s}{\sqrt{n}}$$

where:

- $CI_\alpha$  is the confidence interval that you're seeking to produce
- $\bar{X}$  is the sample average,

- $t_{\alpha/2}$  is your critical value (accessible through `qt`),
- and  $s$  is your sample standard deviation. Notice that you'll need each of these pieces in the code that you're about to write.

```
sim_conf_int <- function(n, alpha) {
  # Fill in your code to:
  # 1. simulate n draws from a standard normal dist.
  # 2. compute a confidence interval with confidence level alpha

  sample_draws <- 'fill this in'
  sample_mean <- 'fill this in'
  sample_sd   <- 'fill this in'

  critical_t <- 'fill this in'

  ci_95 <- 'fill this in'

  return(ci_95)
}

sim_conf_int(n = 100, alpha = 0.25)

## [1] "fill this in"
```

When your function is complete, you can use the following code to run your function 100 times and plot the results.

```
many_confidence_intervals <- function(num_simulations, n, alpha) {
  ## args:
  ## - num_simulations: the number of simulated confidence intervals
  ## - n: the number of observations in each simulation that will pass
  ##       into your `sim_conf_int` function
  ## - alpha: the confidence interval that you will pass into
  ##       your `sim_conf_int` function

  results <- NULL
  for(i in 1:num_simulations) {
    interval = sim_conf_int(n, alpha)
    results = rbind(results, c(interval[1], interval[2], interval[1]<0 & interval[2]>0))
  }
  resultsdf = data.frame(results)
  names(resultsdf) = c("low", "high", "captured")
  return(resultsdf)
}

n = 20
confidence_intervals = many_confidence_intervals(100, n, .05)
```

```

plot_many_confidence_intervals <- function(c) {
  plot(NULL, type = "n",
        xlim = c(1,100), xlab = 'Trial',
        ylim = c(min(c$low), max(c$high)), ylab=expression(mu),pch=19)

  abline(h = 0, col = 'gray')
  abline(h = qt(0.975, n-1)/sqrt(n), lty = 2, col = 'gray')
  abline(h = qt(0.025, n-1)/sqrt(n), lty = 2, col = 'gray')

  points(c$high, col = 2+c$captured, pch = 20)
  points(c$low, col = 2+c$captured, pch = 20)
  for(i in 1:nrow(c)) {
    lines(c(i,i), c(c$low[i],c$high[i]), col = 2+c$captured[i], pch = 19)
  }

  title(expression(paste("Simulation of t-Confidence Intervals for ", mu,
                        " with Sample Size 20")))

  legend(0,-.65, legend = c(expression(paste(mu, " Captured")),
                            expression(paste(mu, " Not Captured))), fill = c(3,2))
}

# plot_many_confidence_intervals(confidence_intervals)

```

1. How many of the simulated confidence intervals contain the true mean, zero?
2. Suppose you run a single study. Based on what you've just written above, why is it incorrect to say that, "There is a 95% probability that the true mean is inside this (single) confidence interval"?

## 14.10 Maximum Likelihood Example: Printers

### Part I

Suppose that you've got a particular sequence of values: 1, 0, 0, 1, 0, 1, 1, 1, 1, 1 that indicate whether a printer any particular time you try to print.

You have data from the last 10 times you tried.

#### Question:

- What is the probability ( $p$ ) that the printer jams on the next print job?

### Part II

The data resembles draws from a Bernoulli distribution.



Figure 14.2: bbc, office space

However, even if we want to model this as a Bernoulli distribution, we do not know the value of the parameter,  $p$ .

- 1- Define your random variable.
- 2- Write down the likelihood function
- 3- If it will make the math easier, log the likelihood function.
- 4- *Path 1:* Maximize the likelihood using calculus
- 5- *Path 2:* Maximize using numeric methods.



# Appendix

## Bloom's Taxonomy

An effective rubric for student understanding is attributed to Bloom (1956). Referred to as *Bloom's Taxonomy*, this proposes that there is a hierarchy of student understanding; that a student may have one *level* of reasoning skill with a concept, but not another. The taxonomy proposes to be ordered: some levels of reasoning build upon other levels of reasoning.

In the learning objective that we present in for each live session, we will also identify the level of reasoning that we hope students will achieve at the conclusion of the live session.

1. **Remember** A student can remember that the concept exists. This might require the student to define, duplicate, or memorize a set of concepts or facts.
2. **Understand** A student can understand the concept, and can produce a working technical and non-technical statement of the concept. The student can explain why the concept *is*, or why the concept works in the way that it does.
3. **Apply** A student can use the concept as it is intended to be used against a novel problem.
4. **Analyze** A student can assess whether the concept has worked as it should have. This requires both an understanding of the intended goal, an application against a novel problem, and then the ability to introspect or reflect on whether the result is as it should be.
5. **Evaluate** A student can analyze multiple approaches, and from this analysis evaluate whether one or another approach has better succeeded at achieving its goals.
6. **Create** A student can create a new or novel method from axioms or experience, and can evaluate the performance of this new method against existing approaches or methods.