Professor McDonald
FNCE 5352 – Financial Programming and Modeling
February 25, 2020
Prerequisites for R Programming Section

Course Materials

Course materials can be found at https://github.com/mattmcd71/fnce5352_spring2020

We will be using the book "R for Data Science" by Hadley Wickham and Garrett Grolemund. The book is available online at https://r4ds.had.co.nz/index.html. It is free and licensed under the Creative Commons Attribution-NonCommercial-NoDerivs 3.0

If you'd like a hard copy of the book, it is available from Amazon (https://www.amazon.com/Data-Science-Transform-Visualize-Model/dp/1491910399/ref=sr_1_3?ie=UTF8&qid=1548809834&sr=8-3&keywords=r+for+data+science)

Additionally, we will use the book "Feature Engineering and Selection" by Max Kuhn and Kjell Johnson. Physical copies are sold by **Amazon** and **Taylor & Francis**. An online version is available at https://bookdown.org/max/FES/

R Fundamentals

The course assumes some intermediate understanding of the R programming language. If you would like to get a basic introduction to the R programming language, please visit the following link:

https://www.rstudio.com/online-learning/

R Installation

I will be periodically using R and RStudio interactively during the class instruction. If you would like to follow along during the class, please follow these instructions

Local Installation Instructions:

R

I'll be using the most recent version of R locally but I believe that anything > 3.4.1 should be fine.

R can be downloaded from the following link: https://www.r-project.org/

RStudio

RStudio is an Interactive Development Environment for the R programming language. It is very useful. You can download it at:

https://www.rstudio.com/products/rstudio/download/

R Packages

The package installation instructions are:

```
install.packages(
  c(
    'AmesHousing',
    'C50',
    'devtools',
    'discrim',
    'earth',
    'ggthemes',
    'glmnet',   # See important note below
    'klaR',
    'lubridate',
    'modeldata',
    'party',
    'pROC',
    'rpart',
    'stringr',
    'textfeatures',
    'tidymodels'
  ),
  repos = "http://cran.rstudio.com"
)
```

That `install.packages` command may additionally install over 100 more packages.

To verify the installation, try running:

Installing packages from github (optional)

The caret and Recipe package may need to be installed from github to get all functionality presented in class. Instructions for that are below:

The package installation instructions are:

```

devtools::install_github(c(
  "tidymodels/tidymodels",
  "tidymodels/tune",
  "tidymodels/textrecipes",
  "koalaverse/vip",
  "gadenbuie/countdown"
))

```

That `install.packages` command may additionally install over 100 more packages.

Lessons and Assignments

Lecture Date	Topic	Assignment	Reading assignment (before next class)
25-Feb	Intro to R and Rstudio	R4DS: 5.2.4: Exercises 1, 3 5.3.1: Exercise 1 5.5.2: Exercises 2, 5 (Due 3/3)	R4DS: Sections 1, 5, 6, 7, 8
3-Mar	Analytic Workflow & Visualization	R4DS: 3.2.4: Exercise 5 3.3.1: Exercise 2 3.6.1: Exercise 1 4.4: Practice 3 (Due 3/10)	R4DS: Sections 2,3,4 FES: Chapters 1 & 3
10-Mar	Modeling – Introduction & Data Usage		R4DS: Sections 9-13
17-Mar	SPRING BREAK!	None	None
24-Mar	Modeling - Feature Engineering		R4DS: Sections 14-16
31-Mar	Modeling – Resampling & Grid Search	Credit Modeling Project (due 4/28)	R4DS: Sections 17-21
7-Apr	Regression in R		R4DS: Sections 22-25
14-Apr	Classification in R		