Flip00 Mid-term Test Presentation

Jin Chen

Tulip ? Team for universal learning and intelligent processing

School of Business Management

Hunan University

November 19, 2019

Outline

Introduction

Data Description

Data Visualization

Conclusion

Introduction

Data Description

Data Visualization

Conclusion

Introduction
Introduction
Data Description
Data Visualization
Conclusion

Introduction

Introduction

Introduction
Introduction
Data Description
Data Visualization
Conclusion

Information about the data *This data contains the location and circumstances of every field goal attempted by Kobe Bryant took during his 20 years career.*

- There are 30697 lines of data in the training set.
- There are 24 attributes.

Attribute	Note
action_type	Jumpshot,Layup,Dunk,Tipshot,Hookshot,Bankshot
loc_x ,loc_y	shots point
shot_made_flag	1=Yes,0=No
shot_type	2PT Field Goal,2PT Field Goal
shot_zone_area	shots area by area
shot_zone_basic	shots area by NBA rules
shot_zone_range	shots area by radius

Table 1: Data Information

Introduction

Data Description

Descriptive Statistics

Data Visualization

Conclusion

Data Description

Descriptive Statistics

Introduction

Data Description

Descriptive Statistics

Data Visualization

Conclusion

Aim Use descriptive statistics to get an overview of the data

- Let's take a brief look at all *numerical* columns statistcs:

Descriptive Statistics

Introduction

Data Description

Descriptive Statistics

Data Visualization

Conclusion

Aim Use descriptive statistics to get an overview of the data

- Let's take a brief look at all *numerical* columns statistcs:

	lat	loc_x	loc_y	lon	minutes_remaining	seconds_remaining	shot_distance
count	30697.000000	30697.000000	30697.000000	30697.000000	30697.000000	30697.000000	30697.000000
mean	33.953192	7.110499	91.107535	-118.262690	4.885624	28.365085	13.437437
std	0.087791	110.124578	87.791361	0.110125	3.449897	17.478949	9.374189
min	33.253300	-250.000000	-44.000000	-118.519800	0.000000	0.000000	0.000000
25%	33.884300	-68.000000	4.000000	-118.337800	2.000000	13.000000	5.000000
50%	33.970300	0.000000	74.000000	-118.269800	5.000000	28.000000	15.000000
75%	34.040300	95.000000	160.000000	-118.174800	8.000000	43.000000	21.000000
max	34.088300	248.000000	791.000000	-118.021800	11.000000	59.000000	79.000000

Figure 1: the part description of the data

Descriptive Statistics

Introduction

Data Description

Descriptive Statistics

Data Visualization

Conclusion

Aim Use descriptive statistics to get an overview of the data

- And for part of *categorical* columns:

Descriptive Statistics

Introduction

Data Description

Descriptive Statistics

Data Visualization

Conclusion

Aim Use descriptive statistics to get an overview of the data

- And for part of *categorical* columns:

	action_type	combined_shot_type	game_event_id	game_id	period	playoffs	season	shot_made_flag	shot_type	shot_zone_area	shot_zone_basic
count	30697	30697	30697	30697	30697	30697	30697	25697.0	30697	30697	30697
unique	57	6	620	1559	7	2	20	2.0	2	6	7
top	Jump Shot	Jump Shot	2	21501228	3	0	2005-06	0.0	2PT Field Goal	Center(C)	Mid-Range
freq	18880	23485	132	50	8296	26198	2318	14232.0	24271	13455	12625

Figure 2: categorical columns statistcs

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

A

Data Visualization

Conclusion

Data Visualization

slide 1

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

V

A

Data Visualization

Conclusion

To Count Kobe's total shots

- The hit distribution histogram of Kobe's shots

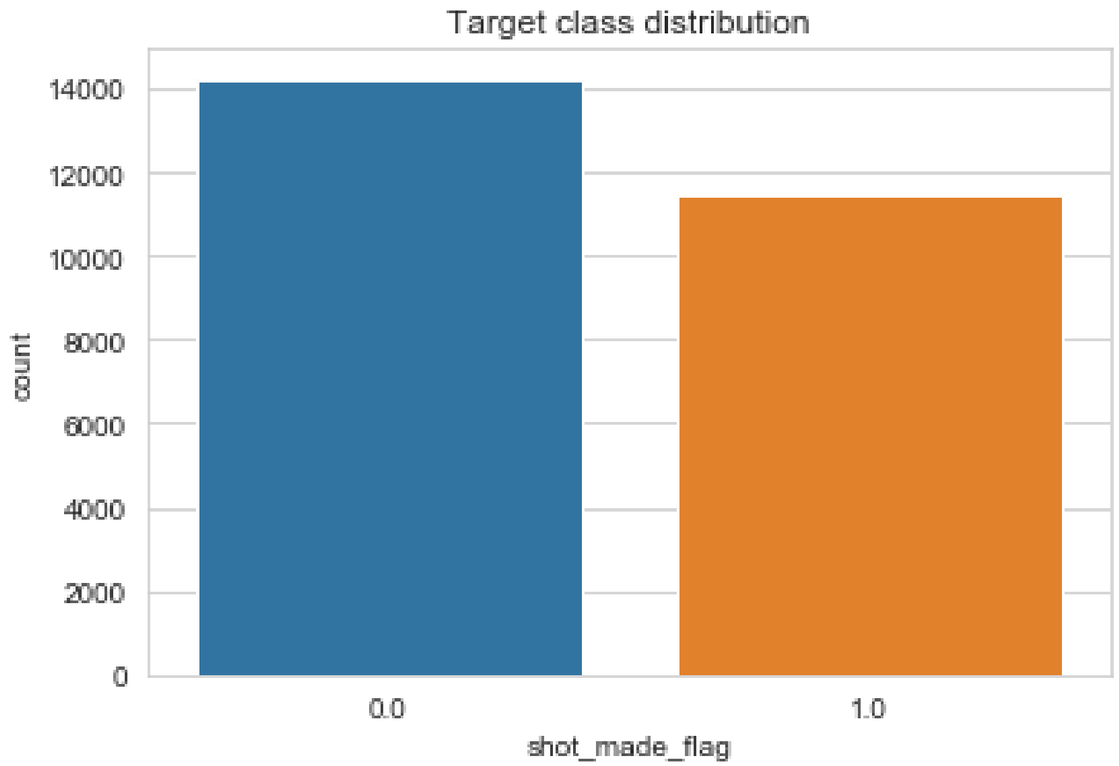

Figure 3: target class distribution

slide 2

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

A

Data Visualization

Conclusion

Visualization of two kinds of shots (two-point shot and three-point shot)

- The hit distribution histogram of Kobe's shots(two-point shot and three-point shot)

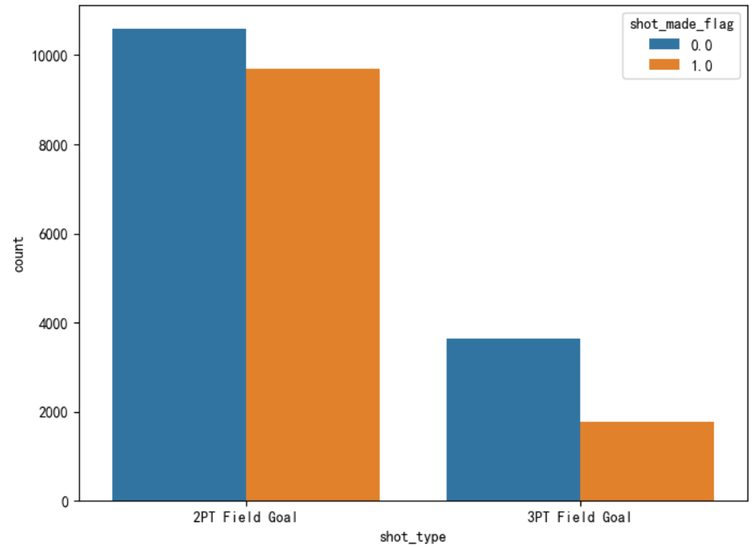

Figure 4: The hit distribution histogram of two shot types

slide 3

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

V

A

Data Visualization

Conclusion

Visualizing the shot type and position of Kobe's shots every time

- the shot type and position of Kobe's shots

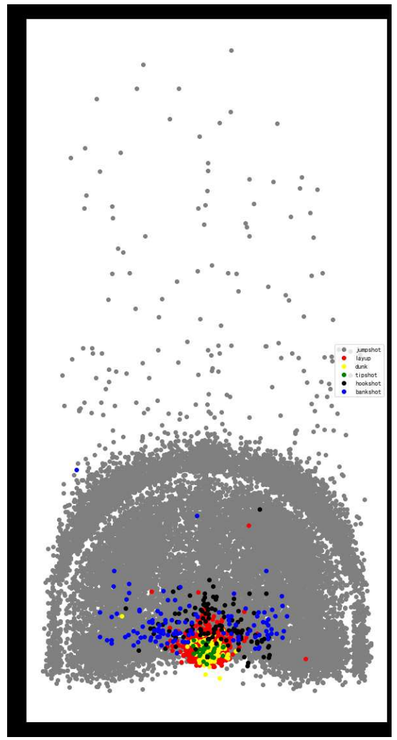

Figure 5: the shot type and position of Kobe's shots

V

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

V

A

Data Visualization

Conclusion

isualizing the shot accuracy of various action type

- the shot accuracy of various action type

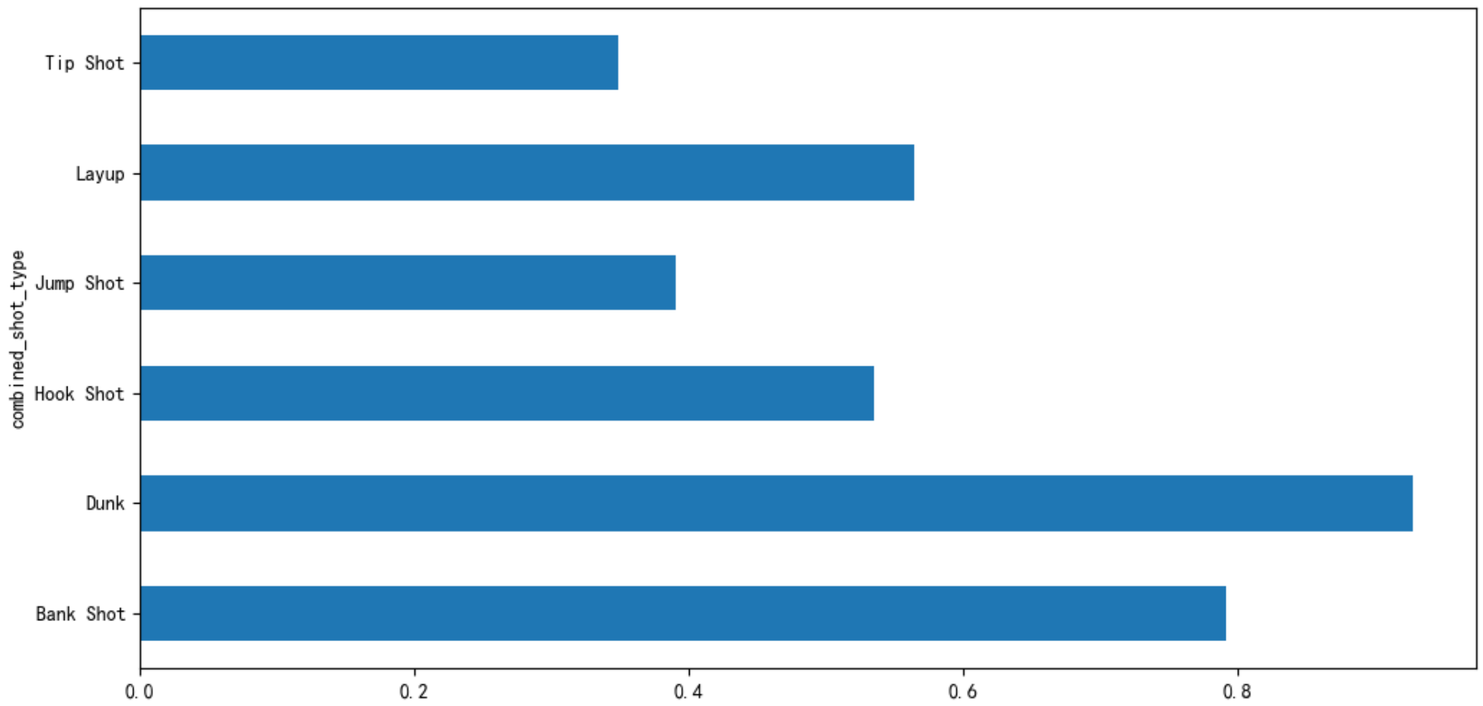

Figure 6: the shot accuracy of various action type

Visualization of shots position according to the given rectangular coordinates

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

V

A

Data Visualization

Conclusion

- shots position in rectangular coordinate system

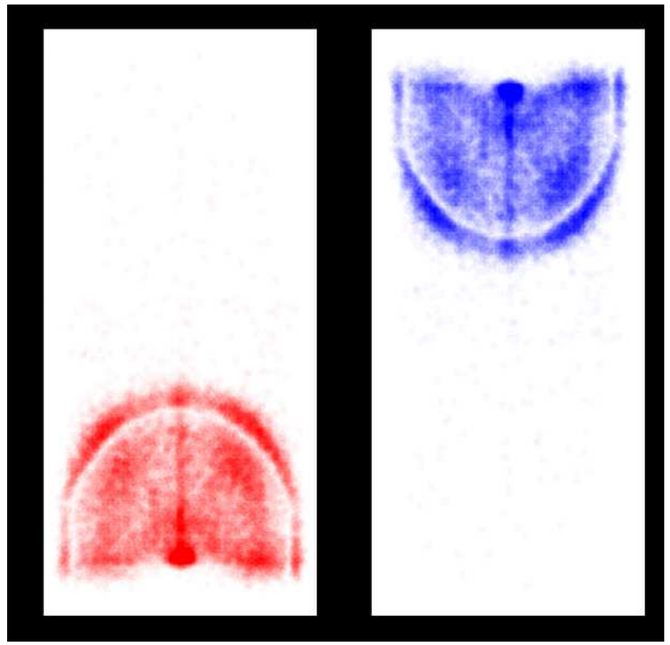

Figure 7: shots position in rectangular coordinate system

A

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

V

A

Data Visualization

Conclusion

ccording to the three different ways to divide the field area, respectively visualizing the shooting area

- Division of shooting area

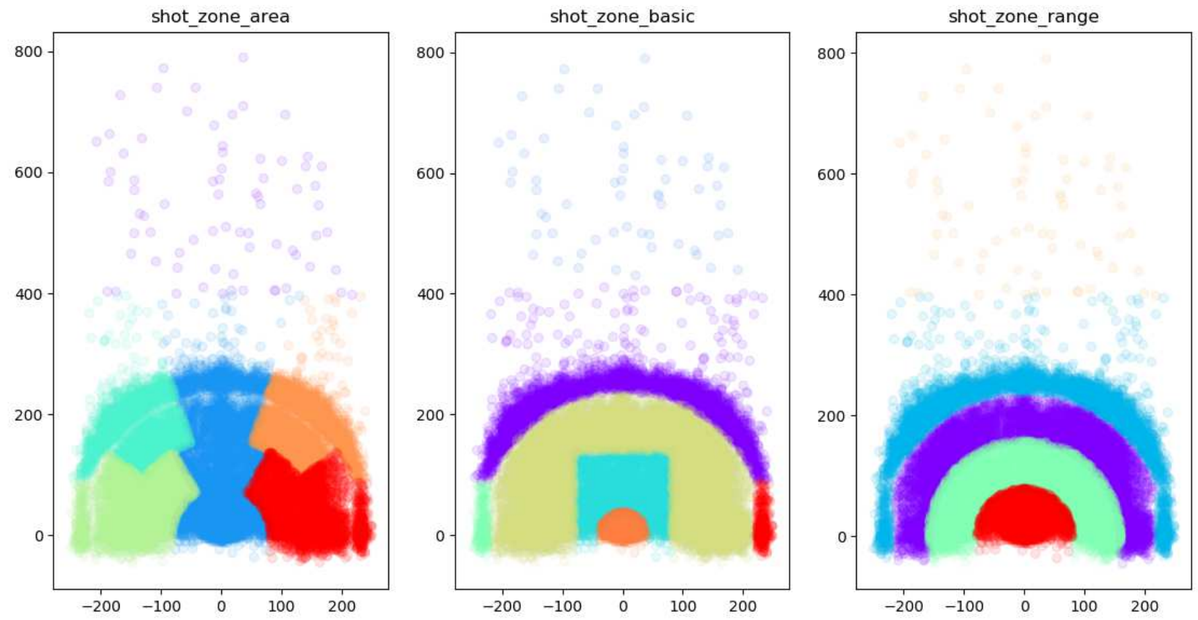

Figure 8: Division of shooting area

V

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

V

A

Data Visualization

Conclusion

isualization of shot accuracy in shooting area divided by area

- shot accuracy in shooting area divided by area

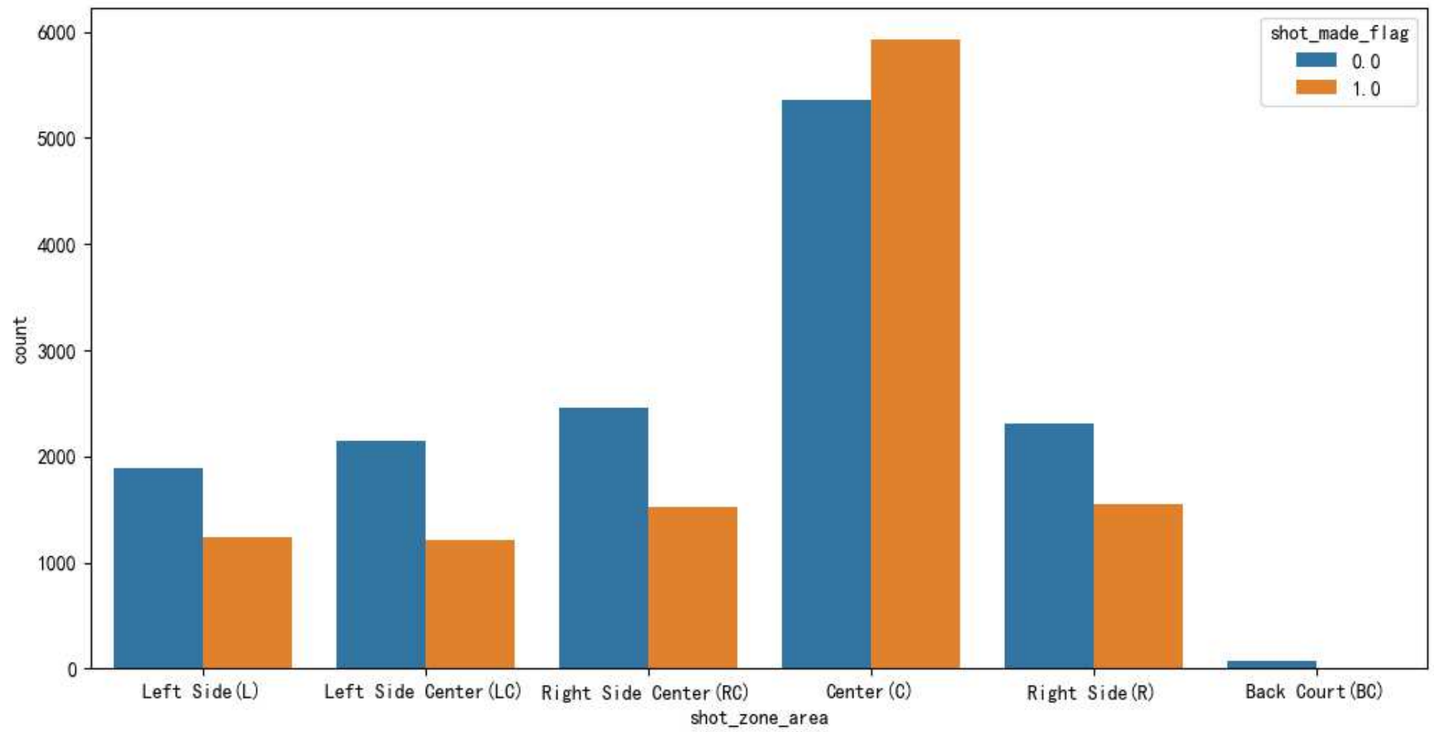

Figure 9: shot accuracy in shooting area divided by area

V

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

V

v

V

V

A

Data Visualization

Conclusion

isualization of shot accuracy in shooting area divided by NBA rules

- shot accuracy in shooting area divided by NBA rules

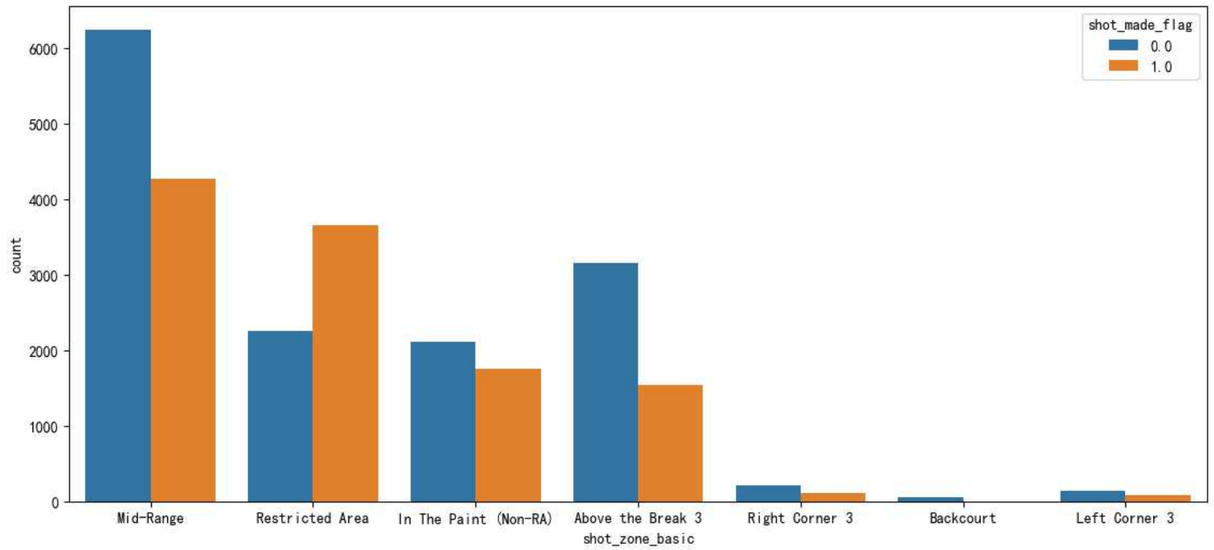

Figure 10: shot accuracy in shooting area divided by NBA rules

V

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

V

A

Data Visualization

Conclusion

isualization of shot accuracy in shooting area divided by radius

- shot accuracy in shooting area divided by radius

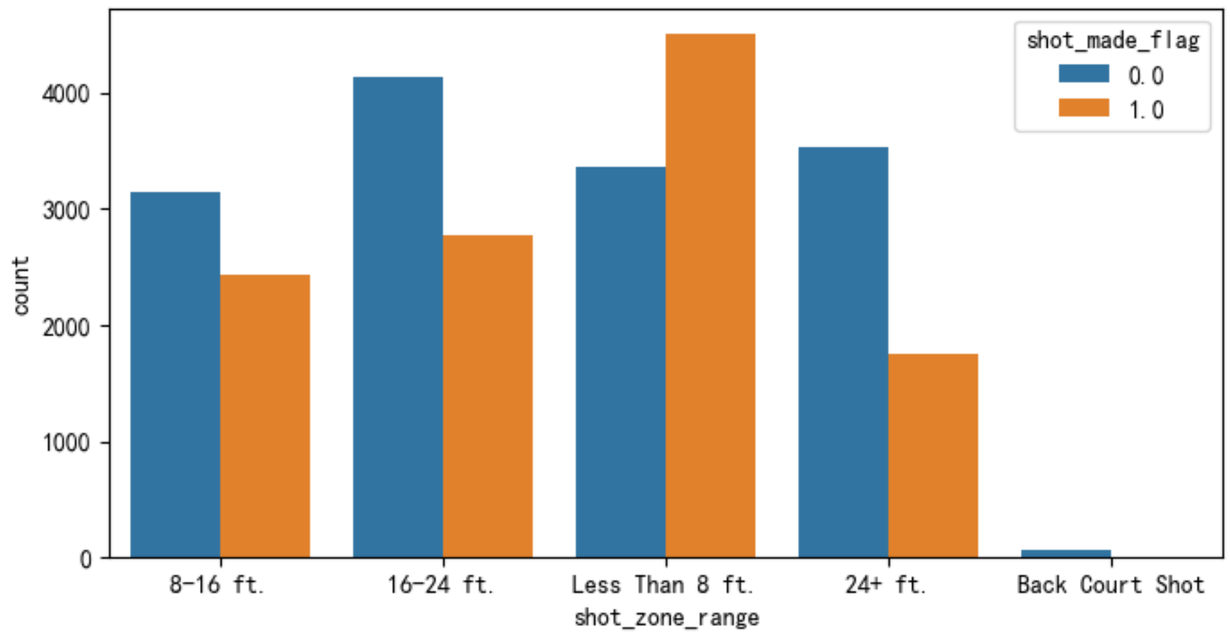

Figure 11: shot accuracy in shooting area divided by radius

v

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

A

V

A

Data Visualization

Conclusion

isualize the shot accuracy of each seasons.

- shot accuracy of each seasons

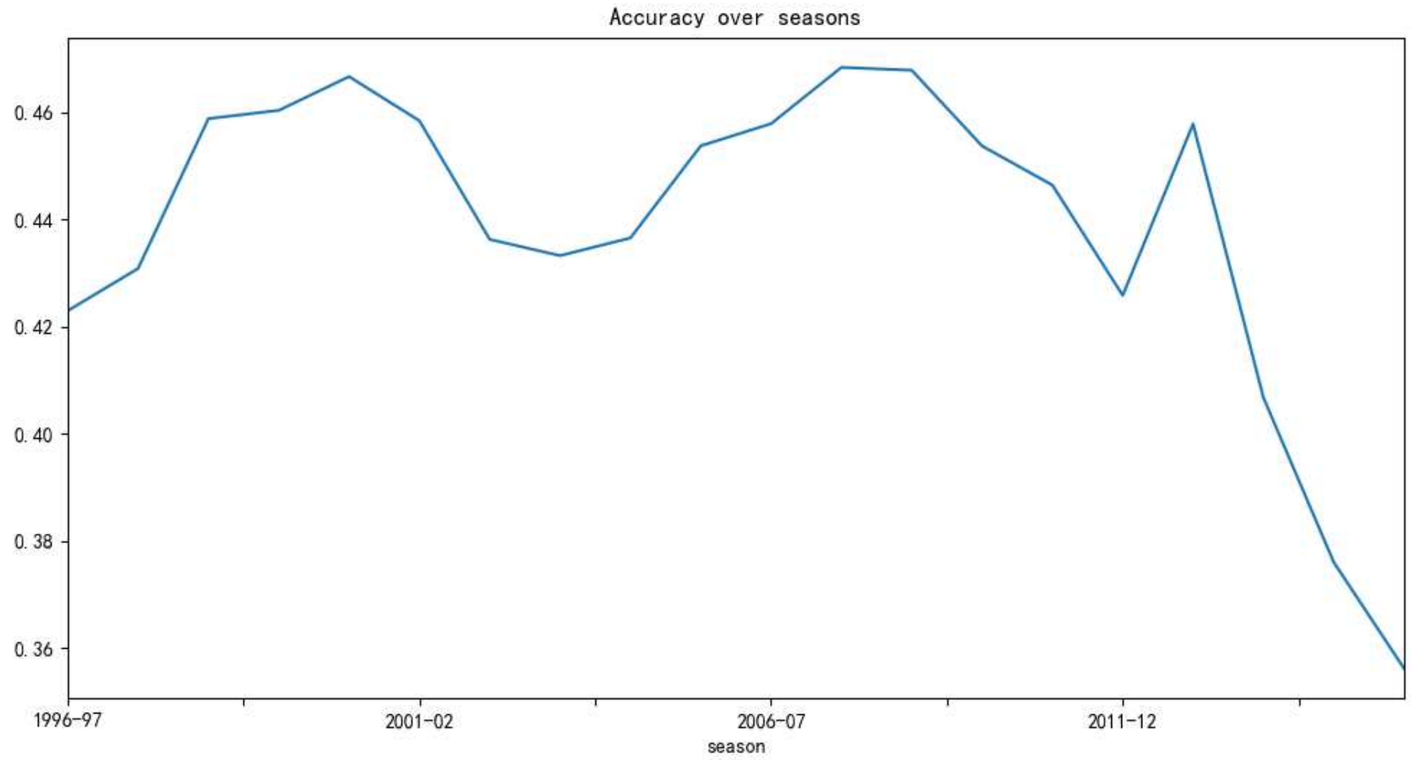

Figure 12: shot accuracy of each seasons

V

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

V

A

Data Visualization

Conclusion

isualize the shot times and shot accuracy of each period.

- The shot times of each period

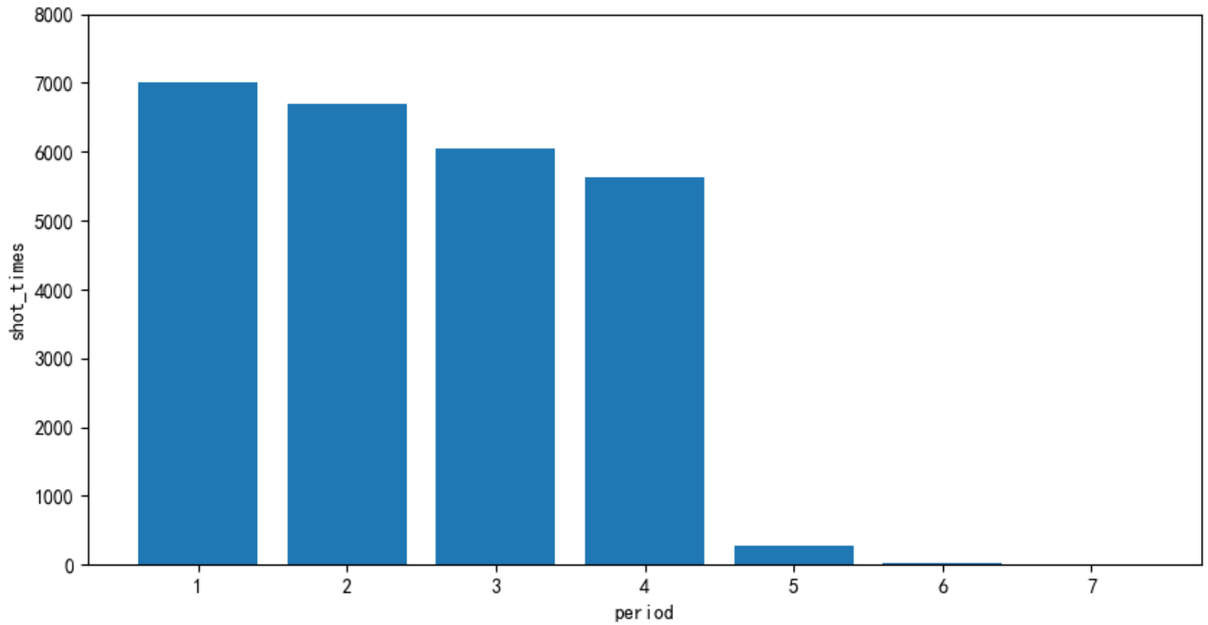

Figure 13: Shot times of each period

V

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

A

Data Visualization

Conclusion

isualize the shot times and shot accuracy of each period.

- The shot accuracy of each period

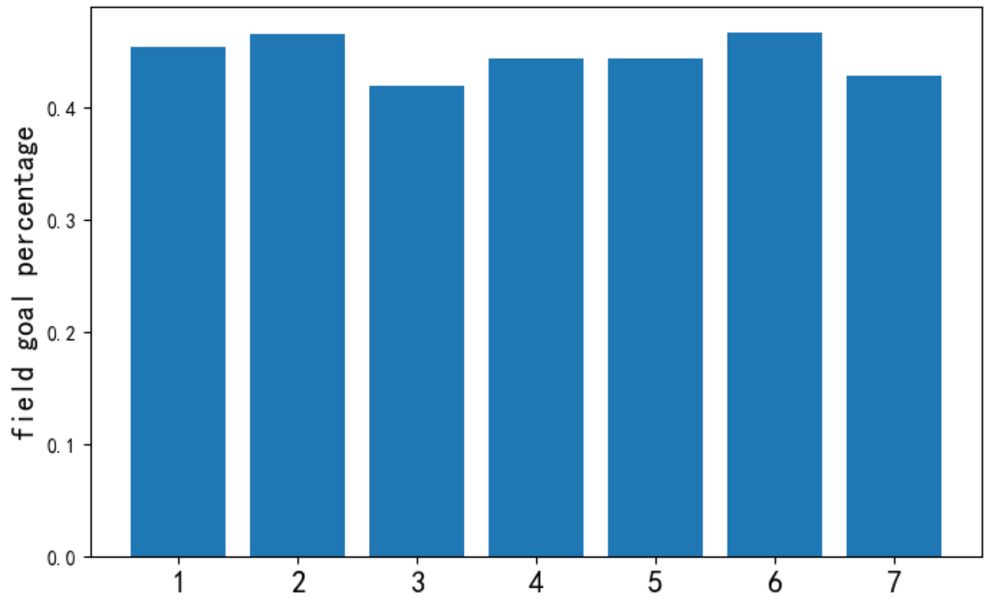

Figure 14: Shot accuracy of each period

A

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

V

v

V

V

A

Data Visualization

Conclusion

pply 3 different binnings of time and show the attempts as function from game start

- Histogram of shots and time

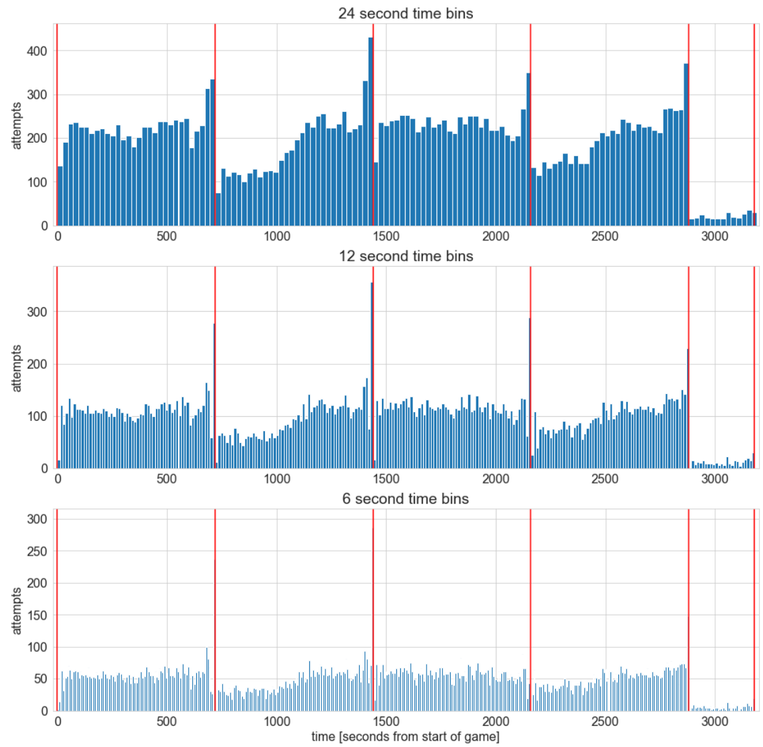

Figure 15: Histogram of shots and time

Data Visualization

Introduction

Data Description

Data Visualization

slide 1

slide 2

slide 3

V

Visualization of shots position according to the given rectangular coordinates

A

V

V

V

v

V

V

A

Data Visualization

Conclusion

Plot shot accuracy as function of time during the game.(20 second time bins)

- Histogram of shot accuracy and time

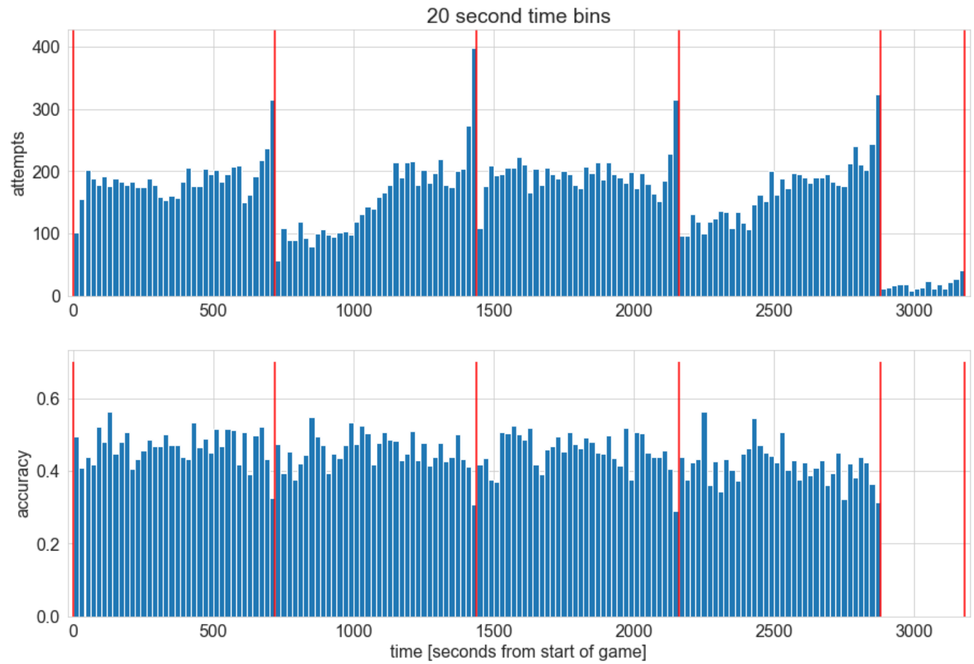

Figure 16: Histogram of shot accuracy and time

Introduction

Data Description

Data Visualization

Conclusion
Model performance and Feature importance.

Conclusion