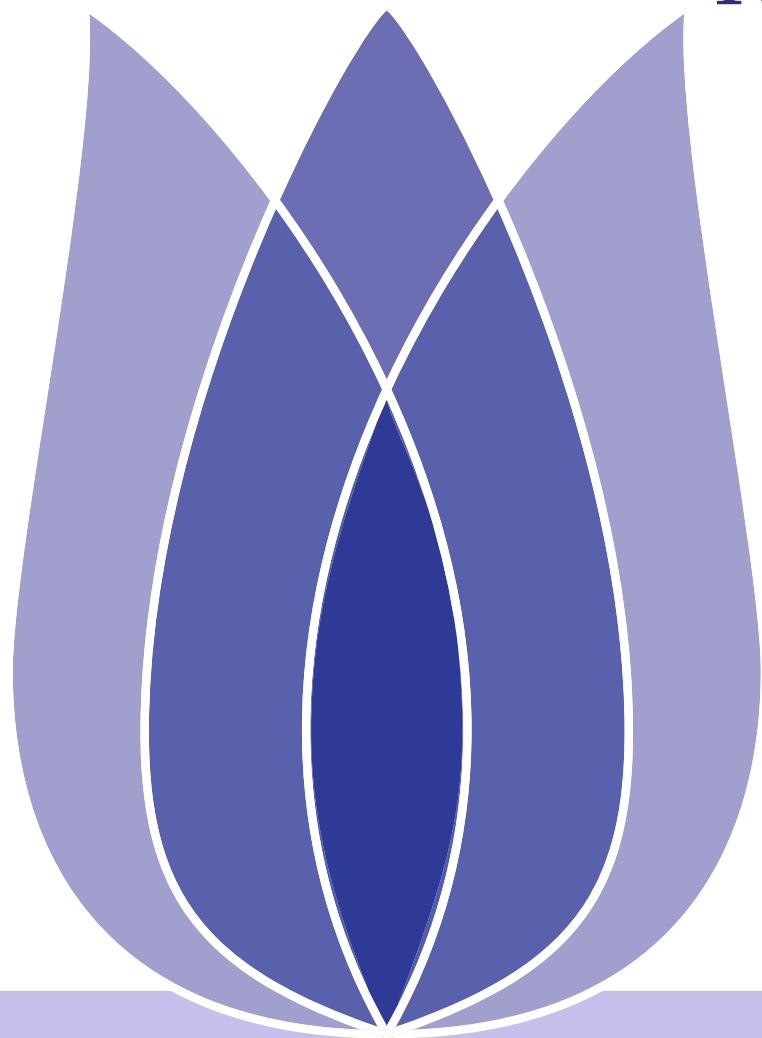


Flip00 Mid-term Test Presentation

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School of Business Management
Hunan University

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Outline



Introduction



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Introduction

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



Data Description



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Descriptive Statistics

Aim Use descriptive statistics to get an overview of the data

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





Descriptive Statistics

Aim Use descriptive statistics to get an overview of the data

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

Figure 1: the part description of the data





Descriptive Statistics

Aim Use descriptive statistics to get an overview of the data

- And for part of *categorical* columns:





Descriptive Statistics

AimUse 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 statistics



Data Visualization



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slide 1

To Count Kobe's total shots

- The hit distribution histogram of Kobe's shots

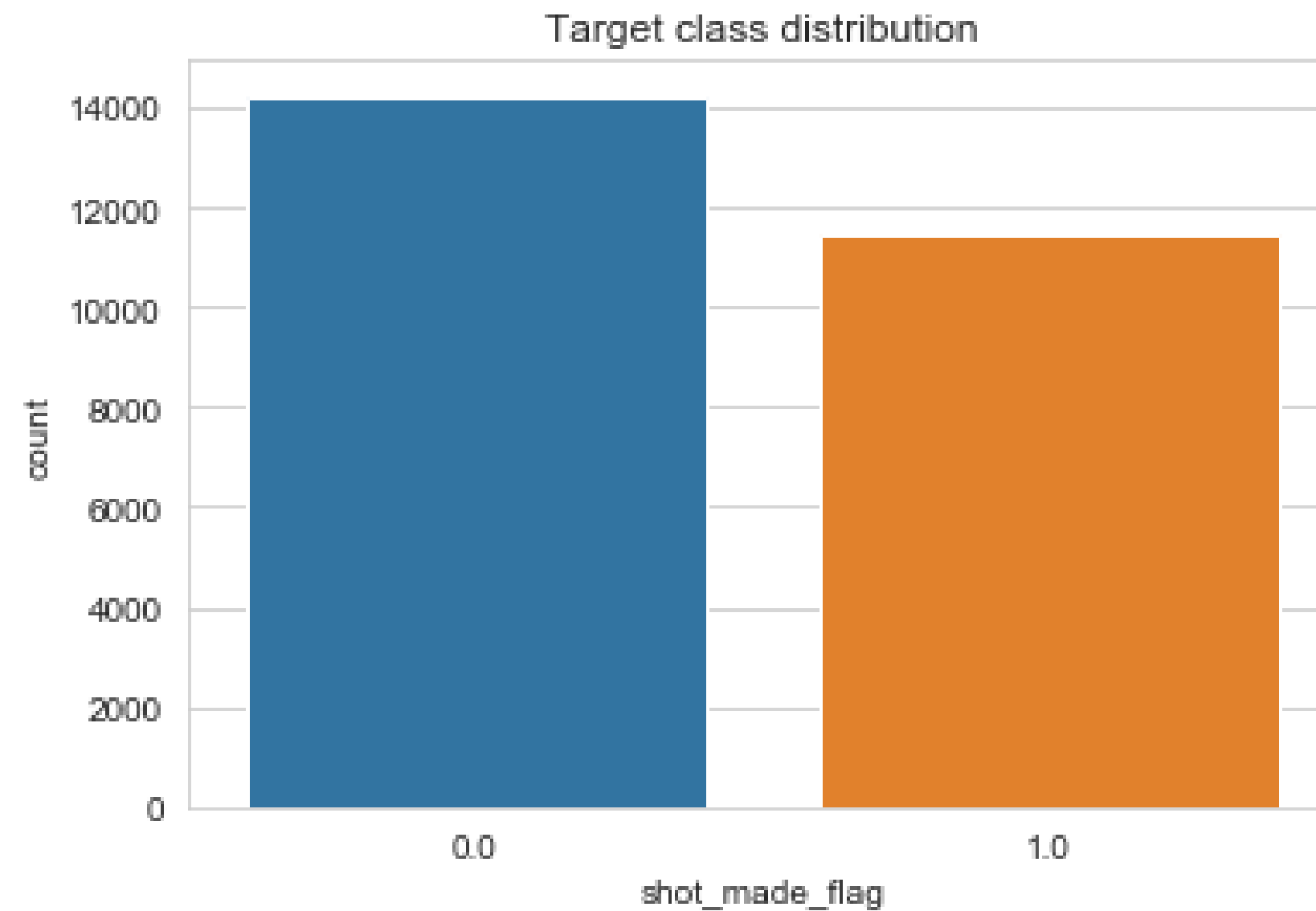


Figure 3: target class distribution



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)

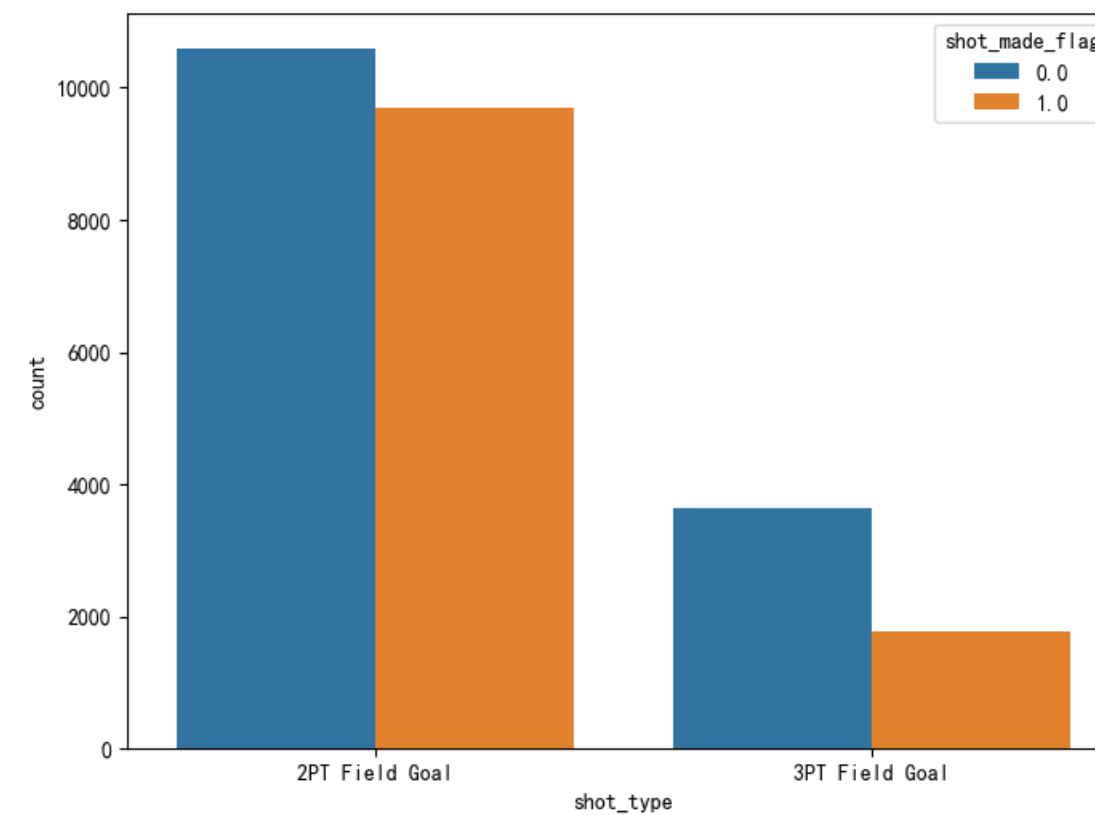


Figure 4: The hit distribution histogram of two shot types

slide 3

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

- the shot type and position of Kobe's shots

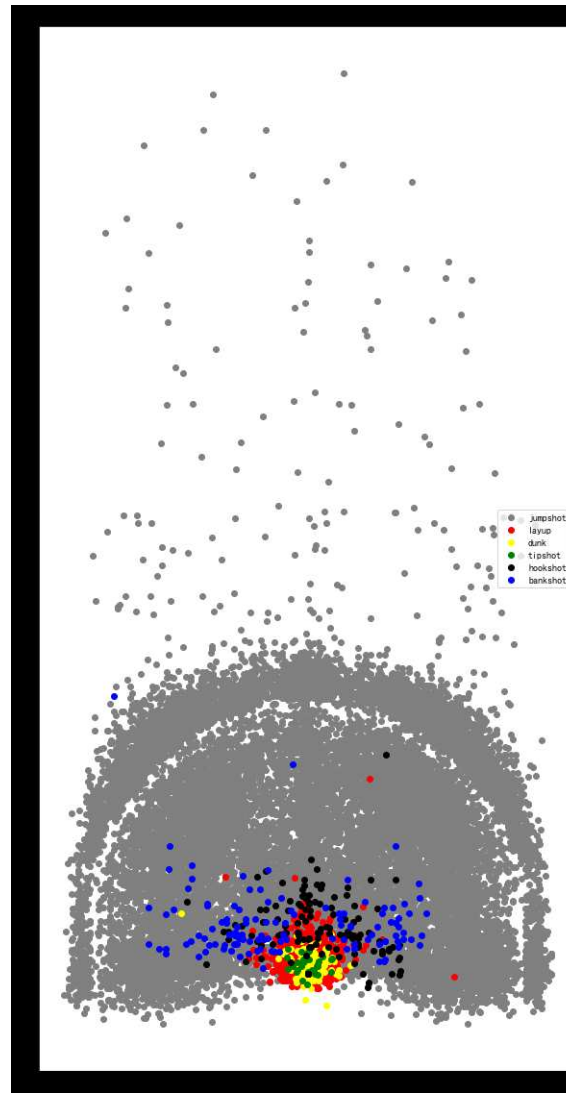


Figure 5: the shot type and position of Kobe's shots





visualizing the shot accuracy of various action type

■ the shot accuracy of various action type

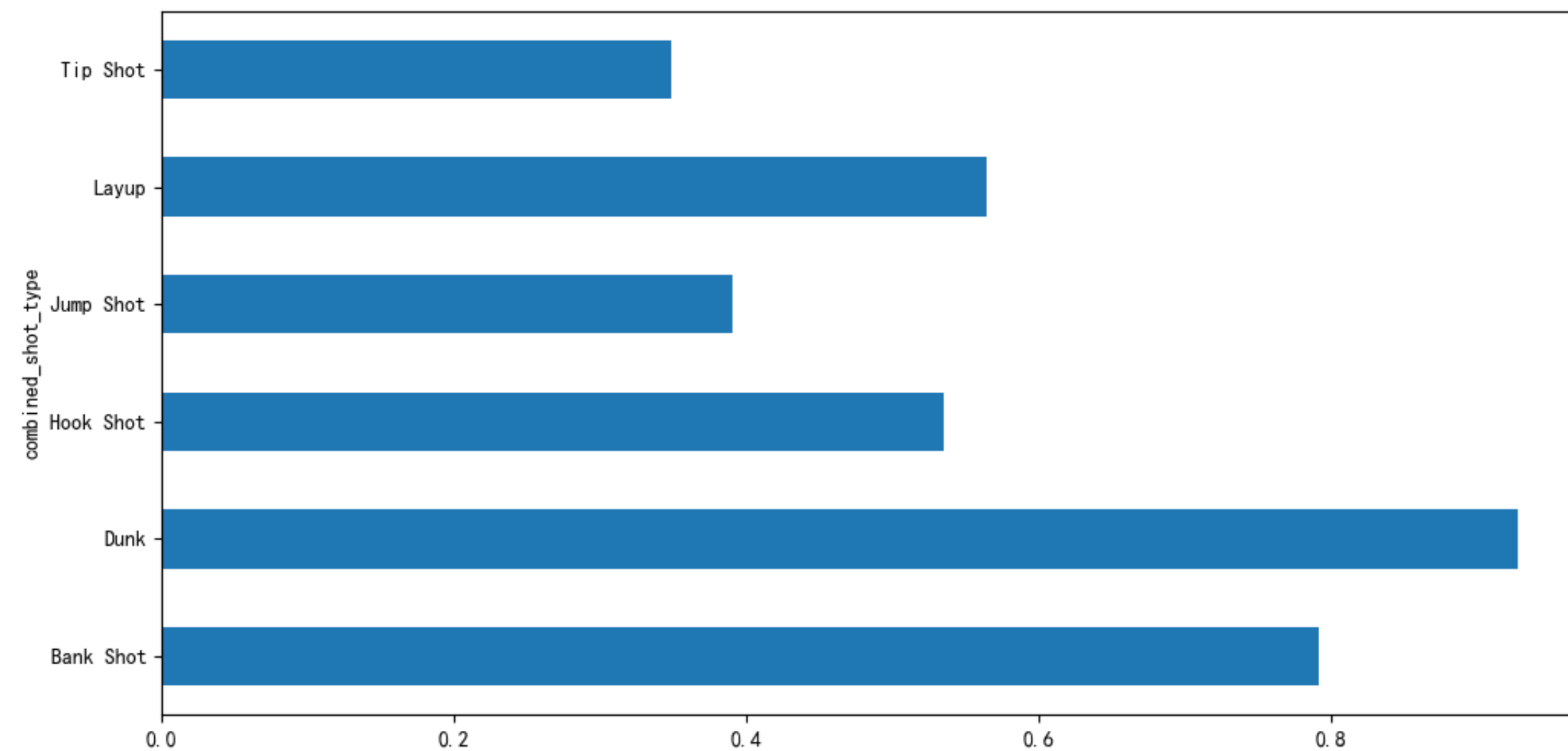


Figure 6: the shot accuracy of various action type





Visualization of shots position according to the given rectangular coordinates

- shots position in rectangular coordinate system

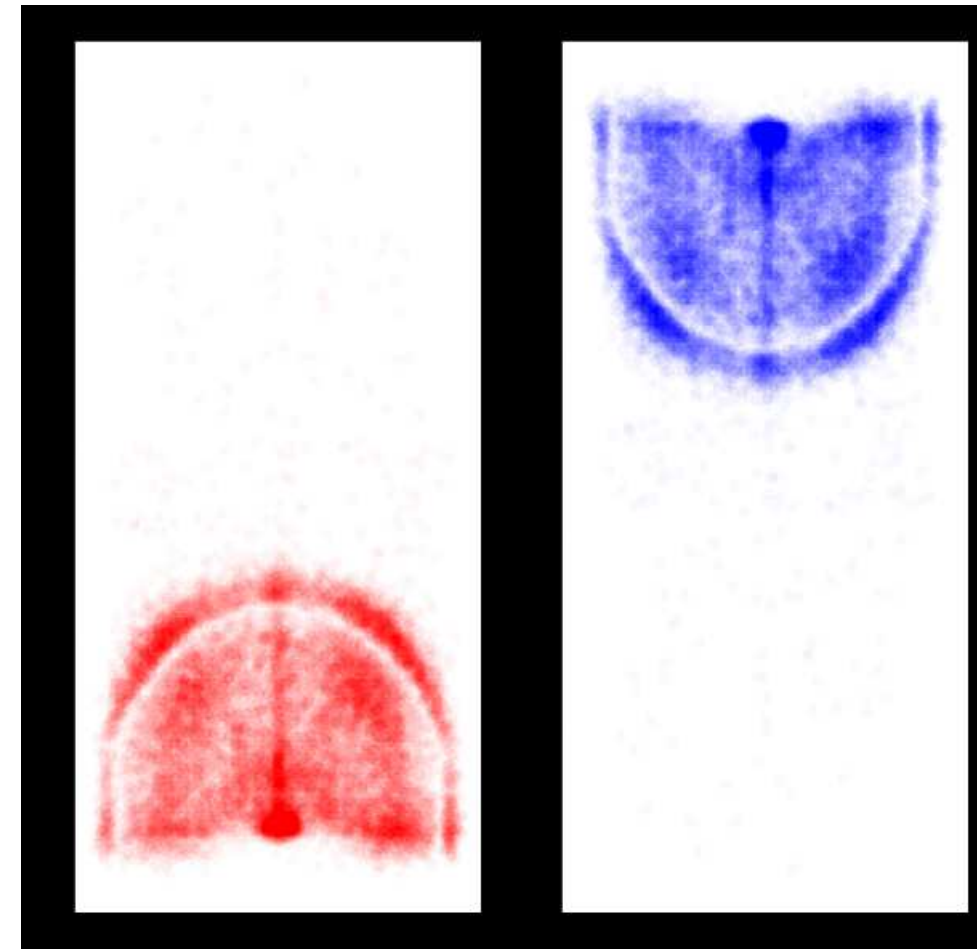


Figure 7: shots position in rectangular coordinate system



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

■ Division of shooting area

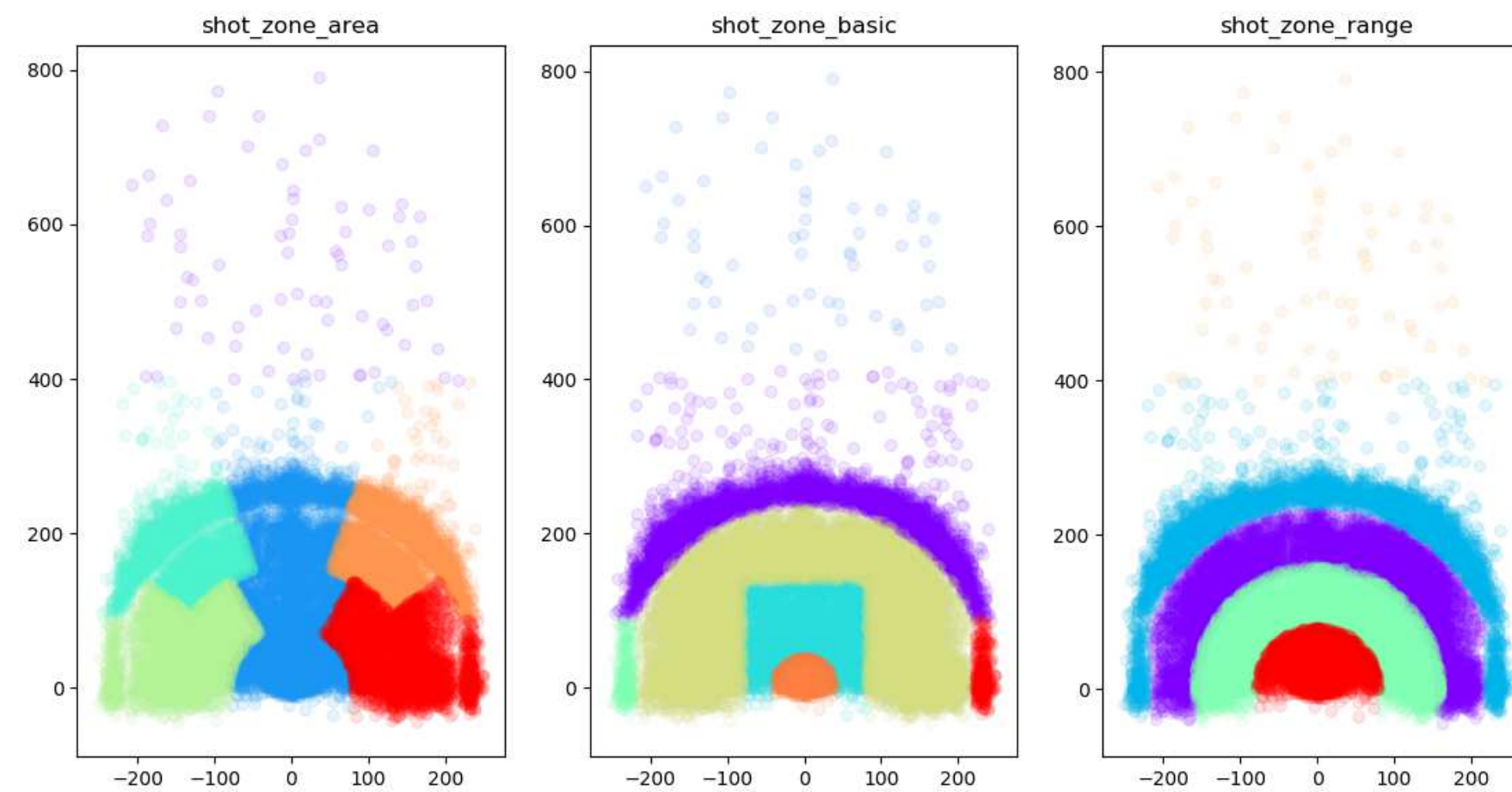


Figure 8: Division of shooting area



isualization of shot accuracy in shooting area divided by area

■ shot accuracy in shooting area divided by area

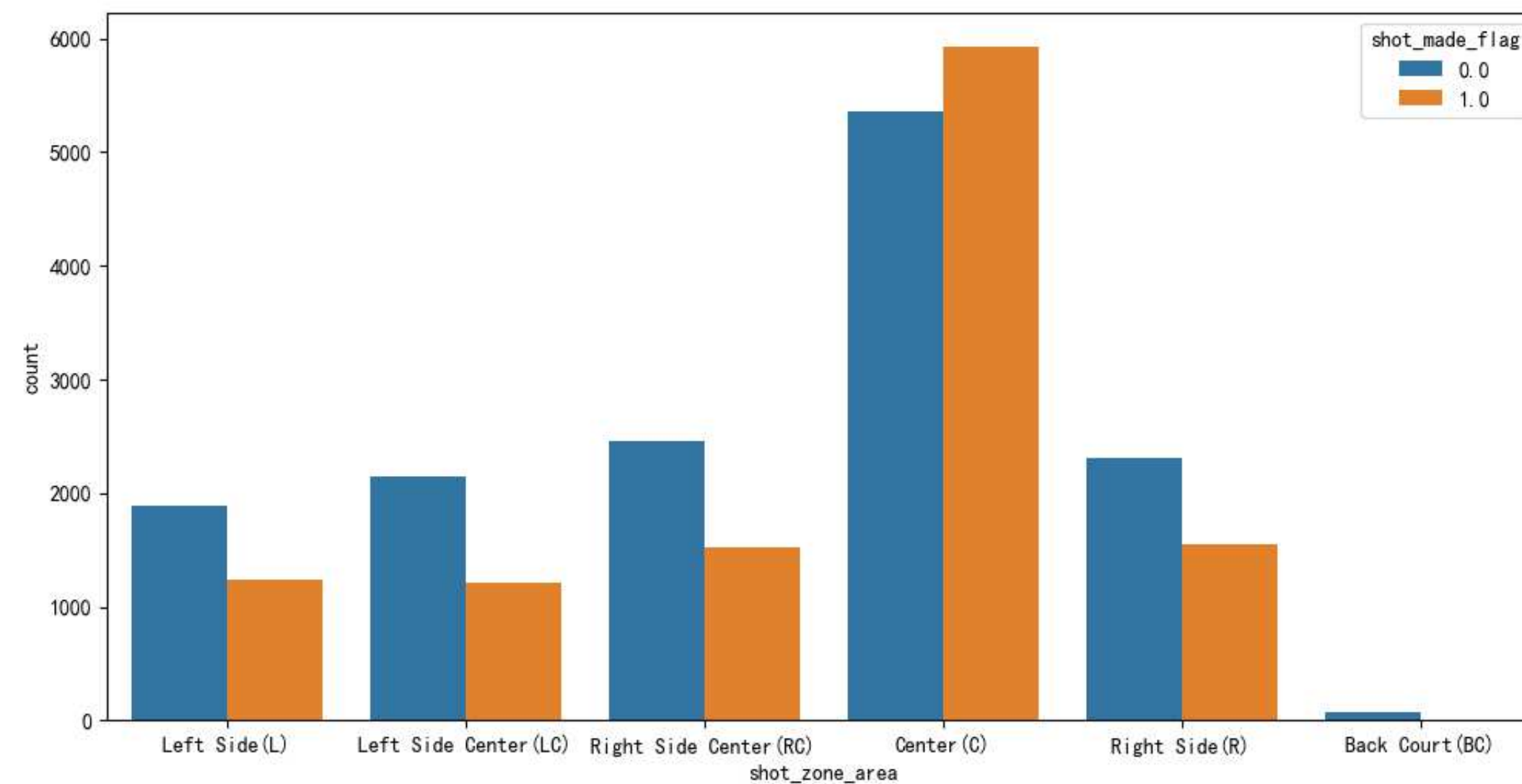


Figure 9: shot accuracy in shooting area divided by area





isualization of shot accuracy in shooting area divided by NBA rules

■ shot accuracy in shooting area divided by NBA rules

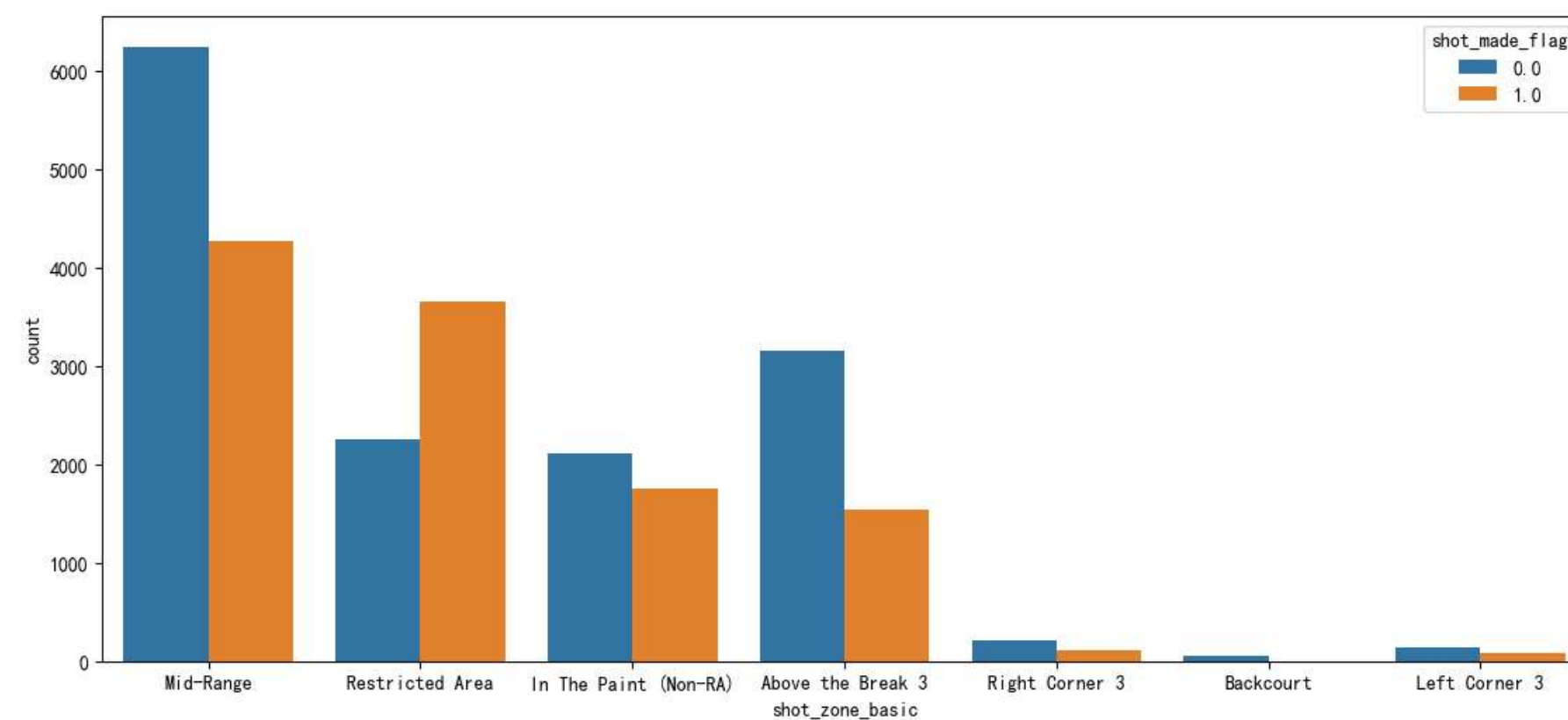


Figure 10: shot accuracy in shooting area divided by NBA rules





isualization of shot accuracy in shooting area divided by radius

■ shot accuracy in shooting area divided by radius

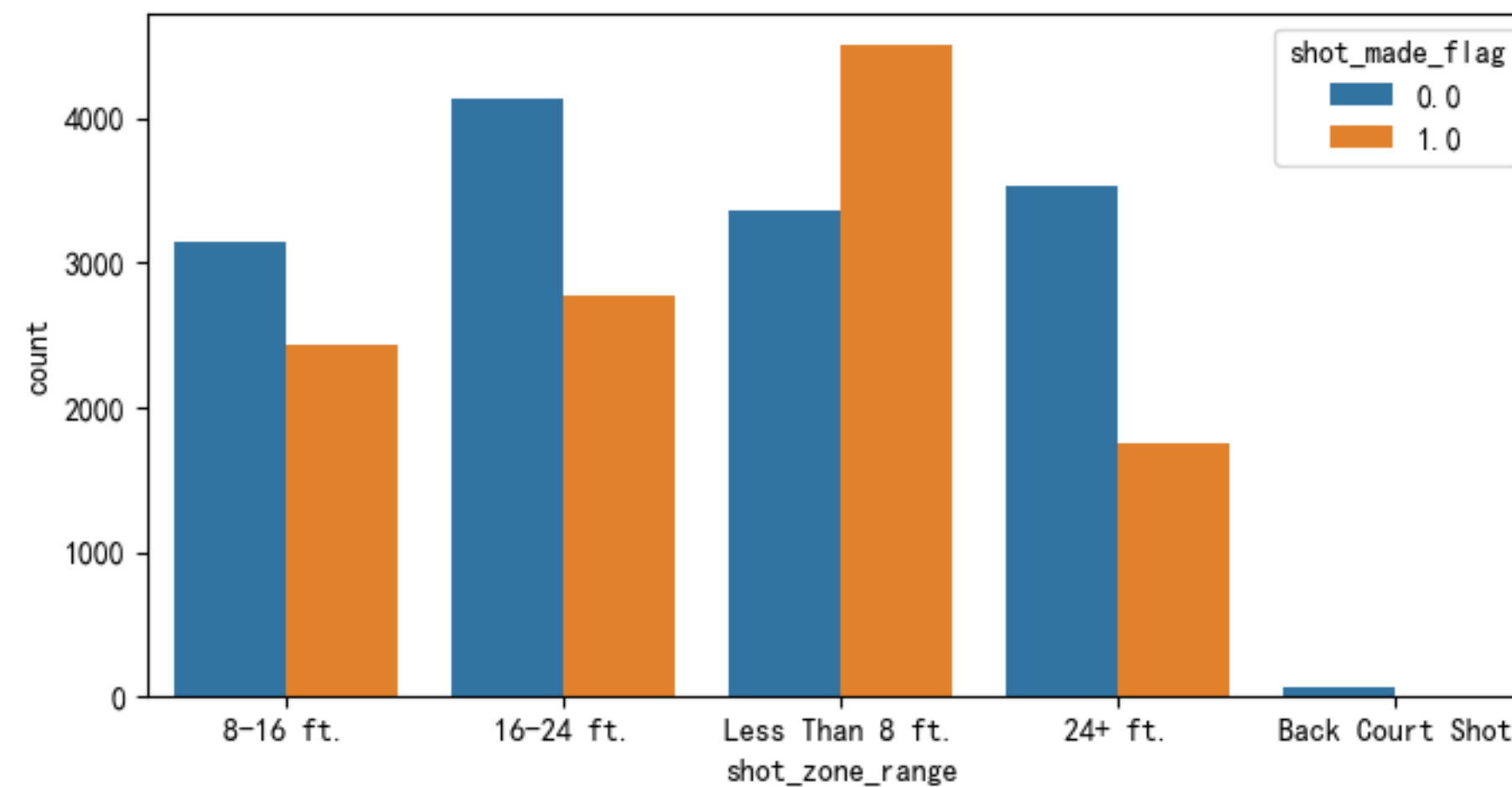


Figure 11: shot accuracy in shooting area divided by radius





V

isualize the shot accuracy of each seasons.

- shot accuracy of each seasons

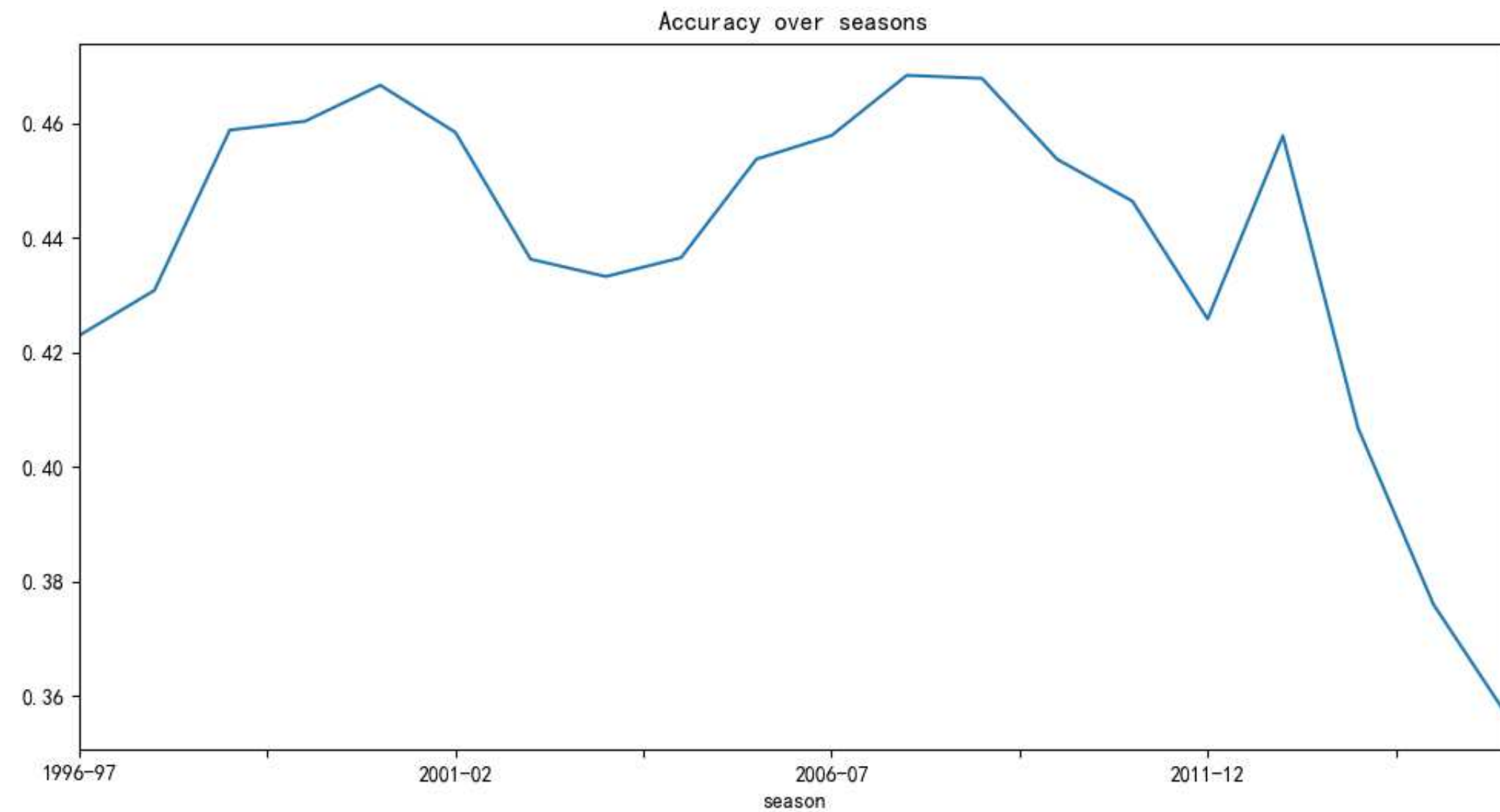


Figure 12: shot accuracy of each seasons





V

isualize the shot times and shot accuracy of each period.

- The shot times of each period

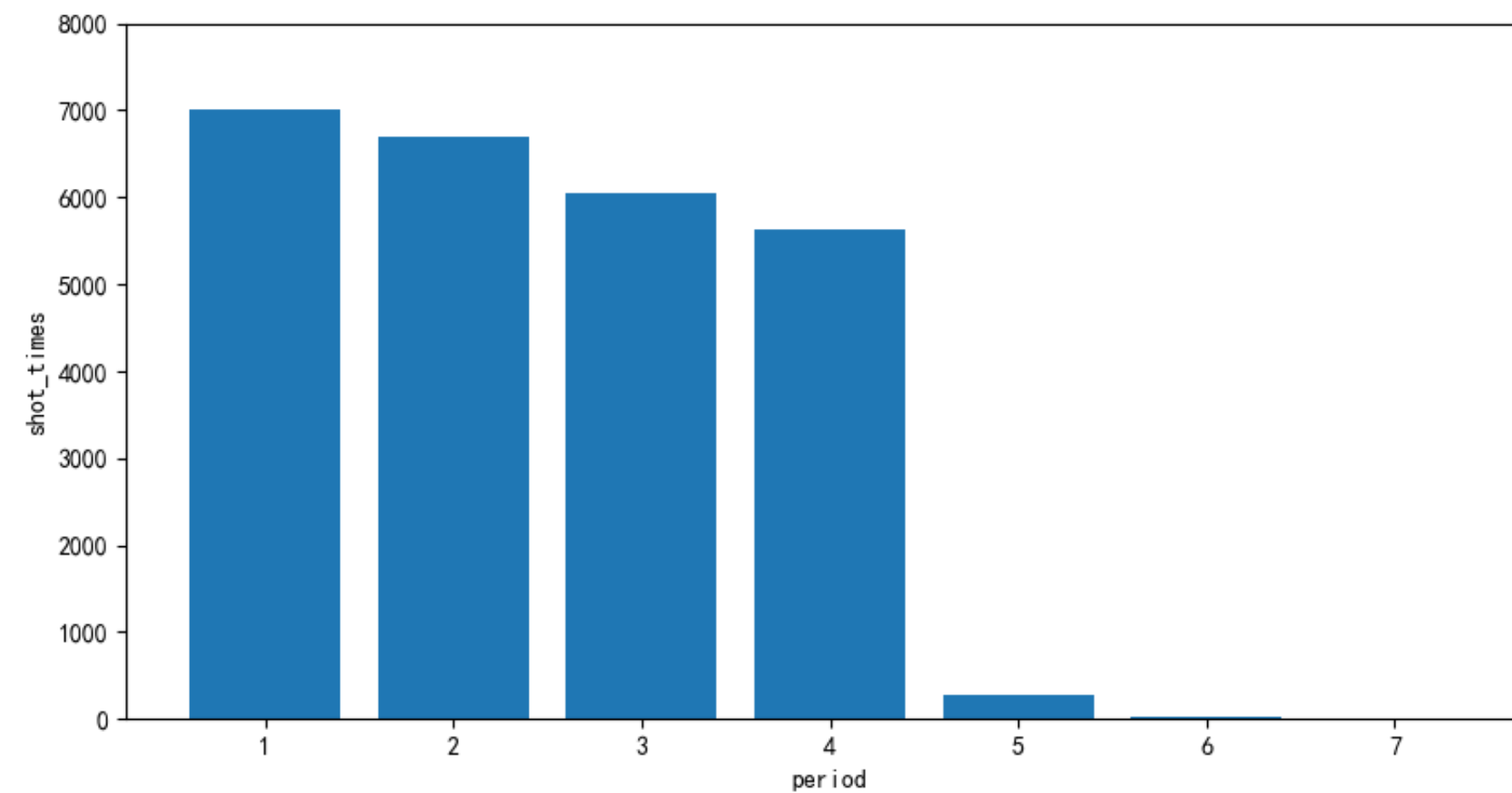


Figure 13: Shot times of each period





V

isualize the shot times and shot accuracy of each period.

- The shot accuracy of each period

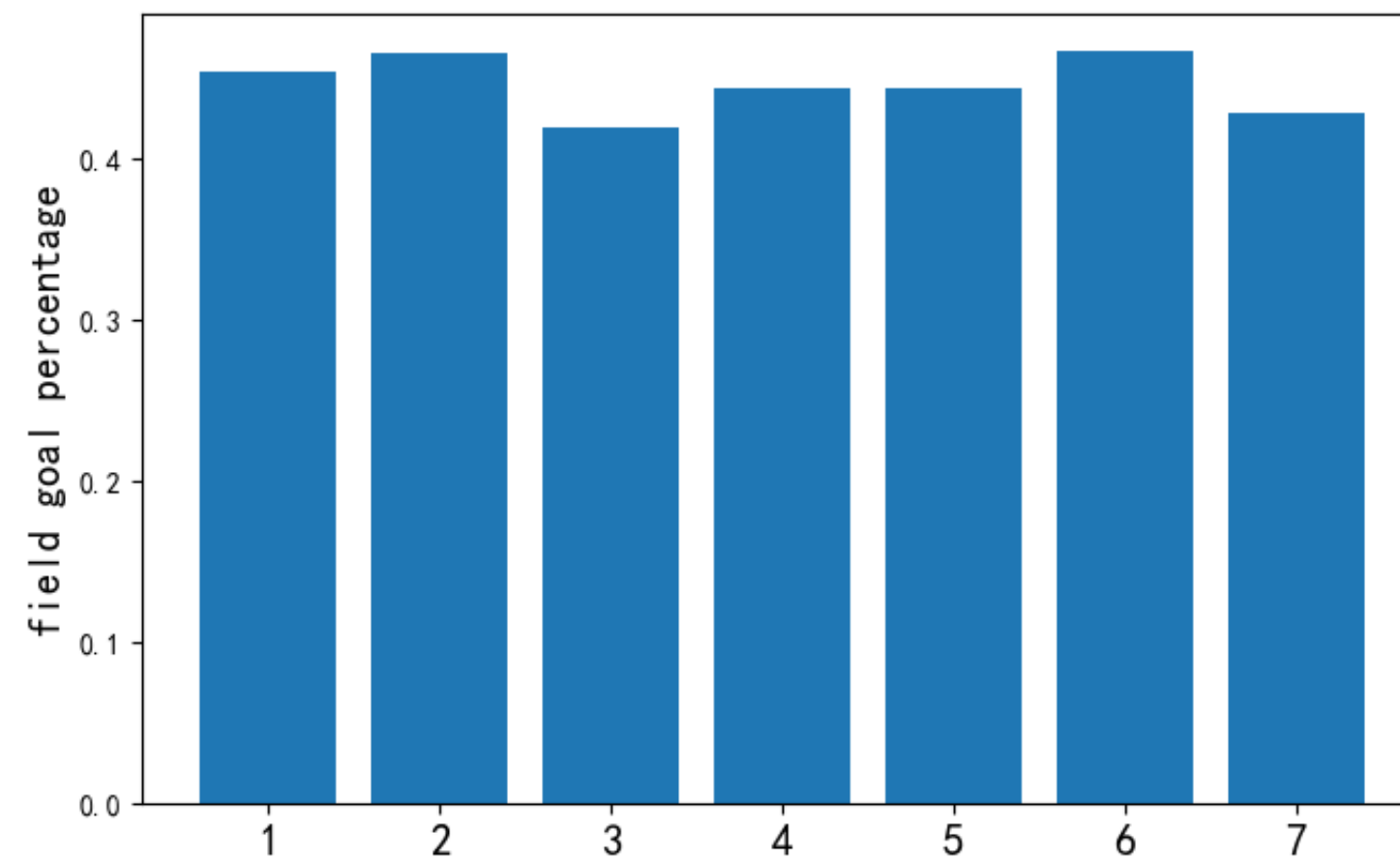


Figure 14: Shot accuracy of each period





A

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

■ Histogram of shots and time

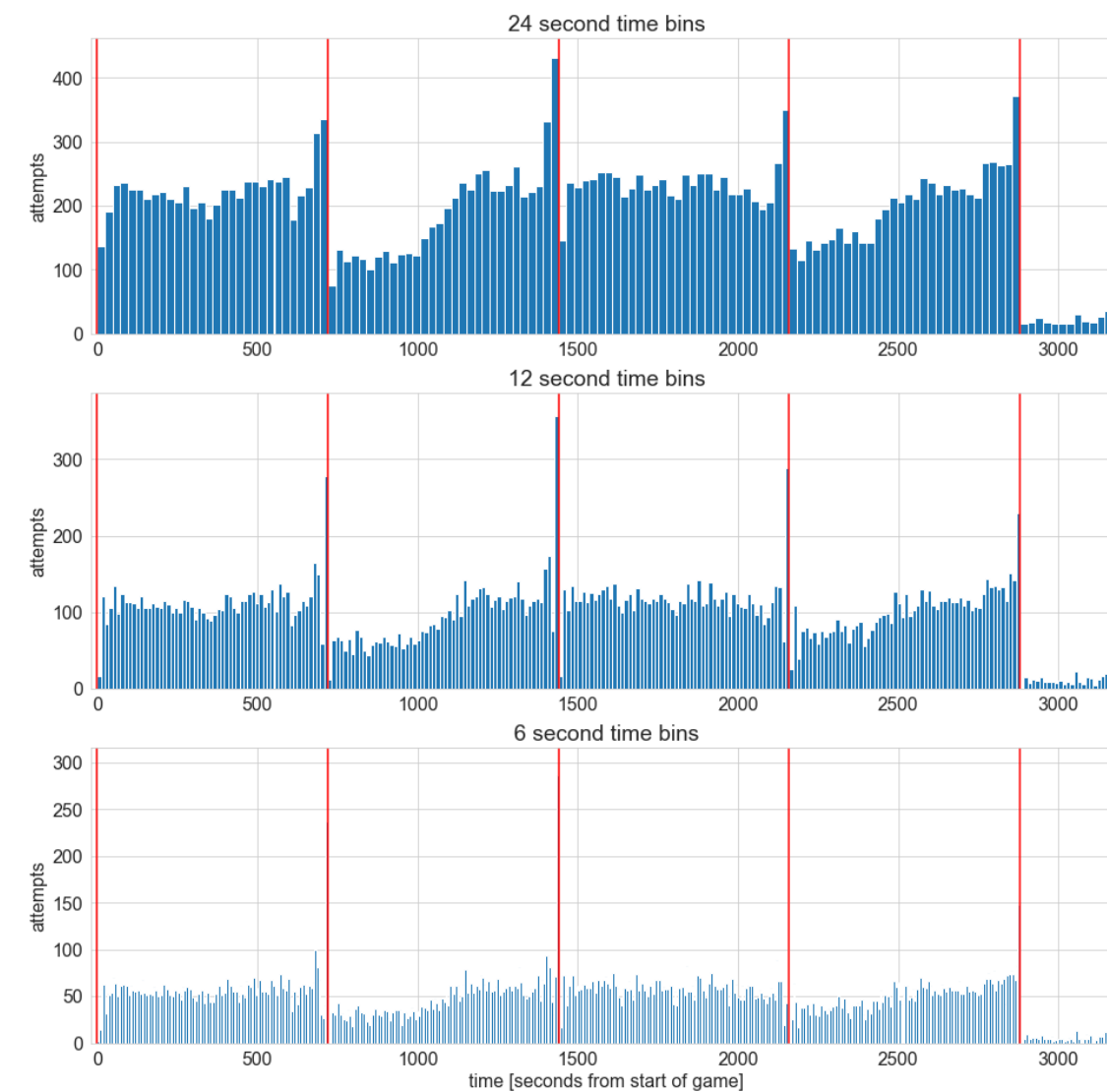


Figure 15: Histogram of shots and time



Data Visualization

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

- Histogram of shot accuracy and time

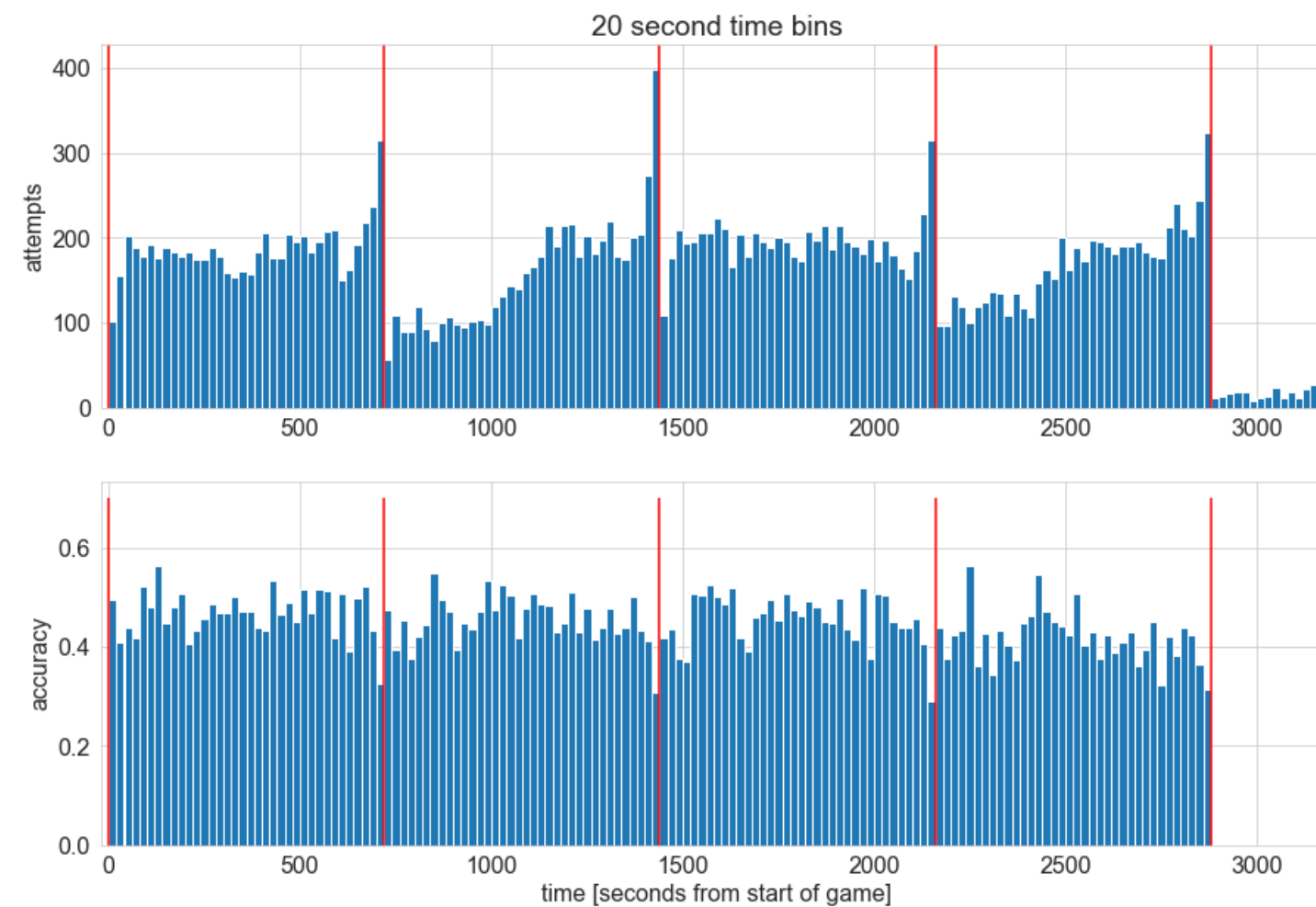


Figure 16: Histogram of shot accuracy and time



Conclusion



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Model performance and Feature importance.



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Model performance and Feature importance.

