Usage of myNBApkg

Rami Hawila

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Installation

You can install the development version of myNBApkg from GitHub with:

```r
# install.packages("devtools")
devtools::install_github("RamiHawila/myNBApkg")
```

```
## Downloading GitHub repo RamiHawila/myNBApkg@HEAD
```

```
## evaluate (0.18   -> 0.19 ) [CRAN]
## jsonlite (1.8.3  -> 1.8.4 ) [CRAN]
## digest   (0.6.30 -> 0.6.31) [CRAN]
## broom    (1.0.1  -> 1.0.2 ) [CRAN]
```

```
## Installing 4 packages: evaluate, jsonlite, digest, broom
```

```
## Installing packages into 'C:/Users/ramih/AppData/Local/R/win-library/4.2'
## (as 'lib' is unspecified)
```

```
##
##   There is a binary version available but the source version is later:
##       binary source needs_compilation
## broom  1.0.1  1.0.2             FALSE
##
## package 'evaluate' successfully unpacked and MD5 sums checked
## package 'jsonlite' successfully unpacked and MD5 sums checked
```

```
## Warning: cannot remove prior installation of package 'jsonlite'
```

```
## Warning in file.copy(savedcopy, lib, recursive = TRUE): problem copying
## C:\Users\ramih\AppData\Local\R\win-library\4.2\00LOCK\jsonlite\libs\x64\jsonlite.dll
## to
## C:\Users\ramih\AppData\Local\R\win-library\4.2\jsonlite\libs\x64\jsonlite.dll:
## Permission denied
```

```
## Warning: restored 'jsonlite'
```

```
## package 'digest' successfully unpacked and MD5 sums checked
```

```
## Warning: cannot remove prior installation of package 'digest'

## Warning in file.copy(savedcopy, lib, recursive = TRUE): problem copying
## C:\Users\ramih\AppData\Local\R\win-library\4.2\00LOCK\digest\libs\x64\digest.dll
## to C:\Users\ramih\AppData\Local\R\win-library\4.2\digest\libs\x64\digest.dll:
## Permission denied

## Warning: restored 'digest'

##
## The downloaded binary packages are in
##     C:\Users\ramih\AppData\Local\Temp\RtmpeOy5C9\downloaded_packages

## installing the source package 'broom'

## -- R CMD build -----------------------------------------------------------------
##           checking for file 'C:\Users\ramih\AppData\Local\Temp\RtmpeOy5C9\remotes82c1a5763aa\RamiHawi
##        -  preparing 'myNBApkg':
##    checking DESCRIPTION meta-information ...     checking DESCRIPTION meta-information ...   v  chec
##        -  checking for LF line-endings in source and make files and shell scripts
##     -  checking for empty or unneeded directories
##        -  building 'myNBApkg_1.0.0.tar.gz'
##
##

## Installing package into 'C:/Users/ramih/AppData/Local/R/win-library/4.2'
## (as 'lib' is unspecified)
```

Load the package

```
library(myNBApkg)
```

Example

This is a basic example which will illustrate the usage of the different available functions.

Player-level exploration

We will use the functions below to describe the performance of Stephen Curry based on the 2022-2023 NBA season. The first table demonstrates a number of Stephen's statistics. The true shooting percentage, free throw rate, assists, and turnover rates are also demonstrated using the functions.

```
player_basic_stats(player="Stephen Curry", data=DATASET)
```

```
##          Player      Position Team Field Goals Total Rebounds Assists Steals
## 1 Stephen Curry Point Guard  GSW         10.7            6.8     7.1    1.2
##   Blocks Turnovers Personal Fouls
## 1    0.2       2.9              2
```

```
true_shooting_percentage(player="Stephen Curry", data=DATASET)
```

The true shooting percentage for Stephen Curry is 68.8%

```
free_throw_rate(player="Stephen Curry", data=DATASET)
```

The free throw rate for Stephen Curry is 25.9%

```
basic_stats_rate(player="Stephen Curry", data=DATASET)
```

The assists and turnover rates of Stephen Curry are 34.1% and 11.3% respectively.

Position-level exploration

We will use the functions below to describe the characteristics of the Point Guard position based on the 2022-2023 NBA season. The first table demonstrates a number of the statistics associated with point guards including field goals, rebounds, assists, etc. In the second table, the top 5 point guards in terms of scoring points are shown. A barplot is presented comparing the Points scored for different positions.

```
position_stats(position = "Point Guard", data = DATASET)
```
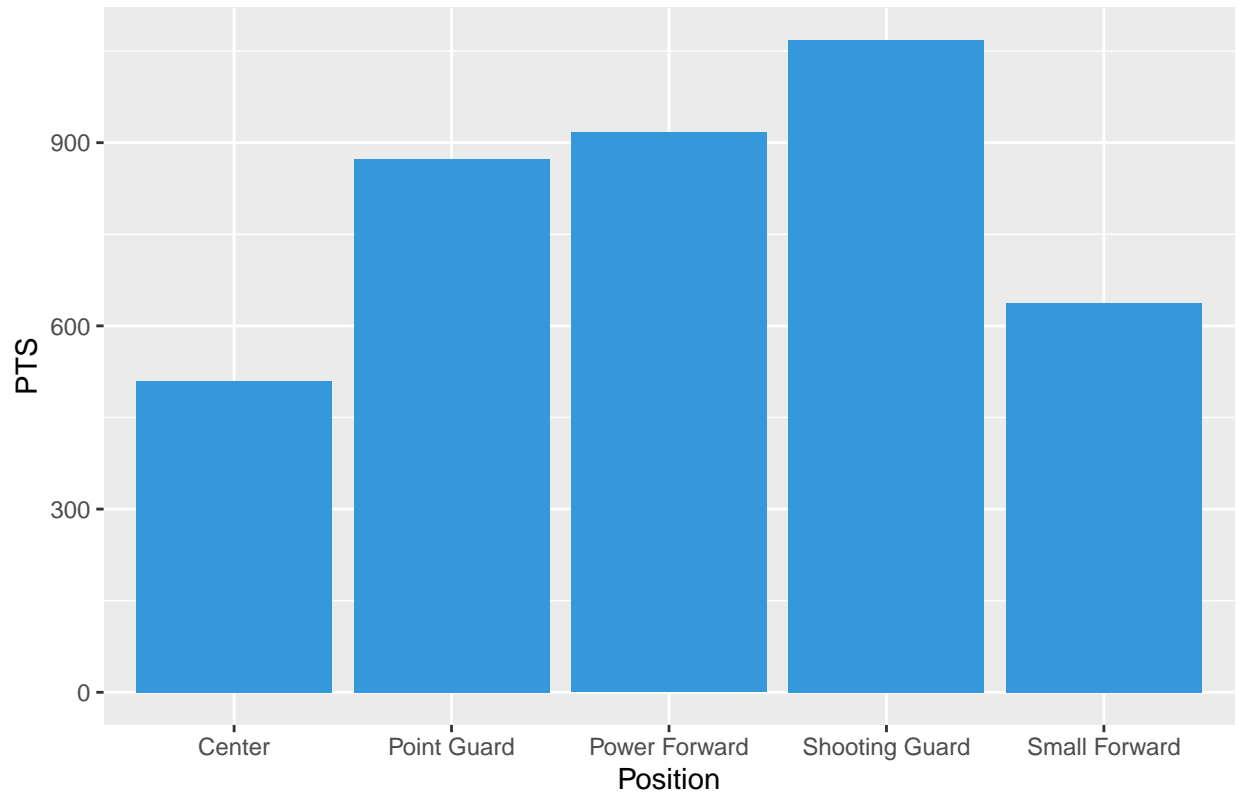
```
##       Position Field Goals Total Rebounds  Assists Steals    Blocks Turnovers
## 1 Point Guard    4.117105        3.036842 4.256579  0.925 0.3171053  1.714474
##   Personal Fouls
## 1       1.811842
```

```
position_best(position = "Point Guard", measure = "PTS", topn = 5,data = DATASET)
```

```
##              Player  Tm    Position  PTS
## 19      Luka Dončić DAL Point Guard 33.1
## 15   Stephen Curry GSW Point Guard 31.4
## 50       Ja Morant MEM Point Guard 28.5
## 76      Trae Young ATL Point Guard 28.2
## 40 Damian Lillard POR Point Guard 26.3
```

```
plot_basic_stats(measure="PTS",data=DATASET)
```

Bar plot for number of PTS per game vs. the positions

PTS (y-axis): 0, 300, 600, 900

Position (x-axis): Center, Point Guard, Power Forward, Shooting Guard, Small Forward

Modelling of Free Throw Percentage and Minutes Played

We will use the function below to model the free throw success rate and minutes played based on the 2022-2023 NBA season. This function produces a table that summarizes the linear regression fit. Based on the results from the first table, we can see that field goals have a significantly negative impact on the free throw rates, where as effective field goals percentage and point scored have a significantly positive impact on the free throw rates. Based on the results from the second table, the position played in addition to age, personal fouls, and points scored had significant positive impact on the number of minutes played.

```
modelling(response = "FT.",data=DATASET)
```

Linear regression summary modelling Free Throw Percentage per game

Characteristic	Beta	95% CI[1]	p-value
Position			
Center	—	—	
Point Guard	0.02	-0.03, 0.07	0.4
Power Forward	0.01	-0.04, 0.06	0.7
Shooting Guard	0.04	-0.01, 0.09	0.10
Small Forward	0.04	-0.01, 0.09	0.2
FG	-0.10	-0.14, -0.06	<0.001
eFG.	0.20	0.01, 0.38	0.036
PTS	0.04	0.03, 0.06	<0.001

```
modelling(response = "MP",data=DATASET)
```

Linear regression summary modelling Minutes Played per game

Characteristic	Beta	95% CI[1]	p-value
Position			
Center	—	—	
Point Guard	6.0	4.3, 7.7	<0.001
Power Forward	3.2	1.8, 4.5	<0.001
Shooting Guard	5.3	3.7, 6.9	<0.001
Small Forward	5.4	3.8, 7.0	<0.001
Age	0.14	0.05, 0.23	0.002
FG.	-4.7	-9.8, 0.38	0.070
ORB	0.75	-0.07, 1.6	0.072
DRB	1.1	0.71, 1.5	<0.001
PF	2.9	2.3, 3.5	<0.001
PTS	0.72	0.64, 0.81	<0.001

[1]CI = Confidence Interval