Package 'SpatialBall'

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Type Package

Title Spatial NBA Visualization and Analysis

Version 0.1.0

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Description Creates offensive and defensive shot charts for teams,
players and seasons, and more comprehensively for spatial
analysis of NBA data. Includes data from the 2016-17 NBA
season extracted from <http://stats.nba.com>.

URL https://derek-corcoran-barrios.github.io/SpatialBall.html

Depends R (>= 2.10)

Imports dplyr, hexbin, ggplot2, lubridate, RColorBrewer

License GPL (>= 2)

Encoding UTF-8

LazyData true

RoxygenNote 6.0.1

Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

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R topics documented:

DefShotSeasonGraphTeam

Generates an defensive shot chart for a given team

Description

Creates a defensive Shot Chart for the desired team on a given season, that is a shot chart of the shots the team recieves during the year

Usage

```
DefShotSeasonGraphTeam(Seasondata, team, quant = 0.4, type = "PPS")
```

Arguments

Seasondata	a data frame with the details of the season
team	the name of the team that you want to make a graph of
quant	the quantile of shots to be graphed, defaults to 0.4
type	either "PPS" for points per shot or "PCT" for percentage

Value

a shot chart graph

Author(s)

Derek Corcoran <derek.corcoran.barrios@gmail.com>

Examples

```
data("season2017")
#Examples with several teams
DefShotSeasonGraphTeam(season2017, team = "Sas")
DefShotSeasonGraphTeam(season2017, team = "Cle")
#Examples with shooting percentage instead of Points per Shot
DefShotSeasonGraphTeam(season2017, team = "Cle", type = "PCT")
```

`OffShotSeasonGraphTeam`

Generates an offensive shot chart for a given team

Description

creates an offensive Shot Chart for the desired team on a given season

Usage

```
OffShotSeasonGraphTeam(Seasondata, team, quant = 0.4, type = "PPS")
```

Arguments

Seasondata	a data frame with the details of the season
team	the name of the team that you want to make a graph of
quant	the quantile of shots to be graphed, defaults to 0.4
type	either "PPS" for points per shot or "PCT" for percentage

Value

a shot chart graph

Author(s)

Derek Corcoran <derek.corcoran.barrios@gmail.com>

Examples

```
data("season2017")
#Examples with several teams
OffShotSeasonGraphTeam(season2017, team = "GSW")
OffShotSeasonGraphTeam(season2017, team = "Hou")
#Examples with shooting percentage instead of Points per Shot
OffShotSeasonGraphTeam(season2017, team = "ORL", type = "PCT")
```

PointShotSeasonGraphPlayer

Generates a point based shot chart for a given player

Description

Creates a shot chart for a player on a given season creating a point for each taken shot separating by colors mades and misses, also as you can add a kernel of the frequency of usage of areas

Usage

```
PointShotSeasonGraphPlayer(Seasondata, player, Type = "Both", kernel = TRUE)
```

Arguments

Seasondata	a data frame with the details of the season
player	the name of the player that you want to make a graph of
Type	either "Both" (default), for plotting every point, "Made" to plot only the made shots or "Missed" to plot only the missed shots.
kernel	Logical, weather to plot or not the kernel of shots

Value

a shot chart graph

Author(s)

Derek Corcoran <derek.corcoran.barrios@gmail.com>

Examples

```
data("season2017")
#Examples with several players
PointShotSeasonGraphPlayer(season2017, player = "James Harden")
PointShotSeasonGraphPlayer(season2017, player = "DeMar DeRozan")

PointShotSeasonGraphPlayer(season2017, player = "Stephen Curry", kernel = FALSE)
```

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season2017	*Dataset for all the Shots in the 2016-17 season of the NBA*

Description

A dataset containing a dataframe

Usage

```
season2017
```

Format

Data frame with the following columns

GRID_TYPE A stack with eight time slices for species A

GAME_ID A stack with eight time slices for species b

GAME_EVENT_ID Id of the play when the shot happened

PLAYER_ID Numeric code of the player whot took the shot

PLAYER_NAME Name of the player who took the shot

TEAM_ID Numeric code of the team

TEAM_NAME Name of the team of the player who took the shot

PERIOD Quarter when the shot was taken 1 to 4, if there are overtimes it keeps adding, that is period 6 is the second overtime

MINUTES_REMAINING minutes remaining

SECONDS_REMAINING seconds remaining in the minute

EVENT_TYPE Weather the shot was made or not

ACTION_TYPE What kind of shot was taken, this has 52 options ranging from hook bank shot to reverse dunk shot

SHOT_TYPE Weather the shot was 2 point or 3 point shot

SHOT_ZONE_BASIC Factor, one of "Above the Break 3", "Backcourt", "In The Paint (Non-RA)", "Left Corner 3", "Mid-Range", "Restricted Area", "Right Corner 3"

SHOT_ZONE_AREA One of "Back Court(BC)", "Center(C)", "Left Side Center(LC)" , "Left Side(L)", "Right Side Center(RC)", "Right Side(R)"

SHOT_ZONE_RANGE Distance range were the shot was attempted

SHOT_DISTANCE Shot distance in feet

LOC_X x coordinate of the player when the shot was attempted

LOC_Y y coordinate of the player when the shot was attempted

SHOT_ATTEMPTED_FLAG value 1 which means that there was an attempted shot

SHOT_MADE_FLAG interger, 1 if the shot was made, 0 if it was missed

GAME_DATE Date when the game was played

HTM Name of the home team

VTM Name of the visiting team

ShotSeasonGraph *plot the shot chart of a whole NBA Season*

Description

This function takes an NBA season object and makes a shot chart of all the shots takes through that regular season. You can choose to either plot the results based on Points per Shot or on Shooting Percentage

Usage

```
ShotSeasonGraph(Seasondata, quant = 0.4, type = "PPS")
```

Arguments

Seasondata	The information of shots, it can be downloaded with function read_season
quant	A number between 0 and 1, it determines quantile of shots used to plot the shot chart, (default is 0.4)
type	A character to specify if the shot chart is based on Points per Shot ("PPS") or percentage ("PCT")

Value

a ggplot object plotting the shot chart of a given NBA season

Author(s)

Derek Corcoran <derek.corcoran.barrios@gmail.com>

See Also

[DefShotSeasonGraphTeam](#)

[OffShotSeasonGraphTeam](#)

Examples

```
data("season2017")
ShotSeasonGraph(season2017, quant = 0.4)
ShotSeasonGraph(season2017, quant = 0.4, type = "PCT")
```

ShotSeasonGraphPlayer   *Generates a shot chart for a given player*

Description

Creates a shot chart for a player on a given season

Usage

```
ShotSeasonGraphPlayer(Seasondata, player, quant = 0.4, type = "PPS")
```

Arguments

Seasondata	a data frame with the details of the season
player	the name of the player that you want to make a graph of
quant	the quantile of shots to be graphed, defaults to 0.4
type	either "PPS" for points per shot or "PCT" for percentage

Value

a shot chart graph

Author(s)

Derek Corcoran <derek.corcoran.barrios@gmail.com>

Examples

```
data("season2017")
#Examples with several players
ShotSeasonGraphPlayer(season2017, player = "Stephen Curry")
ShotSeasonGraphPlayer(season2017, player = "DeMar DeRozan")

 #Examples with percentage instead of points per shot
ShotSeasonGraphPlayer(season2017, player = "Stephen Curry", type = "PCT")
```

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