Final Project, Best NBA Player, Jake Pachucinski and Alon Kremerman

```
library(mosaic)
library(tidyverse)
library(rvest)
library(methods)
library(mdsr)

#Compared 5 players: LeBron, Jordan, Kobe, Malone, and Shaq
#Got all the data from basketball reference
#Chose not to include playoff statistics
#Imported each player separately
#Did not include Bill Russell nor Kareem Abdul-Jabbar
#Originally we were going to but they had missing statistics on basketball
reference
url <- "https://www.basketball-reference.com/players/j/jamesle01.html"
tables <- url %>%
 read_html() %>%
 html_nodes(css = "table")
Lebron <- html_table(tables[[1]])
head(Lebron)

## # A tibble: 6 x 30
##   Season   Age Tm    Lg    Pos       G    GS    MP    FG   FGA `FG%`   `3P`
`3PA`
##   <chr>  <int> <chr> <chr> <chr> <int> <int> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 2003-~    19 CLE   NBA   SG       79    79  39.5   7.9  18.9 0.417   0.8
2.7
## 2 2004-~    20 CLE   NBA   SF       80    80  42.4   9.9  21.1 0.472   1.4
3.9
## 3 2005-~    21 CLE   NBA   SF       79    79  42.5  11.1  23.1 0.48    1.6
4.8
## 4 2006-~    22 CLE   NBA   SF       78    78  40.9   9.9  20.8 0.476   1.3
4
## 5 2007-~    23 CLE   NBA   SF       75    74  40.4  10.6  21.9 0.484   1.5
4.8
## 6 2008-~    24 CLE   NBA   SF       81    81  37.7   9.7  19.9 0.489   1.6
4.7
## # ... with 17 more variables: 3P% <dbl>, 2P <dbl>, 2PA <dbl>, 2P% <dbl>,
## #   eFG% <dbl>, FT <dbl>, FTA <dbl>, FT% <dbl>, ORB <dbl>, DRB <dbl>,
## #   TRB <dbl>, AST <dbl>, STL <dbl>, BLK <dbl>, TOV <dbl>, PF <dbl>, PTS
<dbl>

#Filtered so that only the career stats were shown for each player
#Also selected columns we wanted and added number of seasons played/player
```

```
name
#Chose to include:
#Field Goal % (FGP)
#Estimated Field Goal % (eFGP)
#Free Throw % (FTP)
#Total Rebounds Per Game (TRB)
#Assists Per Game (AST)
#Steals Per Game (STL)
#Blocks Per Game (BLK)
#Turnovers Per Game (TOV)
#Points Per Game (PTS)
#Number of Seasons Played (Num_seasons)
Lebron1 <- Lebron %>%
  filter(Season == "Career")%>%
  mutate(Num_seasons = 17, Player = "LeBron James")%>%
  select(Player, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV, PTS,
Num_seasons)%>%
    rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')
Lebron1
```

```
## # A tibble: 1 x 11
##   Player         FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV   PTS
Num_seasons
##   <chr>        <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 LeBron James 0.504 0.544 0.734   7.5   7.4   1.6   0.8   3.5  27.1
17
```

```
url <- "https://www.basketball-reference.com/players/j/jordami01.html"
tables <- url %>%
 read_html() %>%
 html_nodes(css = "table")
Jordan <- html_table(tables[[1]])
head(Jordan, 10)
```

```
## # A tibble: 10 x 30
##    Season    Age Tm     Lg     Pos    G      GS    MP    FG    FGA   `FG%`
`3P`
##    <chr>   <int> <chr>  <chr>  <chr>  <chr>  <chr> <chr> <chr> <chr> <chr>
<chr>
##  1 1984-85    21 CHI    NBA    SG     82     82    38.3  10.2  19.8  .515
0.1
##  2 1985-86    22 CHI    NBA    SG     18     7     25.1  8.3   18.2  .457
0.2
##  3 1986-87    23 CHI    NBA    SG     82     82    40.0  13.4  27.8  .482
0.1
##  4 1987-88    24 CHI    NBA    SG     82     82    40.4  13.0  24.4  .535
0.1
##  5 1988-89    25 CHI    NBA    SG     81     81    40.2  11.9  22.2  .538
0.3
```

```
##  6 1989-90    26 CHI    NBA    SG     82     82    39.0  12.6  24.0  .526
1.1
##  7 1990-91    27 CHI    NBA    SG     82     82    37.0  12.1  22.4  .539
0.4
##  8 1991-92    28 CHI    NBA    SG     80     80    38.8  11.8  22.7  .519
0.3
##  9 1992-93    29 CHI    NBA    SG     78     78    39.3  12.7  25.7  .495
1.0
## 10 1993-94    30 Did N~ Did N~ Did N~ Did N~ Did ~ Did ~ Did ~ Did ~ Did ~
Did ~
## # ... with 18 more variables: 3PA <chr>, 3P% <chr>, 2P <chr>, 2PA <chr>,
## #   2P% <chr>, eFG% <chr>, FT <chr>, FTA <chr>, FT% <chr>, ORB <chr>,
## #   DRB <chr>, TRB <chr>, AST <chr>, STL <chr>, BLK <chr>, TOV <chr>, PF
<chr>,
## #   PTS <chr>
```

```
#Had to convert all of Jordan's stats to double because the one season he
played in the Minor Leagues for the White Sox
Jordan1 <- Jordan %>%
  filter(Season == "Career")%>%
  mutate(Num_seasons = 15, Player = "Michael Jordan")%>%
  select(Player, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV, PTS,
Num_seasons)%>%
    rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')%>%
  mutate(FGP = as.double(FGP), eFGP = as.double(eFGP), FTP = as.double(FTP),
TRB = as.double(TRB), AST = as.double(AST),
         STL = as.double(STL), BLK = as.double(BLK), TOV = as.double(TOV),
PTS = as.double(PTS))
Jordan1
```

```
## # A tibble: 1 x 11
##   Player         FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV   PTS
Num_seasons
##   <chr>        <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 Michael Jor~ 0.497 0.509 0.835   6.2   5.3   2.3   0.8   2.7  30.1
15
```

```
url <- "https://www.basketball-reference.com/players/b/bryanko01.html"
tables <- url %>%
 read_html() %>%
 html_nodes(css = "table")
Kobe <- html_table(tables[[1]])
head(Kobe)
```

```
## # A tibble: 6 x 30
##   Season   Age Tm    Lg    Pos       G    GS    MP    FG   FGA `FG%`  `3P`
`3PA`
##   <chr>  <int> <chr> <chr> <chr> <int> <int> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 1996-~    18 LAL   NBA   SF       71     6  15.5   2.5   5.9 0.417   0.7
```

```
1.9
## 2 1997-~    19 LAL   NBA   SF       79     1  26     4.9  11.6 0.428   0.9
2.8
## 3 1998-~    20 LAL   NBA   SG       50    50  37.9   7.2  15.6 0.465   0.5
2
## 4 1999-~    21 LAL   NBA   SG       66    62  38.2   8.4  17.9 0.468   0.7
2.2
## 5 2000-~    22 LAL   NBA   SG       68    68  40.9  10.3  22.2 0.464   0.9
2.9
## 6 2001-~    23 LAL   NBA   SG       80    80  38.3   9.4  20   0.469   0.4
1.7
## # ... with 17 more variables: 3P% <dbl>, 2P <dbl>, 2PA <dbl>, 2P% <dbl>,
## #   eFG% <dbl>, FT <dbl>, FTA <dbl>, FT% <dbl>, ORB <dbl>, DRB <dbl>,
## #   TRB <dbl>, AST <dbl>, STL <dbl>, BLK <dbl>, TOV <dbl>, PF <dbl>, PTS
<dbl>

Kobe1 <- Kobe %>%
  filter(Season == "Career")%>%
  mutate(Num_seasons = 20, Player = "Kobe Bryant")%>%
  select(Player, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV, PTS,
Num_seasons)%>%
  rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')
Kobe1

## # A tibble: 1 x 11
##   Player        FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV   PTS
Num_seasons
##   <chr>       <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 Kobe Bryant 0.447 0.482 0.837   5.2   4.7   1.4   0.5     3    25
20

url <- "https://www.basketball-reference.com/players/m/malonka01.html"
tables <- url %>%
 read_html() %>%
 html_nodes(css = "table")
Malone <- html_table(tables[[1]])
head(Malone)

## # A tibble: 6 x 30
##   Season   Age Tm    Lg    Pos       G    GS    MP    FG   FGA `FG%`   `3P`
`3PA`
##   <chr>  <int> <chr> <chr> <chr> <int> <int> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 1985-~    22 UTA   NBA   PF       81    76  30.6   6.2  12.5 0.496   0
0
## 2 1986-~    23 UTA   NBA   PF       82    82  34.8   8.9  17.3 0.512   0
0.1
## 3 1987-~    24 UTA   NBA   PF       82    82  39    10.5  20.1 0.52    0
0.1
## 4 1988-~    25 UTA   NBA   PF       80    80  39.1  10.1  19.5 0.519   0.1
```

```
0.2
## 5 1989-~    26 UTA   NBA   PF       82    82  38.1  11.1  19.8 0.562   0.2
0.5
## 6 1990-~    27 UTA   NBA   PF       82    82  40.3  10.3  19.6 0.527   0
0.2
## # ... with 17 more variables: 3P% <dbl>, 2P <dbl>, 2PA <dbl>, 2P% <dbl>,
## #   eFG% <dbl>, FT <dbl>, FTA <dbl>, FT% <dbl>, ORB <dbl>, DRB <dbl>,
## #   TRB <dbl>, AST <dbl>, STL <dbl>, BLK <dbl>, TOV <dbl>, PF <dbl>, PTS
<dbl>

Malone1 <- Malone %>%
  filter(Season == "Career")%>%
  mutate(Num_seasons = 19, Player = "Karl Malone")%>%
  select(Player, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV, PTS,
Num_seasons)%>%
  rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')
Malone1

## # A tibble: 1 x 11
##   Player        FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV   PTS
Num_seasons
##   <chr>       <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 Karl Malone 0.516 0.518 0.742  10.1   3.6   1.4   0.8   3.1    25
19

url <- "https://www.basketball-reference.com/players/o/onealsh01.html"
tables <- url %>%
 read_html() %>%
 html_nodes(css = "table")
Shaq <- html_table(tables[[1]])
head(Shaq)

## # A tibble: 6 x 30
##   Season   Age Tm    Lg    Pos       G    GS    MP    FG   FGA `FG%`  `3P`
`3PA`
##   <chr>  <int> <chr> <chr> <chr> <int> <int> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 1992-~    20 ORL   NBA   C        81    81  37.9   9    16.1 0.562     0
0
## 2 1993-~    21 ORL   NBA   C        81    81  39.8  11.8  19.6 0.599     0
0
## 3 1994-~    22 ORL   NBA   C        79    79  37    11.8  20.2 0.583     0
0.1
## 4 1995-~    23 ORL   NBA   C        54    52  36    11    19.1 0.573     0
0
## 5 1996-~    24 LAL   NBA   C        51    51  38.1  10.8  19.4 0.557     0
0.1
## 6 1997-~    25 LAL   NBA   C        60    57  36.3  11.2  19.1 0.584     0
0
## # ... with 17 more variables: 3P% <dbl>, 2P <dbl>, 2PA <dbl>, 2P% <dbl>,
```

```
## #   eFG% <dbl>, FT <dbl>, FTA <dbl>, FT% <dbl>, ORB <dbl>, DRB <dbl>,
## #   TRB <dbl>, AST <dbl>, STL <dbl>, BLK <dbl>, TOV <dbl>, PF <dbl>, PTS
<dbl>
```

```
Shaq1 <- Shaq %>%
  filter(Season == "Career")%>%
  mutate(Num_seasons = 21, Player = "Shaquille O'Neal") %>%
  select(Player, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV, PTS,
Num_seasons)%>%
  rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')
Shaq1
```

```
## # A tibble: 1 x 11
##   Player         FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV   PTS
Num_seasons
##   <chr>        <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 Shaquille O~ 0.582 0.582 0.527  10.9   2.5   0.6   2.3   2.7  23.7
21
```

```
#Combined all the career stats together into one table
all <- rbind(Lebron1, Jordan1, Kobe1, Shaq1, Malone1)
all
```

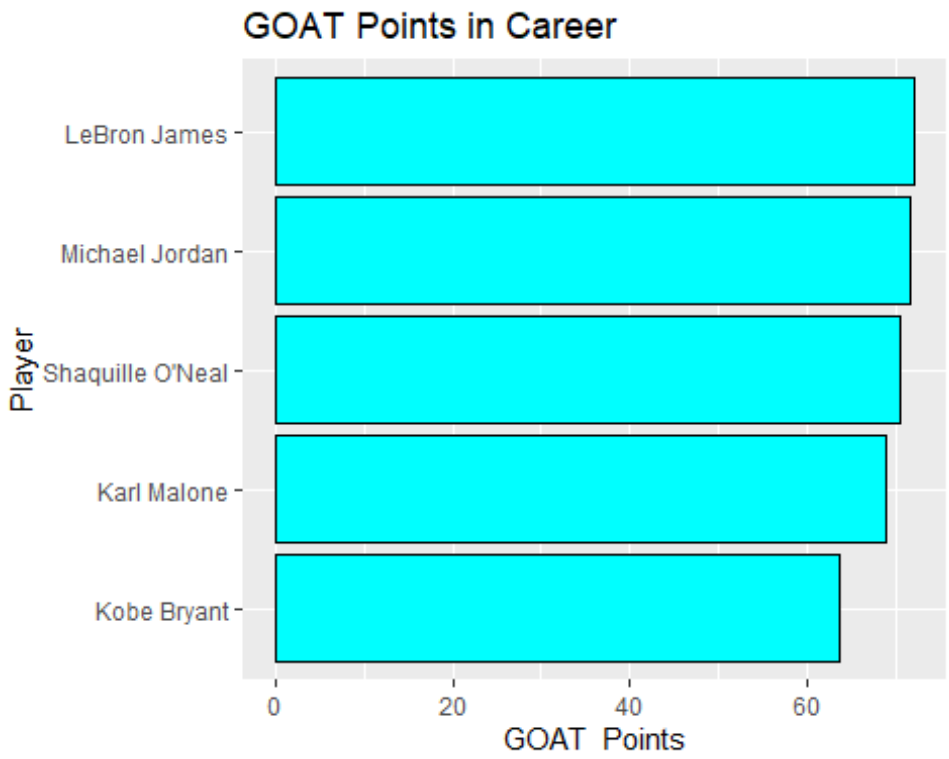
```
## # A tibble: 5 x 11
##   Player         FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV   PTS
Num_seasons
##   <chr>        <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 LeBron James 0.504 0.544 0.734   7.5   7.4   1.6   0.8   3.5  27.1
17
## 2 Michael Jor~ 0.497 0.509 0.835   6.2   5.3   2.3   0.8   2.7  30.1
15
## 3 Kobe Bryant  0.447 0.482 0.837   5.2   4.7   1.4   0.5   3    25
20
## 4 Shaquille O~ 0.582 0.582 0.527  10.9   2.5   0.6   2.3   2.7  23.7
21
## 5 Karl Malone  0.516 0.518 0.742  10.1   3.6   1.4   0.8   3.1  25
19
```

```
#We created a rating system to value each stat based on how important we
believe they are
#GOAT_Points system:
#PTS times 1
#TOV times -2
#eFGP times 20
#FGP times 10
#FTP times 5
#TRB times 1.3
#AST times 1.5
#STL times 1.3
```

```r
#BLK times 1.3
#Num_seasons divided by 2
#We add up all those and create the statistic GOAT_Points
Goat_Function <- function(x){
  all%>%
    mutate(Goat_Points = (FGP*10 + eFGP*20 + FTP*5 + TRB*1.3 + AST*1.5 +
STL*1.3 + BLK*1.3 - TOV*2 + PTS + Num_seasons/2))
}
all1 <- Goat_Function(all)%>%
  arrange(desc(Goat_Points))
all1
```

```
## # A tibble: 5 x 12
##   Player         FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV   PTS
Num_seasons
##   <chr>        <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 LeBron James 0.504 0.544 0.734   7.5   7.4   1.6   0.8   3.5  27.1
17
## 2 Michael Jor~ 0.497 0.509 0.835   6.2   5.3   2.3   0.8   2.7  30.1
15
## 3 Shaquille O~ 0.582 0.582 0.527  10.9   2.5   0.6   2.3   2.7  23.7
21
## 4 Karl Malone  0.516 0.518 0.742  10.1   3.6   1.4   0.8   3.1  25
19
## 5 Kobe Bryant  0.447 0.482 0.837   5.2   4.7   1.4   0.5   3    25
20
## # ... with 1 more variable: Goat_Points <dbl>
```

```r
#Our fomrula Goat_Points shows that LeBron is the GOAT while Jordan is close
behind him in 2nd

#Graph shows that all are pretty close except for Kobe clearly being the
worst
GOAT_graph <- ggplot(data = all1, aes(x = reorder(Player, Goat_Points), y =
Goat_Points)) +
  geom_bar(stat = "identity", fill = "Cyan", color = "Black") + ylab("GOAT
Points") + xlab("Player") + coord_flip() + ggtitle("GOAT Points in Career")
GOAT_graph
```




```
#Since the players were pretty close (especially Lebron and Jordan)
#Decided to exam their GOAT_Points over the years (Not including the
Seasons_played in the formula)
#That way we can see who had the best seasons
#And also examine who stayed the most consistent over their career
Lebron_f <- Lebron %>%
  filter(str_detect(Season, "-")) %>%
  mutate(season_num = row_number())%>%
  mutate(Player = "LeBron James")%>%
  select(Player, season_num, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV,
PTS)%>%
  rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')
head(Lebron_f)
```

```
## # A tibble: 6 x 11
##   Player       season_num   FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV
PTS
##   <chr>             <int> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 LeBron James          1 0.417 0.438 0.754   5.5   5.9   1.6   0.7   3.5
20.9
## 2 LeBron James          2 0.472 0.504 0.75    7.4   7.2   2.2   0.7   3.3
27.2
## 3 LeBron James          3 0.48  0.515 0.738   7     6.6   1.6   0.8   3.3
31.4
## 4 LeBron James          4 0.476 0.507 0.698   6.7   6     1.6   0.7   3.2
27.3
```

```
## 5 LeBron James          5 0.484 0.518 0.712   7.9   7.2   1.8   1.1   3.4
30
## 6 LeBron James          6 0.489 0.53  0.78    7.6   7.2   1.7   1.1   3
28.4

#Made a column that kept track of what season it was in their career,
numerically

#Jordan messed everything up by playing baseball
#He should have just stuck to basketball
#Had to find a way to filter out the seasons he retired and played in the
minors
Jordan_f <- Jordan %>%
  filter(str_detect(Season, "-")) %>%
  mutate(season_num = row_number()) %>%
  mutate(Player = "Michael Jordan")%>%
  mutate(TRB = as.double(TRB), AST = as.double(AST),
         PTS = as.double(PTS)) %>%
  select(Player, season_num, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV,
PTS)%>%
  rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')%>%
  filter(!is.na(TRB))%>%
  mutate(season_num = row_number())%>%
  mutate(FGP = as.double(FGP), eFGP = as.double(eFGP), FTP = as.double(FTP),
TRB = as.double(TRB), AST = as.double(AST),
         STL = as.double(STL), BLK = as.double(BLK), TOV = as.double(TOV),
PTS = as.double(PTS))
head(Jordan_f)

## # A tibble: 6 x 11
##   Player        season_num   FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV
PTS
##   <chr>              <int> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 Michael Jord~          1 0.515 0.518 0.845   6.5   5.9   2.4   0.8   3.5
28.2
## 2 Michael Jord~          2 0.457 0.462 0.84    3.6   2.9   2.1   1.2   2.5
22.7
## 3 Michael Jord~          3 0.482 0.484 0.857   5.2   4.6   2.9   1.5   3.3
37.1
## 4 Michael Jord~          4 0.535 0.537 0.841   5.5   5.9   3.2   1.6   3.1
35
## 5 Michael Jord~          5 0.538 0.546 0.85    8     8     2.9   0.8   3.6
32.5
## 6 Michael Jord~          6 0.526 0.55  0.848   6.9   6.3   2.8   0.7   3
33.6

#Seasons
Kobe_f <- Kobe %>%
  filter(str_detect(Season, "-")) %>%
  mutate(season_num = row_number())%>%
```

```
  mutate(Player = "Kobe Bryant")%>%
  select(Player, season_num, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV,
PTS)%>%
  rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')
head(Kobe_f)
```

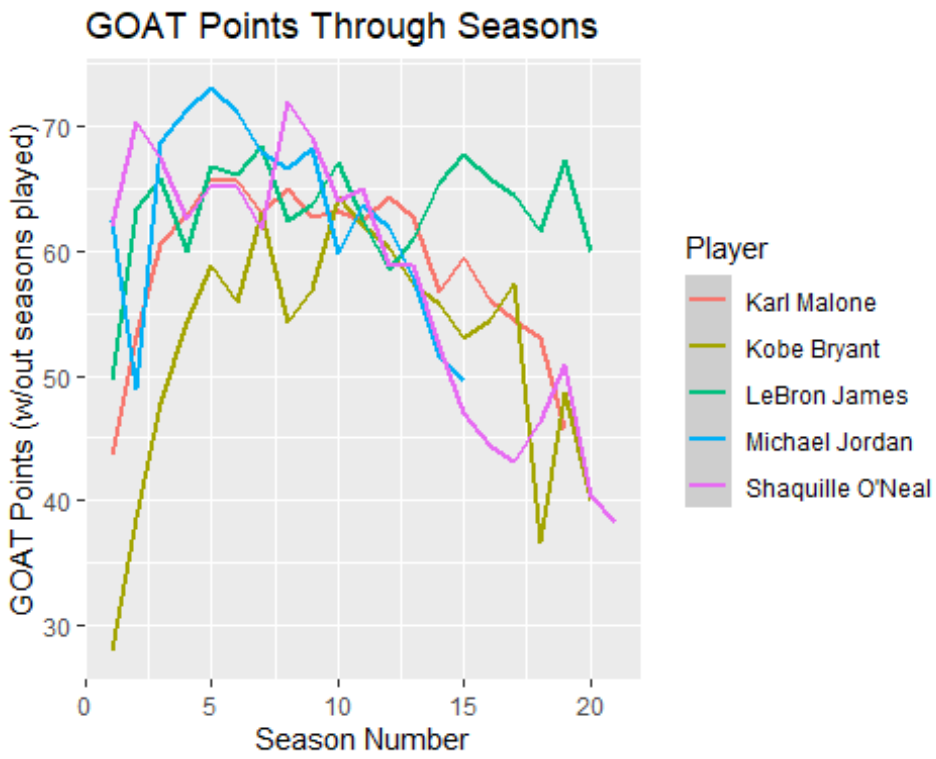
```
## # A tibble: 6 x 11
##   Player      season_num   FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV
PTS
##   <chr>            <int> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 Kobe Bryant          1 0.417 0.477 0.819   1.9   1.3   0.7   0.3   1.6
7.6
## 2 Kobe Bryant          2 0.428 0.469 0.794   3.1   2.5   0.9   0.5   2
15.4
## 3 Kobe Bryant          3 0.465 0.482 0.839   5.3   3.8   1.4   1     3.1
19.9
## 4 Kobe Bryant          4 0.468 0.488 0.821   6.3   4.9   1.6   0.9   2.8
22.5
## 5 Kobe Bryant          5 0.464 0.484 0.853   5.9   5     1.7   0.6   3.2
28.5
## 6 Kobe Bryant          6 0.469 0.479 0.829   5.5   5.5   1.5   0.4   2.8
25.2
```

```
#Seasons
Malone_f <- Malone %>%
  filter(str_detect(Season, "-")) %>%
  mutate(season_num = row_number())%>%
  mutate(Player = "Karl Malone")%>%
  select(Player, season_num, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV,
PTS)%>%
  rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')
head(Malone_f)
```

```
## # A tibble: 6 x 11
##   Player      season_num   FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV
PTS
##   <chr>            <int> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 Karl Malone          1 0.496 0.496 0.481   8.9   2.9   1.3   0.5   3.4
14.9
## 2 Karl Malone          2 0.512 0.512 0.598  10.4   1.9   1.3   0.7   2.9
21.7
## 3 Karl Malone          3 0.52  0.52  0.7    12     2.4   1.4   0.6   4
27.7
## 4 Karl Malone          4 0.519 0.521 0.766  10.7   2.7   1.8   0.9   3.6
29.1
## 5 Karl Malone          5 0.562 0.567 0.762  11.1   2.8   1.5   0.6   3.7
31
```

```
## 6 Karl Malone          6 0.527 0.528 0.77   11.8   3.3   1.1   1     3
29

#Seasons
Shaq_f <- Shaq %>%
  filter(str_detect(Season, "-")) %>%
  mutate(season_num = row_number())%>%
  mutate(Player = "Shaquille O'Neal")%>%
  select(Player, season_num, "FG%", "eFG%", "FT%", TRB, AST, STL, BLK, TOV,
PTS)%>%
  rename(FTP = `FT%`, eFGP = 'eFG%', FGP = 'FG%')
head(Shaq_f)

## # A tibble: 6 x 11
##   Player        season_num   FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV
PTS
##   <chr>              <int> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 Shaquille O'~          1 0.562 0.562 0.592  13.9   1.9   0.7   3.5   3.8
23.4
## 2 Shaquille O'~          2 0.599 0.599 0.554  13.2   2.4   0.9   2.9   2.7
29.3
## 3 Shaquille O'~          3 0.583 0.583 0.533  11.4   2.7   0.9   2.4   2.6
29.3
## 4 Shaquille O'~          4 0.573 0.574 0.487  11     2.9   0.6   2.1   2.9
26.6
## 5 Shaquille O'~          5 0.557 0.557 0.484  12.5   3.1   0.9   2.9   2.9
26.2
## 6 Shaquille O'~          6 0.584 0.584 0.527  11.4   2.4   0.7   2.4   2.9
28.3

#Combined all the season statistics into one table in order to graph over
their careers
by_season <- rbind(Lebron_f, Jordan_f, Kobe_f, Malone_f, Shaq_f)
head(by_season)

## # A tibble: 6 x 11
##   Player       season_num   FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV
PTS
##   <chr>             <int> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
## 1 LeBron James          1 0.417 0.438 0.754   5.5   5.9   1.6   0.7   3.5
20.9
## 2 LeBron James          2 0.472 0.504 0.75    7.4   7.2   2.2   0.7   3.3
27.2
## 3 LeBron James          3 0.48  0.515 0.738   7     6.6   1.6   0.8   3.3
31.4
## 4 LeBron James          4 0.476 0.507 0.698   6.7   6     1.6   0.7   3.2
27.3
## 5 LeBron James          5 0.484 0.518 0.712   7.9   7.2   1.8   1.1   3.4
30
```

```
## 6 LeBron James          6 0.489 0.53  0.78    7.6   7.2   1.7   1.1   3
28.4

#Created the same function as before but this time excluded seasons played
Goat_Function2 <- function(x){
  by_season%>%
    mutate(Goat_Points2 = (FGP*10 + eFGP*20 + FTP*5 + TRB*1.3 + AST*1.5 +
STL*1.3 + BLK*1.3 - TOV*2 + PTS))
}
by_season1 <- Goat_Function2(by_season)%>%
  arrange(desc(Goat_Points2))
head(by_season1,10)

## # A tibble: 10 x 12
##    Player       season_num   FGP  eFGP   FTP   TRB   AST   STL   BLK   TOV
PTS
##    <chr>             <int> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
<dbl>
##  1 Michael Jor~          5 0.538 0.546 0.85    8     8     2.9   0.8   3.6
32.5
##  2 Shaquille O~          8 0.574 0.574 0.524  13.6   3.8   0.5   3     2.8
29.7
##  3 Michael Jor~          4 0.535 0.537 0.841   5.5   5.9   3.2   1.6   3.1
35
##  4 Michael Jor~          6 0.526 0.55  0.848   6.9   6.3   2.8   0.7   3
33.6
##  5 Shaquille O~          2 0.599 0.599 0.554  13.2   2.4   0.9   2.9   2.7
29.3
##  6 Shaquille O~          9 0.572 0.572 0.513  12.7   3.7   0.6   2.8   2.9
28.7
##  7 Michael Jor~          3 0.482 0.484 0.857   5.2   4.6   2.9   1.5   3.3
37.1
##  8 LeBron James          7 0.503 0.545 0.767   7.3   8.6   1.6   1     3.4
29.7
##  9 Michael Jor~          9 0.495 0.515 0.837   6.7   5.5   2.8   0.8   2.7
32.6
## 10 Michael Jor~          7 0.539 0.547 0.851   6     5.5   2.7   1     2.5
31.5
## # ... with 1 more variable: Goat_Points2 <dbl>

ggplot(by_season1, aes(x = season_num, y=Goat_Points2, group=Player,
color=Player)) + geom_smooth(stat = "identity") + xlab("Season Number") +
ylab("GOAT Points (w/out seasons played)") +ggtitle("GOAT Points Through
Seasons")
```




```
#This graph shows us a lot more than the bar graph
#Jordan clearly had the best season of all in his 5th year
#Shaq was better than people give him credit for almost reaching Jordan's top
season twice
#Kobe can be considered overrated
#Lebron has been the most consistent out of all
#While every other player declined by their 15th season he was at his best
#Solidifies the fact that Lebron is the greatest of all time since he has
been the most consistent while all others digressed
```