Proj2 Untidy Data

2023-03-04

Introduction:

For our week 5 discussion, we were to come forward with datasets exemplifying "untidy" data. Project 2 requires us to take 3 of the peer posted examples from Week 5, tidy the data, and then perform the analysis requested.

This portion will be focusing on NBA Rankings posted by Jacob.

- NBA Rankings
  https://nbarankings.theringer.com/
  Classmate: Jacob Silver

```
nbaRankings <- read_csv("https://raw.githubusercontent.com/d-ev-craig/DATA607/main/Projects/Project2%20
```

```
## Rows: 400 Columns: 5
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr (5): 1, 2, 3, 4, 5
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
nbaRankings
```

```
## # A tibble: 400 x 5
##    `1`                  `2`                      `3`              `4`   `5`
##    <chr>                <chr>                    <chr>            <chr> <chr>
##  1 Nikola Jokic         Team: DEN                Position: BIG    Age:~ Poin~
##  2 <NA>                 Field goals made: 9.3    Field goal perce~ 3-po~ 3-po~
##  3 <NA>                 Free throw attempts: 6.1 Free throw perce~ Offe~ Defe~
##  4 <NA>                 Assists: 10.0            Turnovers: 3.6    Stea~ Bloc~
##  5 Giannis Antetokounmpo Team: MIL               Position: BIG    Age:~ Poin~
##  6 <NA>                 Field goals made: 11.1   Field goal perce~ 3-po~ 3-po~
##  7 <NA>                 Free throw attempts: 12.7 Free throw perce~ Offe~ Defe~
##  8 <NA>                 Assists: 5.4             Turnovers: 3.9    Stea~ Bloc~
##  9 Luka Doncic          Team: DAL                Position: GUARD  Age:~ Poin~
## 10 <NA>                 Field goals made: 11.2   Field goal perce~ 3-po~ 3-po~
## # ... with 390 more rows
```

Below we are going to create the columns that we need with the value the column is interested in within the rows. My idea is that as long as each column has at least one record within it that corresponds to its correct variable value, we can filter rows using string recognition. Once I filter those rows, I can create a new column and start cbinding all my columns together.

```
nbaRankings <- nbaRankings %>% mutate(team=nbaRankings$`2`)%>% mutate(fieldGoalsMade=nbaRankings$`2`)%>%

nbaRankings <- nbaRankings %>% mutate(position=nbaRankings$`3`)%>% mutate(fieldGoalPercentage=nbaRankin

nbaRankings <- nbaRankings %>% mutate(age=nbaRankings$`4`)%>% mutate(threePtrsMade=nbaRankings$`4`)%>% r

nbaRankings <- nbaRankings %>% mutate(points=nbaRankings$`5`)%>% mutate(threePtrPercentage=nbaRankings$

nbaRankings <- nbaRankings[,-(2:5)]
colnames(nbaRankings)[1] <- 'playerName'
```

```
nbaRankings
```

```
## # A tibble: 400 x 17
##    playerN~1 team  field~2 freeT~3 assists posit~4 field~5 freeT~6 turno~7 age
##    <chr>     <chr> <chr>   <chr>   <chr>   <chr>   <chr>   <chr>   <chr>   <chr>
##  1 Nikola J~ Team~ Team: ~ Team: ~ Team: ~ Positi~ Positi~ Positi~ Positi~ Age:~
##  2 <NA>      Fiel~ Field ~ Field ~ Field ~ Field ~ Field ~ Field ~ Field ~ 3-po~
##  3 <NA>      Free~ Free t~ Free t~ Free t~ Free t~ Free t~ Free t~ Free t~ Offe~
##  4 <NA>      Assi~ Assist~ Assist~ Assist~ Turnov~ Turnov~ Turnov~ Turnov~ Stea~
##  5 Giannis ~ Team~ Team: ~ Team: ~ Team: ~ Positi~ Positi~ Positi~ Positi~ Age:~
##  6 <NA>      Fiel~ Field ~ Field ~ Field ~ Field ~ Field ~ Field ~ Field ~ 3-po~
##  7 <NA>      Free~ Free t~ Free t~ Free t~ Free t~ Free t~ Free t~ Free t~ Offe~
##  8 <NA>      Assi~ Assist~ Assist~ Assist~ Turnov~ Turnov~ Turnov~ Turnov~ Stea~
##  9 Luka Don~ Team~ Team: ~ Team: ~ Team: ~ Positi~ Positi~ Positi~ Positi~ Age:~
## 10 <NA>      Fiel~ Field ~ Field ~ Field ~ Field ~ Field ~ Field ~ Field ~ 3-po~
## # ... with 390 more rows, 7 more variables: threePtrsMade <chr>,
## #   offRebounds <chr>, steals <chr>, points <chr>, threePtrPercentage <chr>,
## #   defRebounds <chr>, blocks <chr>, and abbreviated variable names
## #   1: playerName, 2: fieldGoalsMade, 3: freeThrowAttempts, 4: position,
## #   5: fieldGoalPercentage, 6: freeThrowPercentage, 7: turnovers
```

```
#Player Name and Team
playerTeam <- nbaRankings %>% filter(str_detect(nbaRankings$team, '^Team:')) %>% select(playerName,team
playerTeam$team <- gsub('Team: ','',playerTeam$team) #clean up the string


#Field Goals Made
fGM <- nbaRankings %>% filter(str_detect(nbaRankings$fieldGoalsMade, '^Field goals made: ')) %>% select
fGM$fieldGoalsMade <- gsub('Field goals made: ','',fGM$fieldGoalsMade) #clean up the string

playerTeam <- cbind(playerTeam,fGM$fieldGoalsMade) #add our new column
colnames(playerTeam)[3] <- 'fieldGoalsMade' #ensure the name is what we want

# Repeat

#freeThrowAttempts
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$freeThrowAttempts, '^Free throw attempts: ')) %>% s
fTA$freeThrowAttempts <- gsub('^Free throw attempts: ','',fTA$freeThrowAttempts)

playerTeam <- cbind(playerTeam,fTA$freeThrowAttempts)
colnames(playerTeam)[4] <- 'freeThrowAttempts'
```

```
#assists
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$assists, '^Assists: ')) %>% select(assists)
fTA$assists <- gsub('^Assists: ','',fTA$assists)

playerTeam <- cbind(playerTeam,fTA$assists)
colnames(playerTeam)[5] <- 'assists'

#position
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$position, '^Position: ')) %>% select(position)
fTA$position <- gsub('^Position: ','',fTA$position)

playerTeam <- cbind(playerTeam,fTA$position)
colnames(playerTeam)[6] <- 'position'

#fieldGoalPercentage
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$fieldGoalPercentage, '^Field goal percentage: ')) %
fTA$fieldGoalPercentage <- gsub('^Field goal percentage: ','',fTA$fieldGoalPercentage)

playerTeam <- cbind(playerTeam,fTA$fieldGoalPercentage)
colnames(playerTeam)[7] <- 'fieldGoalPercentage'


#freeThrowPercentage
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$freeThrowPercentage, '^Free throw percentage: ')) %
fTA$freeThrowPercentage <- gsub('^Free throw percentage: ','',fTA$freeThrowPercentage)

playerTeam <- cbind(playerTeam,fTA$freeThrowPercentage)
colnames(playerTeam)[8] <- 'freeThrowPercentage'

#turnovers
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$turnovers, '^Turnovers: ')) %>% select(turnovers)
fTA$turnovers <- gsub('^Turnovers: ','',fTA$turnovers)

playerTeam <- cbind(playerTeam,fTA$turnovers)
colnames(playerTeam)[9] <- 'turnovers'

#age
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$age, '^Age: ')) %>% select(age)
fTA$age <- gsub('^Age: ','',fTA$age)

playerTeam <- cbind(playerTeam,fTA$age)
colnames(playerTeam)[10] <- 'age'


#threePtrsMade
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$threePtrsMade, '^3-pointers made: ')) %>% select(tl
fTA$threePtrsMade <- gsub('^3-pointers made: ','',fTA$threePtrsMade)

playerTeam <- cbind(playerTeam,fTA$threePtrsMade)
colnames(playerTeam)[11] <- 'threePtrsMade'

#offRebounds
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$offRebounds, '^Offensive rebounds: ')) %>% select(
```

```
fTA$offRebounds <- gsub('^Offensive rebounds: ','',fTA$offRebounds)

playerTeam <- cbind(playerTeam,fTA$offRebounds)
colnames(playerTeam)[12] <- 'offRebounds'

#steals
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$steals, '^Steals: ')) %>% select(steals)
fTA$steals <- gsub('^Steals: ','',fTA$steals)

playerTeam <- cbind(playerTeam,fTA$steals)
colnames(playerTeam)[13] <- 'steals'

#points
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$points, '^Points: ')) %>% select(points)
fTA$points <- gsub('^Points: ','',fTA$points)

playerTeam <- cbind(playerTeam,fTA$points)
colnames(playerTeam)[14] <- 'points'

#threePtrPercentage
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$threePtrPercentage, '^3-pointer percentage: ')) %>%
fTA$threePtrPercentage <- gsub('^3-pointer percentage: ','',fTA$threePtrPercentage)

playerTeam <- cbind(playerTeam,fTA$threePtrPercentage)
colnames(playerTeam)[15] <- 'threePtrPercentage'

#defRebounds
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$defRebounds, '^Defensive rebounds: ')) %>% select(
fTA$defRebounds <- gsub('^Defensive rebounds: ','',fTA$defRebounds)

playerTeam <- cbind(playerTeam,fTA$defRebounds)
colnames(playerTeam)[16] <- 'defRebounds'

#blocks
fTA <- nbaRankings %>% filter(str_detect(nbaRankings$blocks, '^Blocks: ')) %>% select(blocks)
fTA$blocks <- gsub('^Blocks: ','',fTA$blocks)

playerTeam <- cbind(playerTeam,fTA$blocks)
colnames(playerTeam)[17] <- 'blocks'

#Final
playerTeam
```

```
##                 playerName team fieldGoalsMade freeThrowAttempts assists
## 1             Nikola Jokic  DEN            9.3               6.1    10.0
## 2    Giannis Antetokounmpo  MIL           11.1              12.7     5.4
## 3              Luka Doncic  DAL           11.2              11.1     8.2
## 4            Stephen Curry  GSW            9.8               5.4     6.4
## 5             Kevin Durant  PHX           10.5               7.3     5.3
## 6              Joel Embiid  PHI           11.0              11.8     4.1
## 7             Jayson Tatum  BOS            9.9               8.5     4.6
## 8             LeBron James  LAL           11.3               6.3     7.0
## 9            Kawhi Leonard  LAC            8.3               5.0     4.0
```

10	Shai Gilgeous-Alexander	OKC	10.2	10.6	5.7
11	Devin Booker	PHX	9.5	6.2	5.6
12	Damian Lillard	POR	9.5	9.1	7.3
13	Donovan Mitchell	CLE	9.4	5.3	4.8
14	Ja Morant	MEM	9.6	8.4	8.1
15	Zion Williamson	NOP	9.8	8.6	4.6
16	Anthony Davis	LAL	9.6	7.3	2.5
17	Jimmy Butler	MIA	7.2	8.2	5.0
18	Paul George	LAC	8.1	4.9	5.2
19	Tyrese Haliburton	IND	7.1	3.1	10.2
20	James Harden	PHI	6.6	6.5	10.7
21	Pascal Siakam	TOR	9.1	7.6	6.1
22	Jaylen Brown	BOS	9.9	5.5	3.2
23	Domantas Sabonis	SAC	7.1	5.5	6.9
24	Kyrie Irving	DAL	9.9	4.5	5.4
25	Bam Adebayo	MIA	8.5	5.5	3.3
26	Trae Young	ATL	8.4	8.8	10.2
27	De'Aaron Fox	SAC	9.4	6.2	6.2
28	Anthony Edwards	MIN	9.0	5.5	4.5
29	Darius Garland	CLE	7.6	4.9	7.8
30	Lauri Markkanen	UTA	8.5	5.8	1.8
31	DeMar DeRozan	CHI	9.1	7.4	5.1
32	Jrue Holiday	MIL	7.4	2.7	7.1
33	Julius Randle	NYK	8.5	6.9	4.1
34	Brandon Ingram	NOP	8.2	5.4	4.7
35	Jaren Jackson Jr.	MEM	5.9	4.2	0.9
36	Desmond Bane	MEM	7.5	3.6	4.1
37	Karl-Anthony Towns	MIN	7.3	5.0	5.3
38	Jarrett Allen	CLE	6.1	3.4	1.7
39	Evan Mobley	CLE	6.5	3.7	2.6
40	Jalen Brunson	NYK	8.5	5.8	6.2
41	Khris Middleton	MIL	4.8	2.6	4.0
42	Draymond Green	GSW	3.2	1.5	6.8
43	Jamal Murray	DEN	7.2	3.6	5.8
44	Chris Paul	PHX	4.8	3.2	9.0
45	LaMelo Ball	CHA	8.3	3.4	8.5
46	Andrew Wiggins	GSW	6.8	1.9	2.3
47	Klay Thompson	GSW	7.8	2.1	2.4
48	Rudy Gobert	MIN	5.1	4.6	0.9
49	Mikal Bridges	BKN	6.4	3.2	3.5
50	O.G. Anunoby	TOR	6.1	2.9	2.0
51	Dejounte Murray	ATL	8.4	2.5	6.1
52	Aaron Gordon	DEN	6.6	5.0	2.9
53	Jerami Grant	POR	7.1	5.3	2.3
54	Bradley Beal	WAS	8.7	4.4	5.2
55	Robert Williams III	BOS	4.0	0.9	1.6
56	Brook Lopez	MIL	5.6	2.1	1.2
57	Zach LaVine	CHI	8.4	5.5	4.0
58	Kristaps Porzingis	WAS	7.4	7.0	2.5
59	Nic Claxton	BKN	5.5	3.3	1.7
60	Myles Turner	IND	6.5	4.4	1.3
61	Anfernee Simons	POR	7.6	2.9	4.2
62	Marcus Smart	BOS	4.0	1.8	7.0
63	Michael Porter Jr.	DEN	6.1	1.9	1.0

```
## 64             Franz Wagner  ORL           6.9              4.2     3.5
## 65              CJ McCollum  NOP           7.9              3.1     5.9
## 66              Tyler Herro  MIA           7.5              2.9     4.4
## 67            Fred VanVleet  TOR           6.4              4.3     6.6
## 68          Bojan Bogdanovic  DET           7.2              5.2     2.6
## 69             Deandre Ayton  PHX           8.1              3.1     2.0
## 70            Paolo Banchero  ORL           6.4              7.5     3.6
## 71            Kevin Huerter  SAC           5.4              1.8     2.9
## 72                Al Horford  BOS           3.5              0.4     2.7
## 73            Scottie Barnes  TOR           6.0              3.4     4.8
## 74           Malcolm Brogdon  BOS           5.1              2.7     3.7
## 75                Kyle Kuzma  WAS           8.1              3.6     3.9
## 76            Devin Vassell  SAS           7.1              3.0     3.6
## 77              Mike Conley  MIN           3.5              2.1     7.5
## 78        Wendell Carter Jr.  ORL           5.6              3.7     2.6
## 79            Keldon Johnson  SAS           7.8              5.3     2.8
## 80              Tyrese Maxey  PHI           7.0              3.9     3.6
## 81              Josh Giddey  OKC           7.0              1.6     5.8
## 82          Cade Cunningham  DET           7.8              3.6     6.0
## 83         Spencer Dinwiddie  BKN           5.8              4.0     5.3
## 84            Christian Wood  DAL           6.4              4.2     1.7
## 85              Clint Capela  ATL           5.5              1.8     0.8
## 86              Ivica Zubac  LAC           4.0              3.1     1.1
## 87              Alex Caruso  CHI           1.9              1.2     3.2
## 88            Kevon Looney  GSW           2.9              1.8     2.5
## 89            Derrick White  BOS           4.1              2.2     3.8
## 90            Norman Powell  LAC           5.7              4.6     1.8
## 91          Jordan Clarkson  UTA           7.5              4.0     4.3
## 92           Alperen Sengun  HOU           5.9              4.0     3.7
## 93            Tobias Harris  PHI           6.1              1.6     2.5
## 94          Cameron Johnson  BKN           4.8              2.0     1.6
## 95                RJ Barrett  NYK           6.9              5.3     2.8
## 96            Nikola Vucevic  CHI           7.3              1.9     3.3
## 97              Jakob Poeltl  TOR           5.3              2.9     3.0
## 98          Jaden McDaniels  MIN           4.5              1.7     2.0
## 99            Dillon Brooks  MEM           5.5              2.3     2.5
## 100            Nicolas Batum  LAC           2.1              0.7     1.5
##     position fieldGoalPercentage freeThrowPercentage turnovers age
## 1        BIG                63.2                82.6       3.6  28
## 2        BIG                53.8                64.6       3.9  28
## 3      GUARD                50.5                73.4       3.6  23
## 4      GUARD                49.5                92.2       3.2  34
## 5    FORWARD                55.9                93.4       3.5  34
## 6        BIG                53.1                85.8       3.5  28
## 7    FORWARD                46.1                86.4       2.9  24
## 8    FORWARD                50.3                76.0       3.1  38
## 9    FORWARD                50.6                87.4       1.5  31
## 10     GUARD                50.7                90.8       2.9  24
## 11     GUARD                47.4                85.3       2.5  26
## 12     GUARD                46.7                91.6       3.2  32
## 13     GUARD                47.6                87.6       2.7  26
## 14     GUARD                46.3                74.1       3.5  23
## 15       BIG                60.8                71.4       3.4  22
## 16       BIG                56.2                81.7       2.1  29
```

```
## 17   FORWARD             51.5             84.7      1.7  33
## 18   FORWARD             46.1             86.9      3.3  32
## 19     GUARD             48.2             86.5      2.6  22
## 20     GUARD             45.2             86.4      3.4  33
## 21   FORWARD             48.0             76.7      2.5  28
## 22     GUARD             48.6             77.7      3.1  26
## 23       BIG             61.0             77.1      2.9  26
## 24     GUARD             49.2             89.6      2.3  30
## 25       BIG             54.0             79.9      2.5  25
## 26     GUARD             42.8             88.7      4.1  24
## 27     GUARD             51.4             79.0      2.7  25
## 28   FORWARD             46.3             77.9      3.4  21
## 29     GUARD             46.7             86.6      2.9  23
## 30       BIG             51.4             88.3      1.9  25
## 31   FORWARD             50.6             88.2      2.2  33
## 32     GUARD             46.5             86.3      3.0  32
## 33   FORWARD             46.4             76.0      2.8  28
## 34   FORWARD             46.0             87.9      3.3  25
## 35       BIG             49.3             78.7      1.5  23
## 36     GUARD             46.3             90.4      2.2  24
## 37       BIG             50.5             88.5      3.1  27
## 38       BIG             65.1             72.9      1.5  24
## 39       BIG             55.3             69.9      2.0  21
## 40     GUARD             48.0             83.7      2.0  26
## 41   FORWARD             42.4             93.5      2.0  31
## 42       BIG             51.7             70.0      2.6  32
## 43     GUARD             45.3             83.0      2.1  26
## 44     GUARD             43.0             82.0      2.0  37
## 45     GUARD             40.7             85.0      3.5  21
## 46   FORWARD             47.3             61.1      1.3  28
## 47     GUARD             42.6             89.0      1.7  33
## 48       BIG             67.9             67.1      1.7  30
## 49   FORWARD             46.7             89.6      1.5  26
## 50   FORWARD             45.4             82.5      2.2  25
## 51     GUARD             46.5             83.7      2.3  26
## 52   FORWARD             58.7             62.3      1.6  27
## 53   FORWARD             48.4             80.6      1.8  28
## 54     GUARD             51.8             85.7      2.8  29
## 55       BIG             75.0             65.2      0.9  25
## 56       BIG             50.9             77.4      1.4  34
## 57     GUARD             46.9             83.8      2.6  27
## 58       BIG             48.7             84.6      2.2  27
## 59       BIG             71.7             50.6      1.3  23
## 60       BIG             54.5             78.7      1.7  26
## 61     GUARD             45.0             91.3      2.2  23
## 62     GUARD             42.4             76.9      2.4  28
## 63   FORWARD             47.4             79.8      1.1  24
## 64   FORWARD             48.6             83.3      2.1  21
## 65     GUARD             43.4             79.2      2.6  31
## 66     GUARD             43.5             92.0      2.4  23
## 67     GUARD             39.4             89.3      1.9  29
## 68   FORWARD             48.7             88.3      2.3  33
## 69       BIG             59.3             73.9      1.9  24
## 70   FORWARD             41.8             75.2      2.7  20
```

```
## 71     GUARD               47.9               69.9       1.4  24
## 72       BIG               47.0               72.2       0.6  36
## 73   FORWARD               45.4               77.0       2.1  21
## 74     GUARD               48.6               88.7       1.6  30
## 75   FORWARD               45.1               71.9       3.0  27
## 76     GUARD               44.5               79.3       1.6  22
## 77     GUARD               40.6               81.2       1.7  35
## 78       BIG               51.7               73.9       2.2  23
## 79   FORWARD               44.6               77.4       2.1  23
## 80     GUARD               45.1               81.3       1.4  22
## 81     GUARD               48.0               77.5       3.0  20
## 82     GUARD               41.5               83.7       3.3  21
## 83     GUARD               44.8               82.5       1.7  29
## 84       BIG               52.6               76.3       1.9  27
## 85       BIG               62.9               61.3       0.8  28
## 86       BIG               61.7               69.9       1.7  25
## 87     GUARD               44.5               79.3       1.3  28
## 88       BIG               65.9               61.0       0.5  27
## 89     GUARD               45.7               85.9       1.1  28
## 90     GUARD               48.5               80.8       1.7  29
## 91     GUARD               44.5               81.9       3.1  30
## 92       BIG               55.5               75.3       2.5  20
## 93   FORWARD               49.9               85.6       1.3  30
## 94   FORWARD               45.3               79.1       0.5  26
## 95     GUARD               43.1               75.2       2.3  22
## 96       BIG               51.6               81.9       1.7  32
## 97       BIG               62.9               57.7       2.0  27
## 98   FORWARD               51.6               73.3       1.4  22
## 99   FORWARD               39.2               79.5       1.5  27
## 100  FORWARD               41.5               65.9       0.7  34
##     threePtrsMade offRebounds steals points threePtrPercentage defRebounds
## 1             0.8        2.2    1.3   24.5               40.2        9.4
## 2             0.8        2.3    0.8   31.3               27.0        9.7
## 3             2.7        0.9    1.5   33.2               34.7        7.9
## 4             4.9        0.6    1.0   29.4               42.7        5.8
## 5             1.8        0.4    0.8   29.7               37.6        6.4
## 6             1.1        1.8    1.1   33.1               34.0        8.6
## 7             3.3        1.1    1.0   30.4               35.5        7.6
## 8             2.2        1.2    0.9   29.6               31.0        7.3
## 9             1.8        1.2    1.4   22.7               39.6        4.9
## 10            0.9        0.9    1.6   31.0               33.8        3.9
## 11            2.2        0.8    0.9   26.5               35.1        3.8
## 12            4.2        0.6    0.8   31.4               37.2        3.7
## 13            3.6        0.9    1.5   27.0               38.2        3.1
## 14            1.6        1.1    1.1   27.0               31.7        4.8
## 15            0.2        2.0    1.1   26.0               36.8        5.0
## 16            0.4        3.3    1.1   25.6               25.0        9.1
## 17            0.5        2.2    1.9   21.9               31.2        3.7
## 18            3.0        0.7    1.4   23.5               38.8        5.5
## 19            2.9        0.6    1.7   19.8               39.9        3.0
## 20            2.9        0.5    1.2   21.6               39.3        5.7
## 21            1.4        1.8    0.8   25.3               34.1        5.9
## 22            2.5        1.3    1.1   26.5               33.6        5.8
## 23            0.4        3.0    0.9   18.8               33.8        9.3
```

```
## 24          3.3         1.0    1.0   27.1          38.2         4.0
## 25          0.0         2.6    1.2   21.4           8.3         7.2
## 26          2.2         0.7    1.0   26.9          32.9         2.2
## 27          1.6         0.5    1.1   25.3          33.2         3.8
## 28          2.7         0.6    1.6   25.0          36.5         5.3
## 29          2.5         0.4    1.3   22.0          41.7         2.2
## 30          3.0         1.8    0.6   25.2          40.9         6.7
## 31          0.5         0.4    1.0   25.2          30.7         4.2
## 32          2.4         1.3    1.3   19.5          38.2         4.0
## 33          2.8         2.1    0.7   25.1          34.5         8.5
## 34          1.7         0.4    0.7   22.8          41.3         4.6
## 35          1.5         1.7    1.1   16.7          34.8         5.0
## 36          3.0         0.7    1.0   21.3          41.6         4.2
## 37          1.8         1.7    0.8   20.8          32.5         6.5
## 38          0.0         3.2    0.8   14.7          12.5         6.7
## 39          0.3         2.3    0.8   15.9          21.1         6.5
## 40          1.9         0.6    0.9   23.7          40.7         3.0
## 41          1.4         0.6    0.7   13.5          29.9         3.2
## 42          0.6         0.9    1.0    8.1          33.0         6.5
## 43          2.4         0.8    1.0   19.9          38.8         3.3
## 44          1.6         0.4    1.6   13.7          37.6         3.8
## 45          3.9         1.2    1.3   23.4          36.7         5.2
## 46          2.4         1.6    1.2   17.1          39.6         3.4
## 47          4.4         0.7    0.7   21.9          40.8         3.2
## 48          0.0         3.2    0.8   13.4           0.0         8.4
## 49          1.9         1.1    1.2   17.6          39.6         3.4
## 50          1.9         1.5    2.0   16.6          35.5         4.0
## 51          2.0         0.7    1.5   20.8          36.2         4.9
## 52          1.0         2.4    0.8   17.3          39.7         4.4
## 53          2.3         0.9    0.8   20.8          40.6         3.5
## 54          1.7         0.8    0.9   22.9          37.2         2.7
## 55          0.0         3.2    0.5    8.5           0.0         5.5
## 56          1.8         2.0    0.5   14.6          37.5         4.6
## 57          2.8         0.5    1.0   24.1          37.3         4.4
## 58          2.1         1.9    0.9   22.8          37.6         6.7
## 59          0.0         2.5    0.8   12.7           0.0         6.5
## 60          1.7         1.6    0.6   18.1          40.2         6.4
## 61          3.5         0.3    0.7   21.4          38.1         2.4
## 62          1.8         0.7    1.4   11.2          33.0         2.8
## 63          3.0         1.0    0.7   16.8          40.6         4.4
## 64          1.7         0.9    0.9   19.0          36.8         3.1
## 65          2.8         0.8    0.9   21.0          38.2         3.5
## 66          3.1         0.5    0.9   20.7          37.4         5.3
## 67          3.0         0.5    1.6   19.7          34.4         3.8
## 68          2.4         0.6    0.6   21.4          40.2         3.2
## 69          0.1         2.8    0.6   18.7          30.4         7.3
## 70          1.1         1.2    0.9   19.7          27.7         5.4
## 71          2.6         0.6    1.1   14.8          39.2         2.8
## 72          2.1         1.2    0.5    9.3          43.0         5.0
## 73          0.9         2.3    1.0   15.6          30.2         4.8
## 74          2.1         0.7    0.6   14.7          46.5         3.6
## 75          2.6         0.9    0.5   21.4          33.5         6.6
## 76          2.8         0.2    1.2   19.4          40.4         3.8
## 77          1.8         0.4    1.0   10.6          35.6         2.0
```

```
## 78           1.2        2.1    0.4   15.1              34.9        6.5
## 79           2.1        0.9    0.7   21.8              32.4        4.0
## 80           2.2        0.4    0.8   19.4              38.0        2.4
## 81           0.9        2.0    0.8   16.1              30.4        5.8
## 82           1.4        1.0    0.8   19.9              27.9        5.2
## 83           2.5        0.3    0.8   17.5              39.6        2.8
## 84           1.7        1.3    0.4   17.7              37.5        6.7
## 85           0.0        4.2    0.7   12.1               0.0        7.0
## 86           0.0        3.3    0.4   10.2               0.0        6.8
## 87           0.8        0.6    1.6    5.5              37.7        2.5
## 88           0.0        3.1    0.6    6.8               0.0        5.9
## 89           1.8        0.6    0.7   12.0              39.1        2.7
## 90           2.1        0.4    0.8   17.2              42.4        2.6
## 91           2.6        1.2    0.5   20.9              34.1        2.9
## 92           0.2        3.1    0.8   14.9              33.3        5.6
## 93           1.8        0.9    1.0   15.5              38.3        4.9
## 94           2.6        0.7    1.0   13.8              41.2        3.0
## 95           1.8        0.9    0.5   19.7              33.0        4.3
## 96           1.6        2.1    0.7   17.8              35.6        9.4
## 97           0.0        3.4    0.9   12.3               0.0        5.7
## 98           1.2        1.3    0.9   11.4              38.2        2.6
## 99           1.8        0.6    0.8   14.6              31.3        2.6
## 100          1.6        0.9    0.6    6.2              38.3        3.4
##     blocks
## 1      0.7
## 2      0.8
## 3      0.5
## 4      0.4
## 5      1.5
## 6      1.6
## 7      0.8
## 8      0.5
## 9      0.6
## 10     1.1
## 11     0.4
## 12     0.3
## 13     0.4
## 14     0.3
## 15     0.6
## 16     2.0
## 17     0.3
## 18     0.4
## 19     0.4
## 20     0.6
## 21     0.6
## 22     0.4
## 23     0.5
## 24     0.8
## 25     0.8
## 26     0.2
## 27     0.3
## 28     0.6
## 29     0.1
## 30     0.6
```

```
## 31     0.5
## 32     0.4
## 33     0.3
## 34     0.5
## 35     3.2
## 36     0.4
## 37     0.7
## 38     1.2
## 39     1.3
## 40     0.3
## 41     0.2
## 42     0.8
## 43     0.2
## 44     0.5
## 45     0.3
## 46     0.8
## 47     0.3
## 48     1.3
## 49     0.8
## 50     0.8
## 51     0.3
## 52     0.8
## 53     0.8
## 54     0.7
## 55     1.1
## 56     2.4
## 57     0.2
## 58     1.5
## 59     2.5
## 60     2.3
## 61     0.2
## 62     0.4
## 63     0.5
## 64     0.2
## 65     0.6
## 66     0.3
## 67     0.6
## 68     0.1
## 69     0.8
## 70     0.5
## 71     0.3
## 72     0.9
## 73     0.8
## 74     0.3
## 75     0.5
## 76     0.4
## 77     0.2
## 78     0.6
## 79     0.2
## 80     0.1
## 81     0.5
## 82     0.6
## 83     0.3
## 84     1.2
```

```
## 85     1.2
## 86     1.3
## 87     0.7
## 88     0.6
## 89     0.9
## 90     0.3
## 91     0.2
## 92     0.9
## 93     0.5
## 94     0.3
## 95     0.2
## 96     0.8
## 97     1.2
## 98     1.0
## 99     0.2
## 100    0.7
```

There were a few questions posed for analysis in this post. The following are the ones I chose. "Are the best teams those with the most players in the top 100 regardless of placement? Or is 'one guy' at the top of the mountain enough?"

I'm not sure which teams are the best but what I can do is show the number of times a team appears in a graph. With some contextual knowledge of which teams are the best, a reader could determine rough tendencies.

```
top100Members <- playerTeam %>% arrange(team) %>% count(team) %>% arrange(desc(n))
top100Members
```

```
##    team n
## 1   BOS 7
## 2   GSW 5
## 3   LAC 5
## 4   MIN 5
## 5   TOR 5
## 6   BKN 4
## 7   CHI 4
## 8   CLE 4
## 9   DEN 4
## 10  MEM 4
## 11  MIL 4
## 12  PHI 4
## 13  PHX 4
## 14  ATL 3
## 15  DAL 3
## 16  MIA 3
## 17  NOP 3
## 18  NYK 3
## 19  ORL 3
## 20  POR 3
## 21  SAC 3
## 22  WAS 3
## 23  DET 2
## 24  IND 2
## 25  LAL 2
```

```
## 26  OKC 2
## 27  SAS 2
## 28  UTA 2
## 29  CHA 1
## 30  HOU 1
```

So from the chart above we can see BOS, TOR, MIN, LAC, and GSW contain the most players in the top 100. If you go to https://www.teamrankings.com/nba/ and check their ratings we see the following:

Boston : Rank 1 : 7 members
Golden State: Rank 10 : 5 members
LA Clippers : Rank 17 : 5 members
Toronto : Rank 14 : 5 members
Minnesota : Rank 18 : 5 members

Some others:

Memphis : Rank 5 : 4 members Portland : Rank 23 : 3 members Houston : Rank 29 : 1 member