Which NBA Draft Class Is The Best?

By Jesse Krinetz

Why did I choose to answer this question?

- I have always loved the NBA
- Comparing different players and draft classes has always been a huge debate within the basketball community
- I have always defended certain draft classes and players without actually diving in deeper as to why or why not I should

What Makes A Draft Class The Best?

- **Player Statistics**
  - I will be looking specifically at 10 different player statistics for each draft class
  - PPG, APG, RPG, VORP, BPM, Win Shares Per 48, FG %, FT %, 3PT %, AVG Years Played
- **Longevity and Career Impact**
  - How long were these players in the league. Does the longest actually mean the best?
- **Awards**
  - MVPs, All-Stars, DPOY, Championships, FMVPs, All-NBA

- I will specifically only look at the Draft Classes from 1990-2012
  - 10+ years of eligible play when this data was found in the 2021-2022 Season
  - Only 1st Round Picks

Averages For Each Draft Class

DraftYr	avg_ppg	avg_rpg	avg_apg	avg_vorp	avg_bpm	avg_ws_per_48	avg_fg_pct	avg_ft_pct	avg_3p_pct	avg_yrs_play
1990	8.320000	3.823333	1.693333	5.186667	-2.1133333	0.06906667	0.4420333	0.7158667	0.2247333	8.400000
1991	7.817857	3.742857	1.850000	6.885714	-1.8785714	0.06996429	0.4500000	0.7164643	0.2113077	8.214286
1992	9.700000	4.270000	1.810000	9.936667	-0.8466667	0.08463333	0.4533667	0.7410667	0.2609667	10.400000
1993	8.575862	3.496552	1.831034	6.210345	-1.9586207	0.07182759	0.4342759	0.7172069	0.2485185	8.896552
1994	8.355172	3.658621	1.979310	8.831034	-1.5482759	0.07058621	0.4487241	0.7019655	0.2889286	9.344828
1995	8.156667	3.960000	1.590000	8.910000	-1.7600000	0.08260000	0.4417333	0.7230333	0.2334667	9.766667
1996	10.203333	4.240000	1.990000	13.746667	-1.1133333	0.08526667	0.4430000	0.7357241	0.2639000	10.533333
1997	8.317857	3.639286	1.800000	8.960714	-1.5392857	0.07364286	0.4332857	0.7207857	0.2358148	9.250000
1998	9.553333	3.936667	1.760000	10.086667	-1.4133333	0.07753333	0.4435333	0.7189333	0.2768621	10.300000
1999	8.948276	3.803448	2.124138	12.927586	-1.1689655	0.07813793	0.4201379	0.7517586	0.3040000	9.448276
2000	7.363333	3.580000	1.370000	2.290000	-2.4000000	0.06530000	0.4425333	0.7049000	0.2117241	9.000000
2001	8.103448	4.327586	1.637931	9.124138	-1.7344828	0.06617241	0.4389655	0.6820690	0.2671724	10.413793
2002	7.939286	3.407143	1.464286	3.853571	-2.1892857	0.05878571	0.4299286	0.7308571	0.2638929	7.678571
2003	9.213333	3.653333	1.973333	12.106667	-1.6900000	0.06690000	0.4414333	0.7377000	0.2596667	9.966667
2004	8.800000	4.160000	1.836667	9.233333	-1.3533333	0.07796667	0.4433667	0.7122667	0.2776667	10.233333
2005	8.831034	3.731034	1.896552	8.234483	-1.0379310	0.08779310	0.4536552	0.7472069	0.2879630	9.137931
2006	7.430000	3.033333	1.703333	5.906667	-1.8700000	0.06383333	0.4361667	0.7068333	0.2919630	7.600000
2007	9.320690	3.765517	1.717241	7.941379	-0.9689655	0.08734483	0.4586552	0.7542414	0.2893571	9.000000
2008	10.346667	4.420000	1.813333	8.983333	-0.6600000	0.09573333	0.4626333	0.7581667	0.2971000	10.333333
2009	10.526667	3.600000	2.973333	10.496667	-0.4866667	0.08483333	0.4408000	0.7522333	0.3230690	8.633333
2010	8.250000	3.903333	1.866667	5.896667	-1.3700000	0.07350000	0.4408333	0.7182000	0.2398966	7.900000
2011	10.896667	4.520000	2.006667	8.606667	-0.4300000	0.09463333	0.4551333	0.7457333	0.3156897	8.266667
2012	8.896667	3.866667	1.593333	5.070000	-2.0833333	0.07373333	0.4450333	0.6841379	0.3017200	6.666667

Process of Creating the Table Above:

```r
{r}
bball_data_specific <- bball_data %>%
  filter(DraftYr >= 1990 & DraftYr <= 2012) %>% # I only want to see players with at least 10+ years being able to play in the NBA. Does not mean they have to
  filter(Pk >= 1 & Pk <= 30) # Only looking at 1st Round Picks

bball_data_specific
```

```r
{r}



# Calculating averages for multiple statistics grouped by draft class
averages_per_class <- bball_data_specific %>%
  group_by(DraftYr) %>%
  summarize(
    avg_ppg = mean(PPG, na.rm = TRUE),
    avg_rpg = mean(RPG, na.rm = TRUE),
    avg_apg = mean(APG, na.rm = TRUE),
    avg_vorp = mean(VORP, na.rm = TRUE),
    avg_bpm = mean(BPM, na.rm = TRUE),
    avg_ws_per_48 = mean(WS.48, na.rm = TRUE),
    avg_fg_pct = mean(FG., na.rm = TRUE),
    avg_ft_pct = mean(FT., na.rm = TRUE),
    avg_3p_pct = mean(X3P., na.rm = TRUE),
    avg_yrs_play = mean(Yrs, na.rm = TRUE)
  )

view(averages_per_class)
```

- Read the Data Set into R
- Filtered Specific Years and Draft Picks
- Created the 10 different Player Statistics

4 Grouped Categories

- Advanced Metrics, Career Stats, Efficiency, Performance
- Easier to visually compare the numbers between each draft class

Awards

- Created my own data set on excel with each of the 6 awards I am looking at

NBA-Awards

Player	Draft Year	All-Star Selections	All-NBA Teams	DPOY	Championships	MVP	FINALS MVP
Derrick Coleman	1990	1	2	0	0	0	0
Gary Payton	1990	9	9	1	1	0	0
Mahmoud Abdul-Rauf	1990	0	0	0	0	0	0
Dennis Scott	1990	0	0	0	0	0	0
Kendall Gill	1990	0	0	0	0	0	0
Felton Spencer	1990	0	0	0	0	0	0
Lionel Simmons	1990	0	0	0	0	0	0
Bo Kimble	1990	0	0	0	0	0	0
Willie Burton	1990	0	0	0	0	0	0
Rumeal Robinson	1990	0	0	0	0	0	0
Tyrone Hill	1990	1	0	0	0	0	0
Alec Kessler	1990	0	0	0	0	0	0
Loy Vaught	1990	0	0	0	0	0	0
Travis Mays	1990	0	0	0	0	0	0
Dave Jamerson	1990	0	0	0	0	0	0
Terry Mills	1990	0	0	0	0	0	0

Merging the Data Sets

```
{r}

bball_merged <- left_join(bball_data_specific, bball_awards, by = "Player")
bball_merged
```

- First read the new data set into R
- Merged this with the other data set with players specifically from 1990-2012 Drafts in the 1st Round

Total Awards for Each Draft Class

```r
award_summary <- bball_merged %>%
  group_by(Draft.Year) %>%
  summarize(
    Total_All_Stars = sum(All.Star.Selections, na.rm = TRUE),
    Total_All_NBA = sum(All.NBA.Teams, na.rm = TRUE),
    Total_DPOY = sum(DPOY, na.rm = TRUE),
    Total_Championships = sum(Championships, na.rm = TRUE),
    Total_MVP = sum(MVP, na.rm = TRUE),
    Total_FMVP = sum(FINALS.MVP, na.rm = TRUE)
  ) %>%
  pivot_longer(
    cols = -Draft.Year,
    names_to = "Award",
    values_to = "Count"
  )

award_summary
```

Draft.Year <int>	Award <chr>	Count <int>
1990	Total_All_Stars	12
1990	Total_All_NBA	11
1990	Total_DPOY	1
1990	Total_Championships	7
1990	Total_MVP	0
1990	Total_FMVP	0
1991	Total_All_Stars	16
1991	Total_All_NBA	4
1991	Total_DPOY	4
1991	Total_Championships	9

This added up all the awards from each player in the same draft class for each specific award separately

Ranking Most to Least for Each Statistic

```
# Look at Highest to Lowest for Each Category
# All Star
highest_all_star <- award_summary %>%
  filter(Award == "Total_All_Stars") %>%
  arrange(desc(Count))

view(highest_all_star)
```

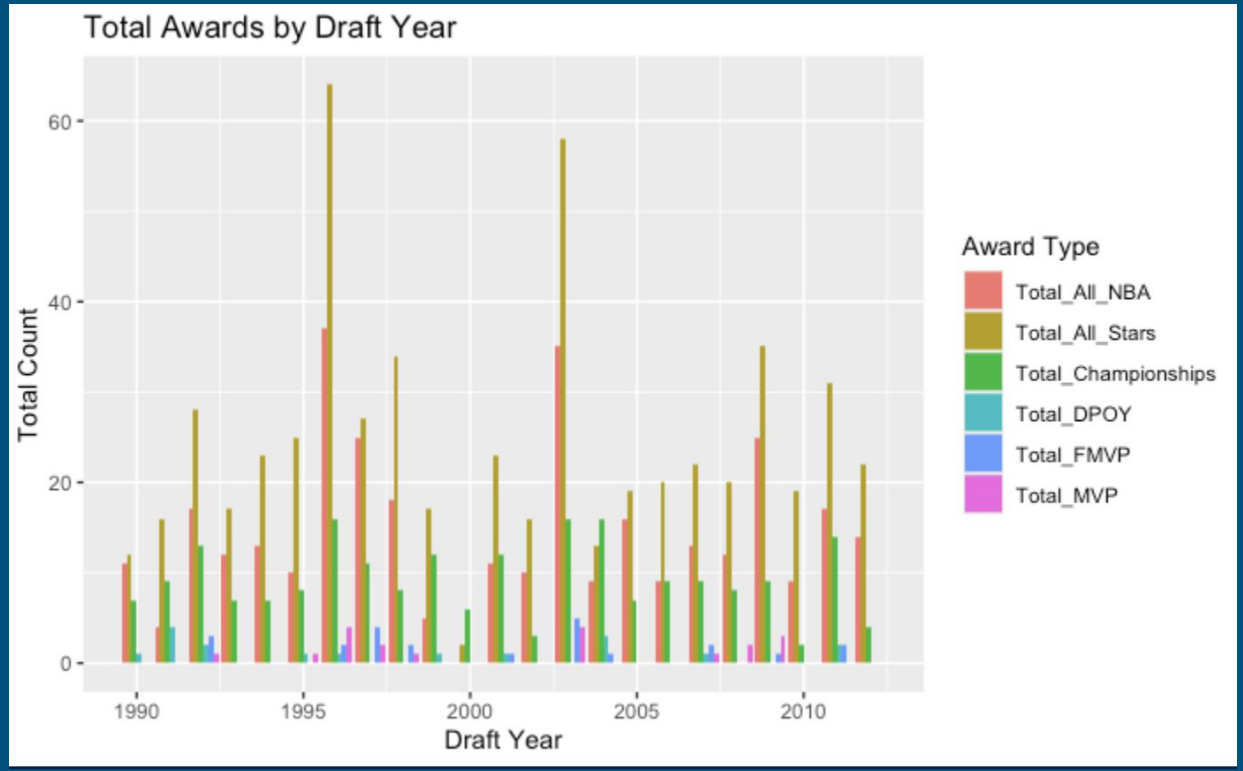
Championships:

Draft.Year	Award	Count
1996	Total_Championships	16
2003	Total_Championships	16
2004	Total_Championships	16
2011	Total_Championships	14
1992	Total_Championships	13
1999	Total_Championships	12
2001	Total_Championships	12
1997	Total_Championships	11
1991	Total_Championships	9
2006	Total_Championships	9
2007	Total_Championships	9
2009	Total_Championships	9
1995	Total_Championships	8
1998	Total_Championships	8
2008	Total_Championships	8
1990	Total_Championships	7
1993	Total_Championships	7
1994	Total_Championships	7
2005	Total_Championships	7
2000	Total_Championships	6
2012	Total_Championships	4
2002	Total_Championships	3
2010	Total_Championships	2

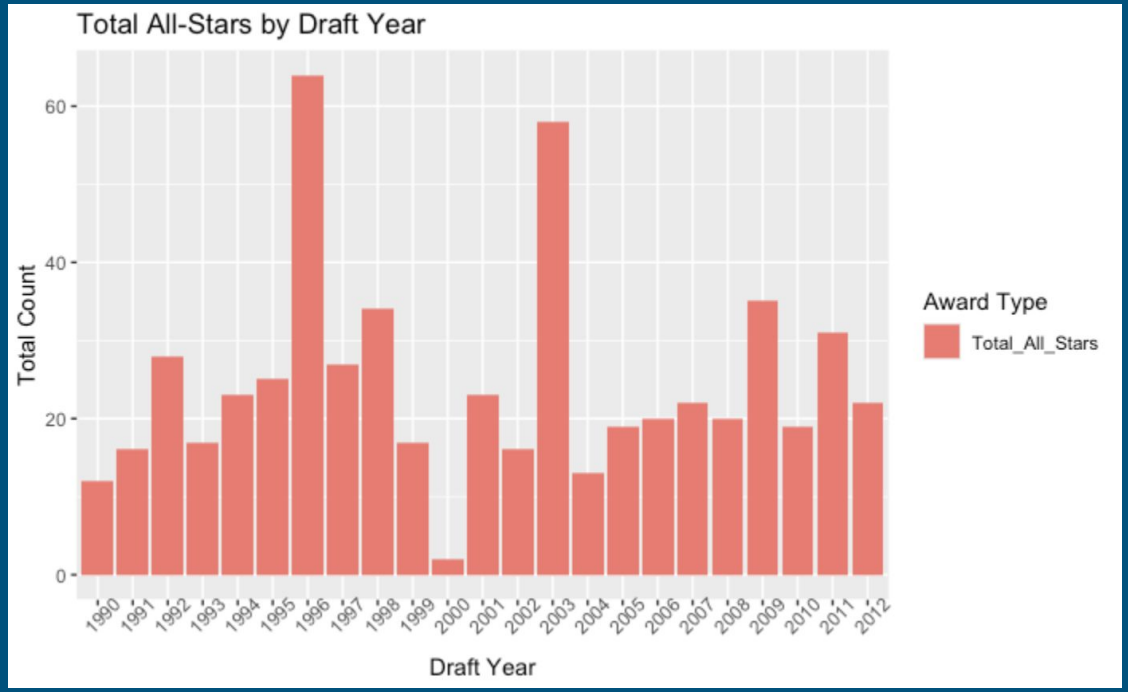
All-Stars:

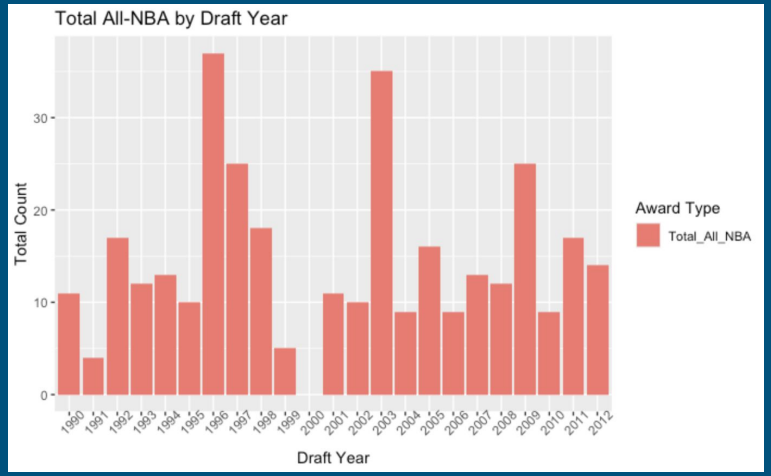
Draft.Year	Award	Count
1996	Total_All_Stars	64
2003	Total_All_Stars	58
2009	Total_All_Stars	35
1998	Total_All_Stars	34
2011	Total_All_Stars	31
1992	Total_All_Stars	28
1997	Total_All_Stars	27
1995	Total_All_Stars	25
1994	Total_All_Stars	23
2001	Total_All_Stars	23
2007	Total_All_Stars	22
2012	Total_All_Stars	22
2006	Total_All_Stars	20
2008	Total_All_Stars	20
2005	Total_All_Stars	19
2010	Total_All_Stars	19
1993	Total_All_Stars	17
1999	Total_All_Stars	17
1991	Total_All_Stars	16
2002	Total_All_Stars	16
2004	Total_All_Stars	13
1990	Total_All_Stars	12
2000	Total_All_Stars	2

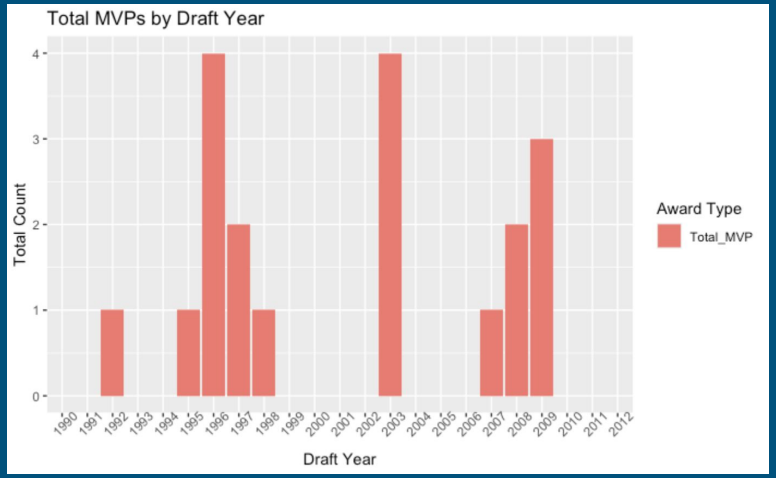
Graphing the Awards

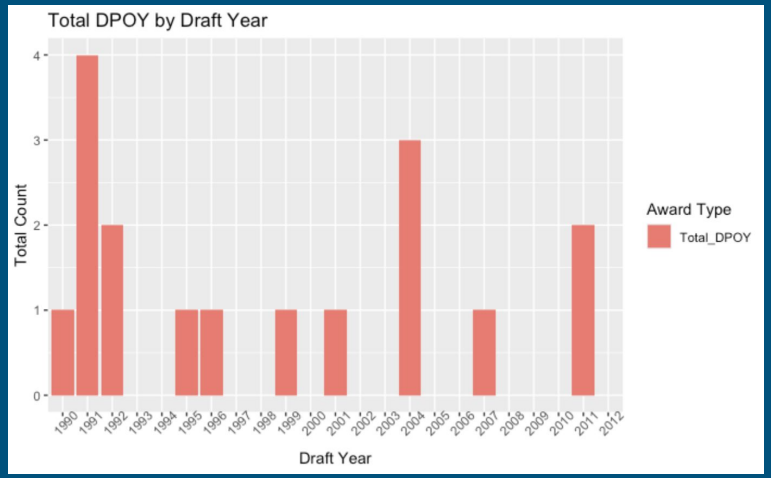


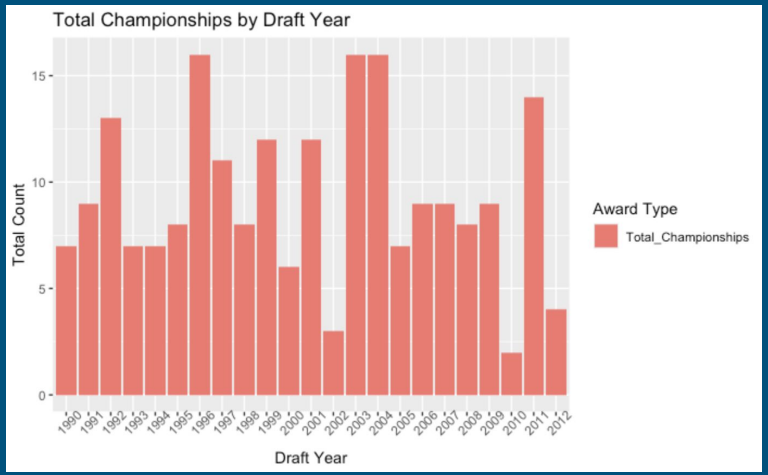
Graphing the Awards Individually



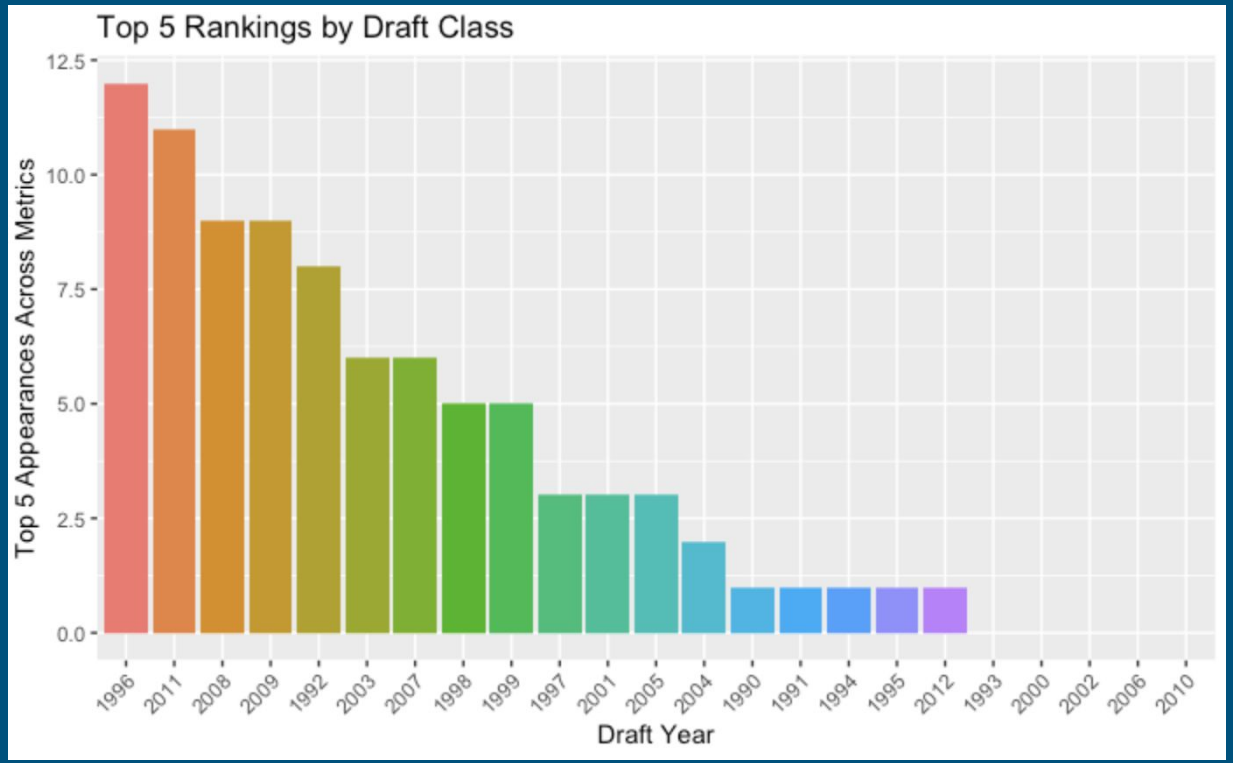

Total All-NBA by Draft Year
Total Count
Draft Year
Award Type
Total_All_NBA


Total MVPs by Draft Year
Total Count
Draft Year
Award Type
Total_MVP


Total DPOY by Draft Year
Total Count
Draft Year
Award Type
Total_DPOY

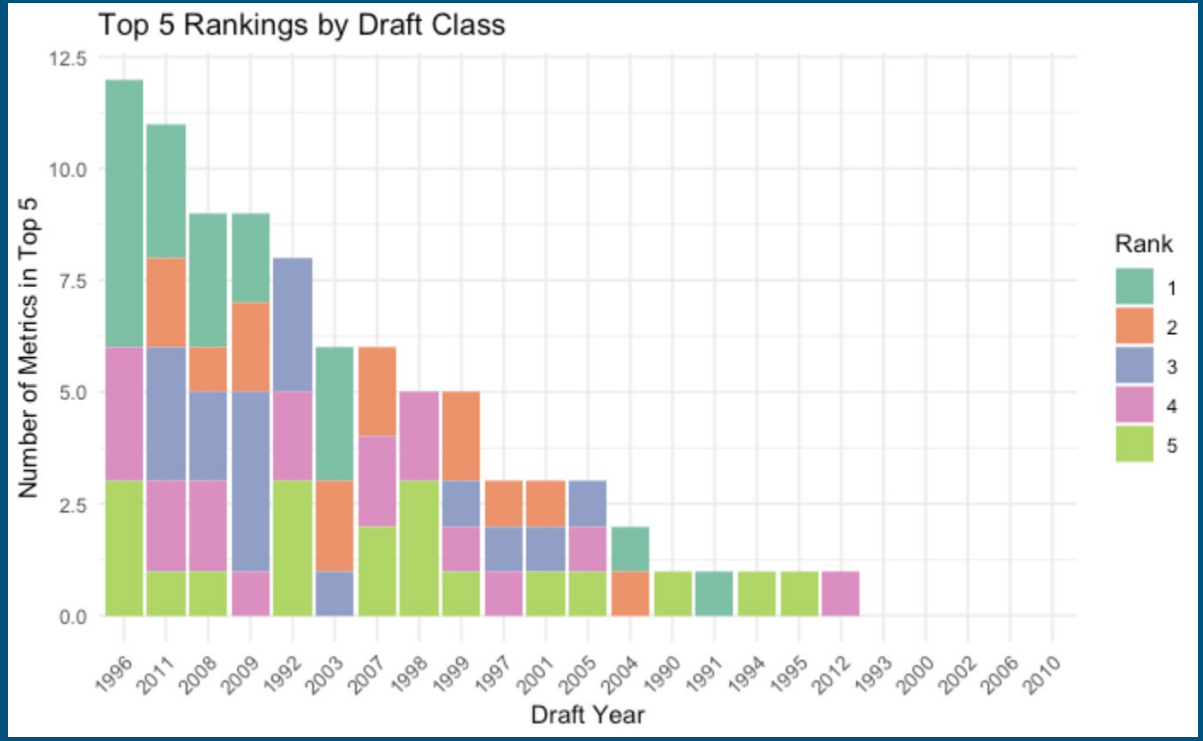

Total Championships by Draft Year
Total Count
Draft Year
Award Type
Total_Championships

How Many Times Does Each Draft Class Appear In The Top 5 Of Each of the 16 Categories?



```r
all_draft_years <- data.frame(Draft.Year = seq(min(averages_per_class$DraftYr), max(averages_per_class$DraftYr), by = 1))

combined_data <- averages_per_class %>%
  rename(Draft.Year = DraftYr) %>%
  left_join(
    award_summary %>% # combines the statistical averages with the total awards
      pivot_wider(names_from = Award, values_from = Count), # makes the columns more organized and grouped together
    by = "Draft.Year"
  )

top_5_counts <- combined_data %>%
  select(Draft.Year, avg_ppg:avg_yrs_play, Total_All_Stars:Total_FMVP) %>%
  pivot_longer( #long format instead of wide format
    cols = -Draft.Year,
    names_to = "Metric",
    values_to = "Value"
  ) %>%
  group_by(Metric) %>%
  mutate(Rank = rank(-Value, ties.method = "min")) %>%
  filter(Rank <= 5) %>% # shows where the rank is in the top 5
  group_by(Draft.Year) %>%
  summarize(Top_5_Count = n())

complete_top_5_counts <- all_draft_years %>%
  left_join(top_5_counts, by = "Draft.Year") %>%
  mutate(Top_5_Count = replace_na(Top_5_Count, 0))  # ensures every draft class is included

complete_top_5_counts <- complete_top_5_counts %>%
  mutate(Draft.Year = fct_reorder(as.factor(Draft.Year), -Top_5_Count)) # reorders into desc order
```

How Many Times Does Each Draft Class Appear In The Top 5 Of Each of the 16 Categories?



```r
ranked_data <- combined_data %>%
  select(Draft.Year, avg_ppg:avg_yrs_play, Total_All_Stars:Total_FMVP) %>%
  pivot_longer(
    cols = -Draft.Year,
    names_to = "Metric",
    values_to = "Value"
  ) %>%
  group_by(Metric) %>%
  mutate(Rank = rank(-Value, ties.method = "min")) %>%
  filter(Rank <= 5) %>%
  group_by(Draft.Year, Rank) %>%
  summarize(Count = n(), .groups = "drop")

all_combinations <- expand.grid(
  Draft.Year = unique(combined_data$Draft.Year),
  Rank = 1:5 #ensures every draft has a place for each rank even if its 0
)

ranked_data_complete <- all_combinations %>%
  left_join(ranked_data, by = c("Draft.Year", "Rank")) %>%
  mutate(Count = replace_na(Count, 0))

ranked_data_total <- ranked_data_complete %>%
  group_by(Draft.Year) %>%
  summarize(Total_Count = sum(Count)) %>%
  arrange(desc(Total_Count))

ranked_data_complete <- ranked_data_complete %>%
  mutate(Draft.Year = factor(Draft.Year, levels = ranked_data_total$Draft.Year))
```

Notable Players in the Top 5 Draft Classes:

1996: Allen Iverson, Ray Allen, Kobe Bryant, Steve Nash

2011: Kyrie Irving, Kemba Walker, Klay Thompson, Kawhi Leonard, Jimmy Butler

2008: Derrick Rose, Russell Westbrook, Kevin Love

2009: Blake Griffin, James Harden, Steph Curry, Demar Derozan

1992: Shaquille O’Neal, Alonzo Mourning, Christian Laettner

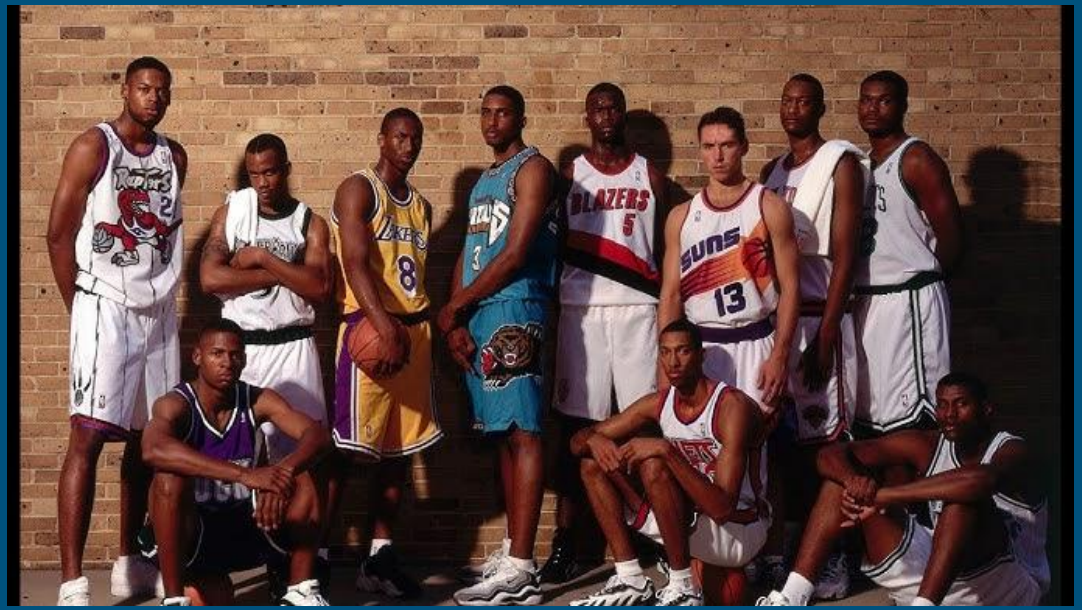
What the Numbers Don’t Tell Us

- Which of the 16 categories are more important than the others?
- 2003 Draft Class (Lebron, Wade, Bosh, Carmelo) (Only Top 5 in VORP for Player Statistics, 5/6 of the Awards however)
    - Did not have a great statistical draft, but in awards they appeared the most Tied with 1996

The Best Draft Class:

- Regardless of how we look at it, there is simply 1 draft class that was better than the rest
- They appear in 12/16 statistics (5/6 for the Awards)
- Lead every draft in VORP, Longevity, All-Stars (64), All-NBA (37), Championships (16), and MVPs (4)

1996 NBA Draft Class



Technical Challenges

- Finding a csv file containing all of the awards for each specific player in all of the draft classes
  - Creating the spreadsheet with every award
- Coming up with a way to display each statistic. All on one graph or a separate graph for each?
- Creating a graph that contains the amount of times each draft appeared in the top 5 of each category
  - Also showing the amount of times that draft was ranked 1st, 2nd, 3rd, etc.

What Surprised Me The Most?

- 2003 Draft Class not in the top 5 for rankings
- When creating the spreadsheet, seeing how many players were insignificant
- The talent gap in between certain draft classes
- How relatively similar some of the categories were over every draft class

How Would I Extend the Project Further?

- Include more draft classes dating back to the 70s or 80s
- Look at more specific categories that I did not look for previously (All-Defense Teams, MIP, etc.)
- Look at specific teams across these drafts and seeing how they've succeeded or failed at drafting successful prospects
- Look at undrafted players