LeagueDataProject

Introduction

- League of Legends! One of the most popular online games across the globe and there's is an exciting e-sports scene. We are going to be taking a dive into the golden era of 2015-2018(Only just the beginning of 2018) of team's dominance throughout tournament history. This has been an unknown world for a while but the exposure league has been getting recently due to their outside successes out the game such as shows, packing out arenas, and their cinematic on YouTube bring a controversial topic of is it an actual sport. It's also crazy how players are getting paid million upon millions to play a virtual game online but we are here to unveil the best teams in league of legends.

Loading Datasets in, there are multiple datasets because there are so many columns and eaiser to be organized.

Metadata

I loaded in all my data set, which had all the variables I need to conduct my research on which team was the best at league during those years. Such as the objectives of the game, which help give map control and gold to teams. The objectives of the games are towers, inhibitors, structures, barons, and dragons. The control of the game is kind of the macro, which means the overall influence of the game depends on the objectives being played because I am suspecting a correlation of gold difference with the structures or objectives. Because destroying these structures and objectives do grant you the most kills compared to kills. While the micro variables are the kills, because even though you can have a lot of kills, you may not have total complete control of the game because of the champions you could be facing. Like for example, various team comps are either strong when they all fight together or very strong 1 versus 1 champions.

So the r and b are just separated to differentiate what team has what, or what happened on this side of the map. 1. rKills 2. bKills 3. rGold 4. bGold 5. Objectives +bDragons +rBaron +bBaron +Rtowers +Btowers

Overview of All Games

Now here I want to see how many games each league has played all years through 2015-2017 (Early 2018)

```
## # A tibble: 15 x 2
## # Groups:   League [15]
##    League     n
##    <chr>  <int>
##  1 CBLoL    301
##  2 CLS      175
##  3 EULCS   1099
##  4 IEM      138
##  5 LCK     1445
##  6 LCL      281
##  7 LJL      258
##  8 LLN      242
##  9 LMS      778
## 10 MSI      111
## 11 NALCS   1272
## 12 OPL      458
## 13 RR       101
## 14 TCL      653
## 15 WC       308
```

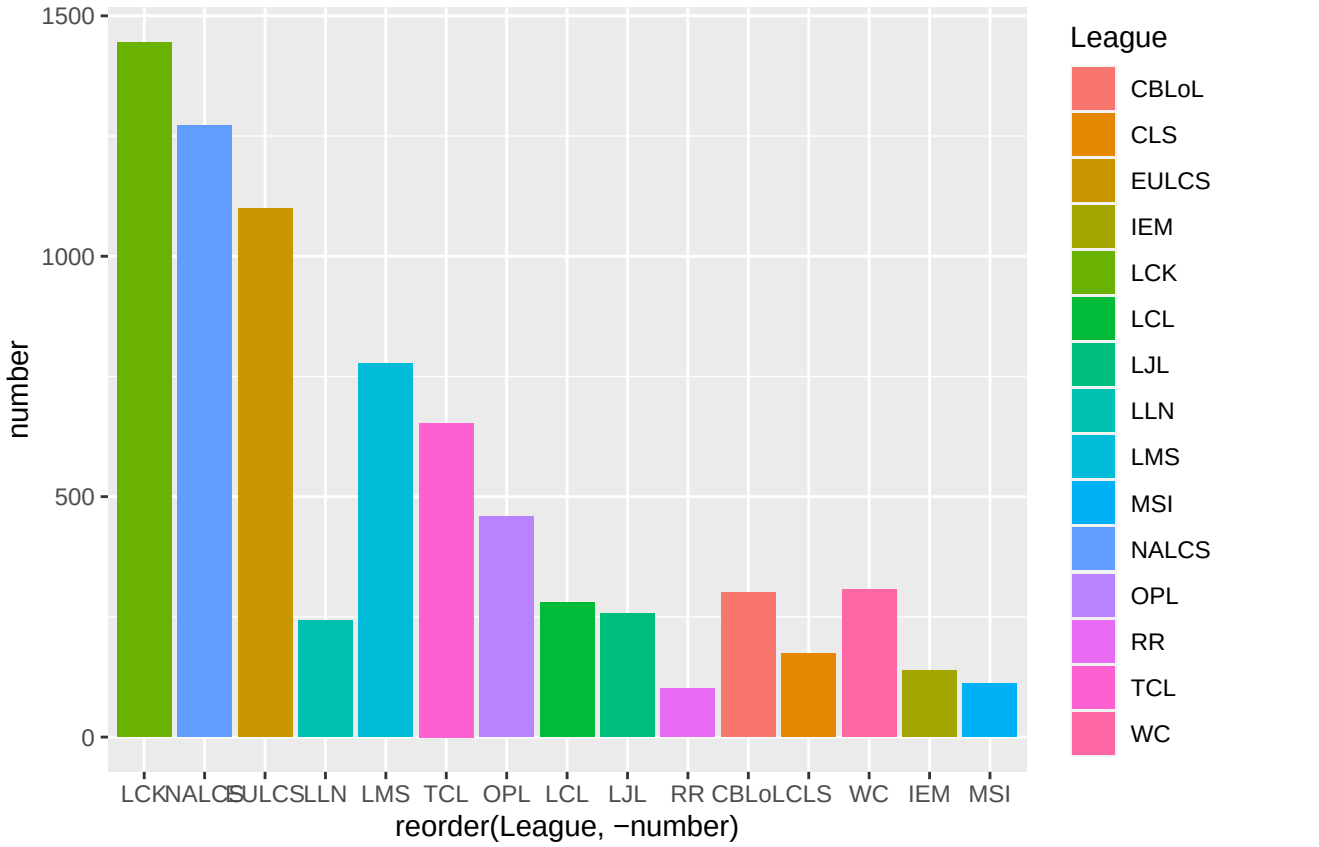
Now here is a plot of the # of Games Per Season, broken by League and Year

The code chunks with the comment of the kaggle links are graphs I did take because I saw how relevant it was and I could of made it myself. Here I given credit to the owner and cited their 3 plots and graphs.

https://www.kaggle.com/code/jonathanbouchet/lol-games-4-years-of-esport/report

So now we get into the variables we will be looking at. Such as the structures, objectives, bans, and gold to see which has the most impact to certain teams reigns in the league. All of the variables will come in later after I used dplyr to understand how many teams have good records, in what region, any similarities or differences between other teams. So we can see that EULCS, NALCS, and the LCK have the most games played so I will be examining those leagues because they would be the most accurate due to the sample size of games.

```
## `summarise()` has grouped output by 'League'. You can override using the `.groups` argument.
```



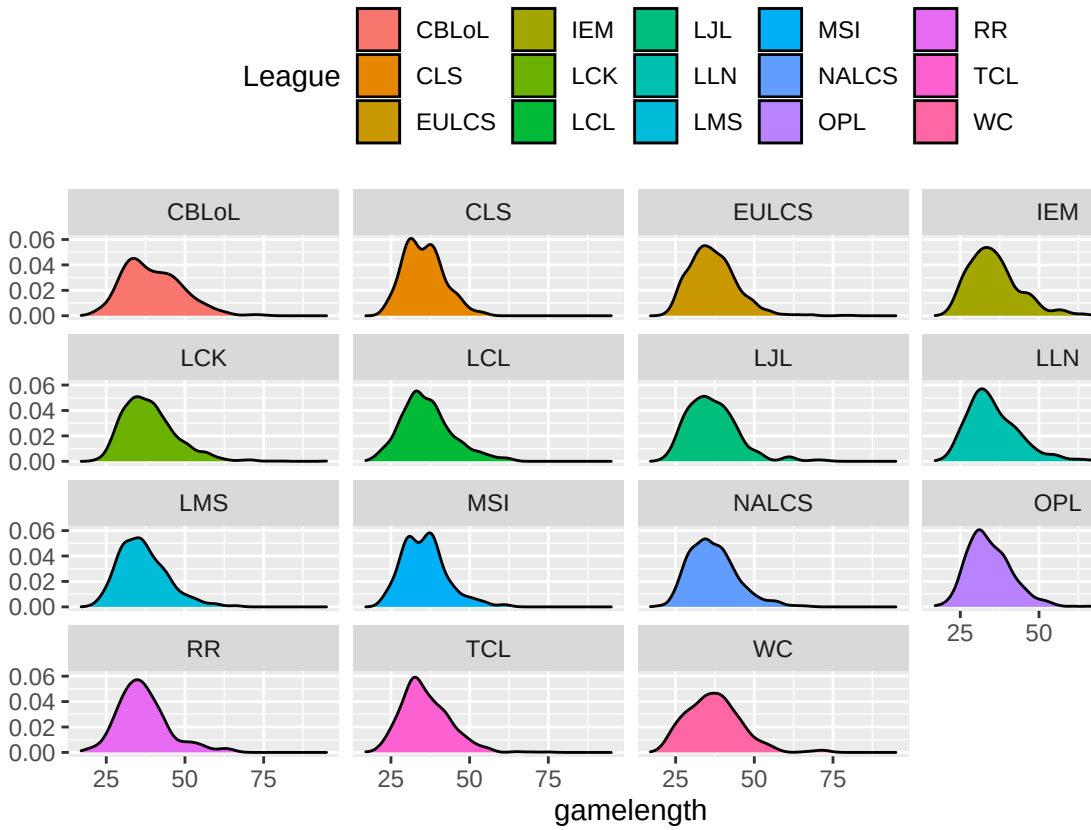
Majority of Games Played

After looking at the bar graph above, I want to consider taking out certain smaller leagues out because the sample size of games compared to EULCS, NALCS, LCK so the data is more accurate due to the sample size.

Next we can move onto the dot graph of the majority of games compared to all the other leagues, and as apparent as it is, the EULCS,NALCS, and LCK have the biggest dots. We can see the game lengths of other leagues and surprisingly we can see that the LCK has more shorter game lengths compared to other leagues, so we can go ahead and make the assumption they are very good at closing games out.

```
## `summarise()` has grouped output by 'League', 'Season'. You can override using the `.groups` argumen
```

Game Length By Different Leagues From this data I can start to figure out what league is the most efficient at closing out games.



Wins of Blue Side vs Red

Let's compare to see if maybe one side has more landscape advantages. Now we can that blue side has more wins but why?

The blue vs red side has actually been a phenomenon in the league community even though both sides are exactly the same but just mirrored on the other side. We can see that blue side has won 500 more games than red side during this time which is actually quite surprising since the map is fairly equal except the objectives of the dragons and baron.

```
##      n
## 1 4146
```

```
##      n
## 1 3474
```

What team has the best record? We can see here from count that the Blue side has won more than the red side but lets figure out what teams perform the best on either side

```
## # A tibble: 216 x 3
## # Groups:   blueTeamTag, bResult [216]
##    blueTeamTag bResult     n
##    <chr>         <int> <int>
```

```
##  1 SKT               1   146
##  2 TSM               1   104
##  3 kt                1   101
##  4 SSG               1    99
##  5 FNC               1    97
##  6 H2K               1    95
##  7 CLG               1    92
##  8 C9                1    90
##  9 FW                1    88
## 10 ROX               1    80
## # ... with 206 more rows
```

Get both sides blue and red to see what team has the best record.

```
## # A tibble: 205 x 3
## # Groups:   redTeamTag, rResult [205]
##    redTeamTag rResult     n
##    <chr>        <int> <int>
##  1 SKT              1   141
##  2 TSM              1   103
##  3 C9               1    88
##  4 kt               1    85
##  5 SSG              1    82
##  6 FW               1    77
##  7 CLG              1    73
##  8 G2               1    70
##  9 ahq              1    68
## 10 UOL              1    68
## # ... with 195 more rows
```

The team SKT is a very successful team from Korea and are definitely considered one of the best teams in the world due to their repeated appearances in the World Cup Championships and 3 titles under their belt, which is the most out of any team.

Team With the worst record?

```
## # A tibble: 238 x 3
## # Groups:   redTeamTag, rResult [238]
##    redTeamTag rResult     n
##    <chr>        <int> <int>
##  1 JAG              0    86
##  2 TL               0    80
##  3 NV               0    79
##  4 SSG              0    73
##  5 ROX              0    71
##  6 UOL              0    71
##  7 TSM              0    69
##  8 CLG              0    68
##  9 SKT              0    67
## 10 FNC              0    65
## # ... with 228 more rows
```

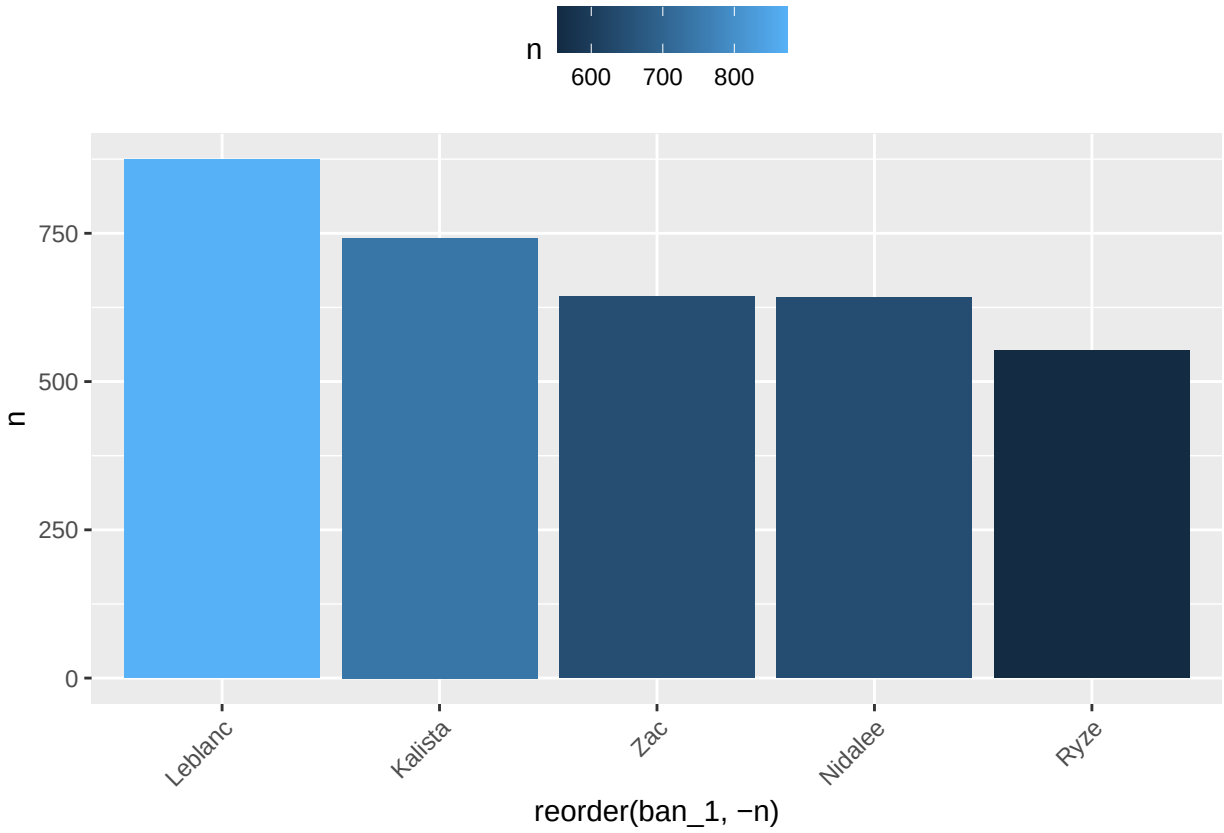
```
## # A tibble: 233 x 3
```

```
## # Groups:   blueTeamTag, bResult [233]
##    blueTeamTag bResult     n
##    <chr>         <int> <int>
##  1 SSG               0    68
##  2 JAG               0    64
##  3 C9                0    63
##  4 CLG               0    62
##  5 kt                0    62
##  6 GIA               0    59
##  7 NV                0    58
##  8 ROX               0    57
##  9 TL                0    57
## 10 UOL               0    57
## # ... with 223 more rows
```

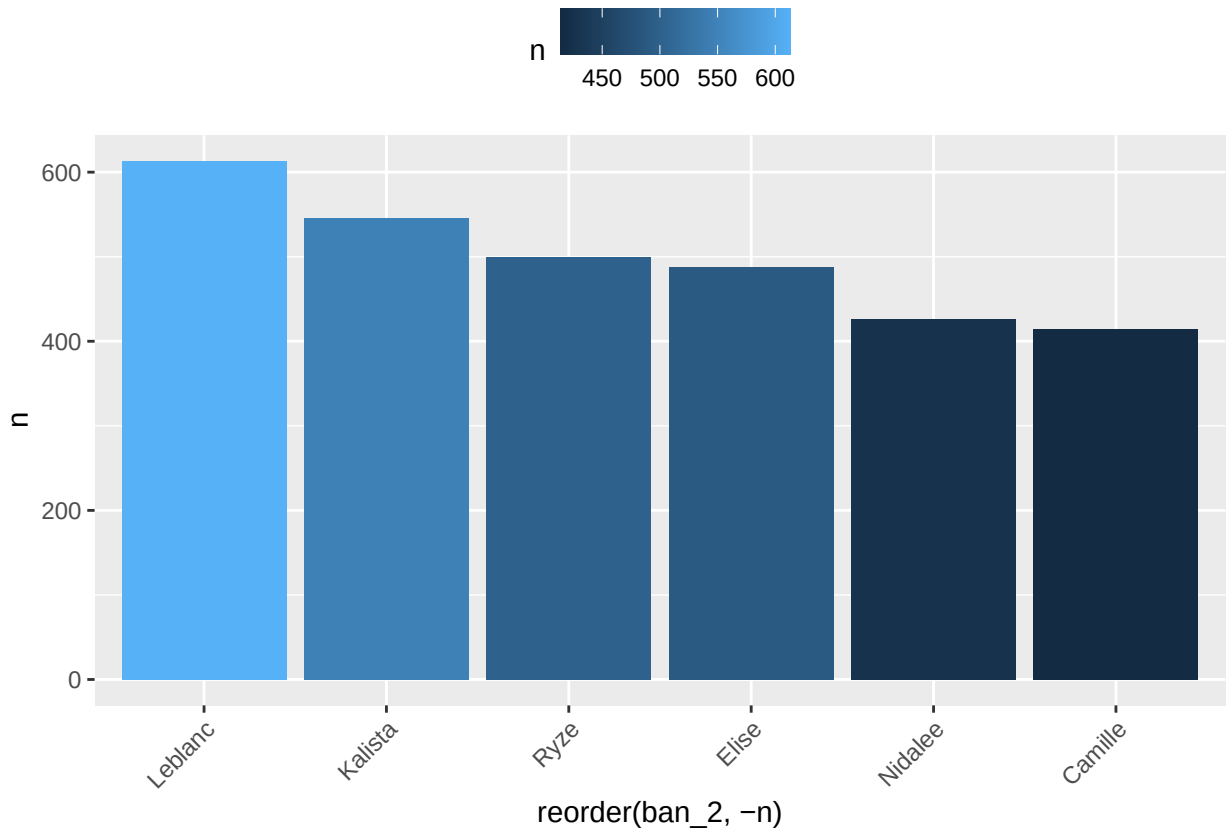
I also realized technically that the team has the worst record isn't as accurate because of the sample size not being the same since they didn't play the same amount of games. Yet we can still see that SKT is well above everybody and they've played the most games and not another team from that league can keep up with them.

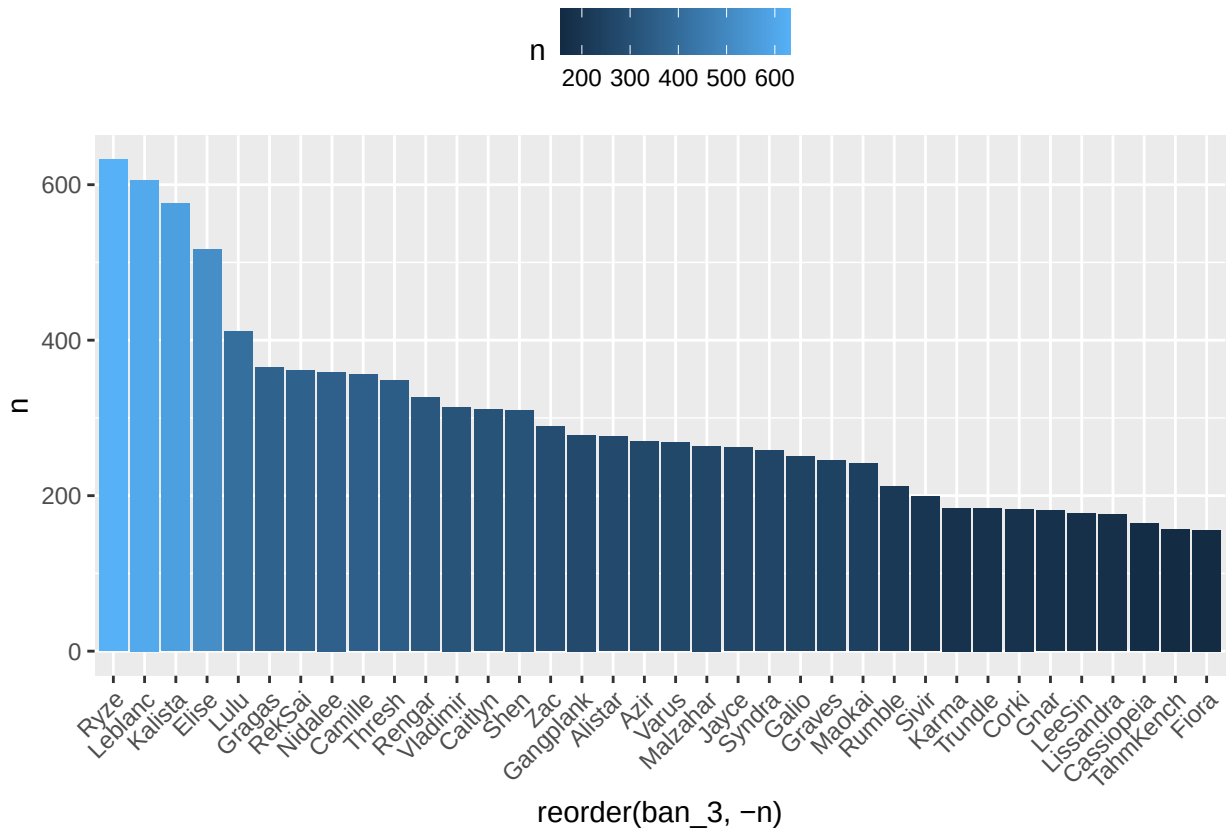
Ban Phase

So before every game starts before a professional competitive match, a ban phase occurs. Where a team can ban a champion before they can pick them because they know that a player on the opposing team is very good with. So that's where pro players must have a large champion pool so they can be good enough to help their



team win.


n
450
500
550
600
600
400
200
0
n
Leblanc
Kalista
Ryze
Elise
Nidalee
Camille
reorder(ban_2, −n)

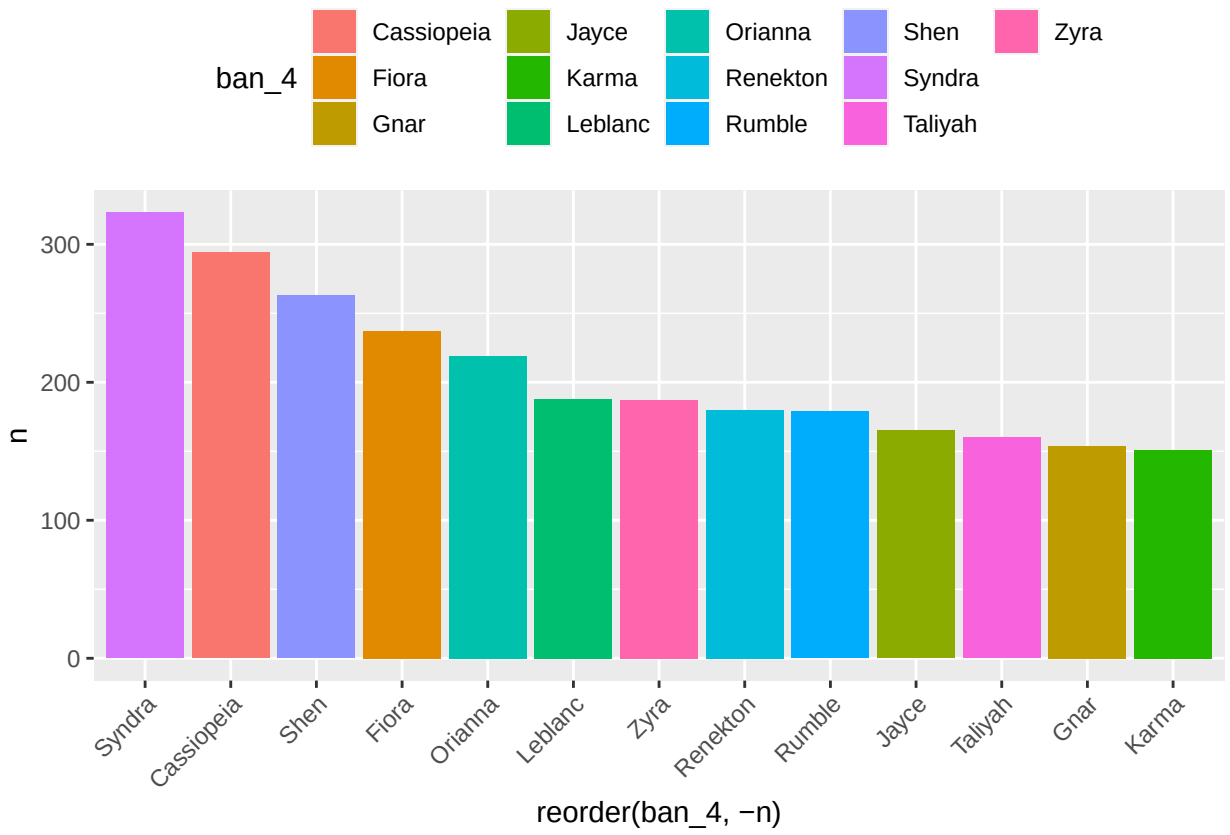


Patch 7.11

Around 2017ish, Riot decided to give each team 2 more bans which in total created 5.

Which allowed for more strategic ban phases and more flexibility as where both teams are forced to choose 3 people before banning the last two champions.

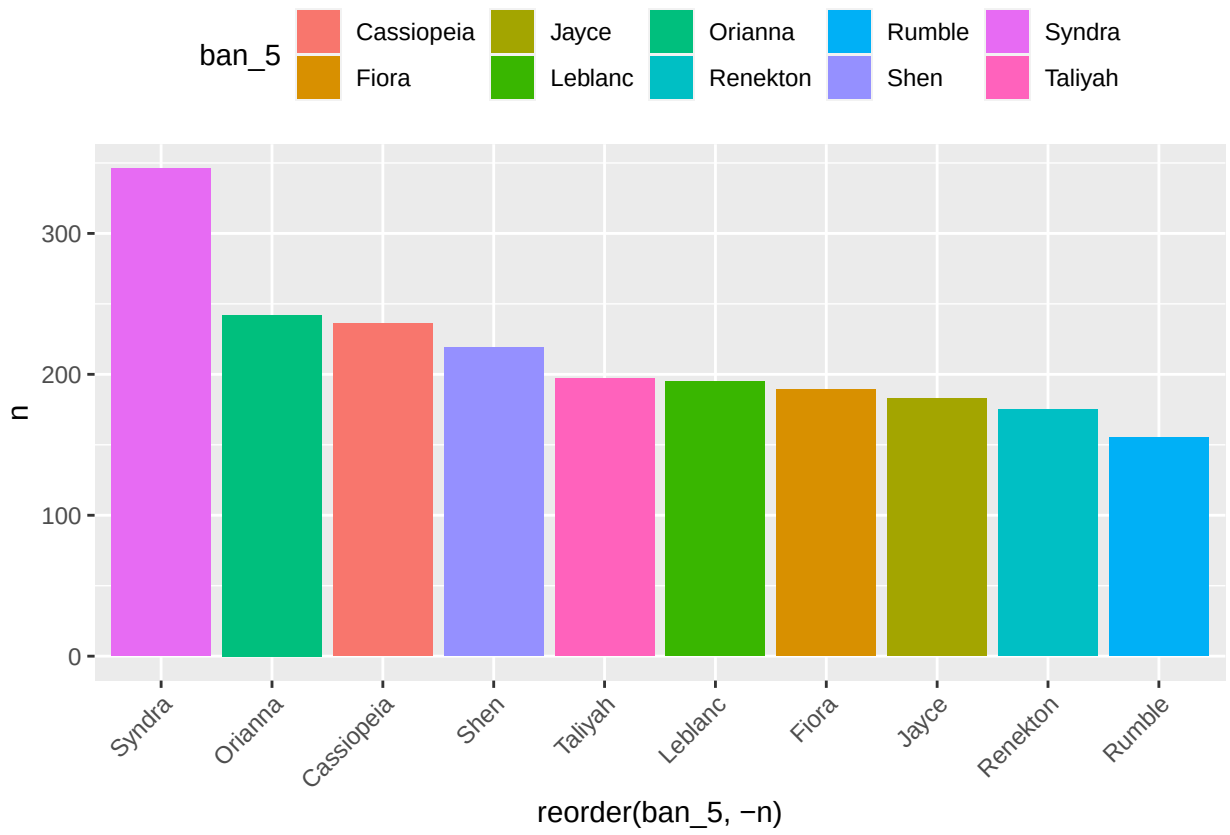
This decision allowed for more fair chances at eliminating champions that were not chosen yet due to their



role.

Ban 5

We start to realize and notice that these 2 more bans have really ruled out midlaners.



Downfall

In 2015 and 2016, SKT1 has been the only team in all of tournament history to ever achieve a back to back championship world title. Unfortunately in 2017, their run had been stopped short by Samsung White due to them banning a lot of faker's champion pool.

Now here we are going into the ban phase, so before every game, teams get to decide to ban champions to prevent from other players playing on it. So they can strategist and ban champions that they know enemy players are good on, so they are forced onto other champions. From this variable I saw that the bans raise from 3 champions to 5. And I just saw coincidentally, the year that they raise it to 5 was in the year 2017. That was the year SKT had lost the world cup, which was actually at this time was Faker and he was more forced on champions he just wasn't quite as proficient as his other champions. Which 2 years before when there was only 3 bans, SKT was able to win back to back champions. Even though this ban phase is only a small part of the game length wise, it has very large pivotal movements that influences a game whether they will win.

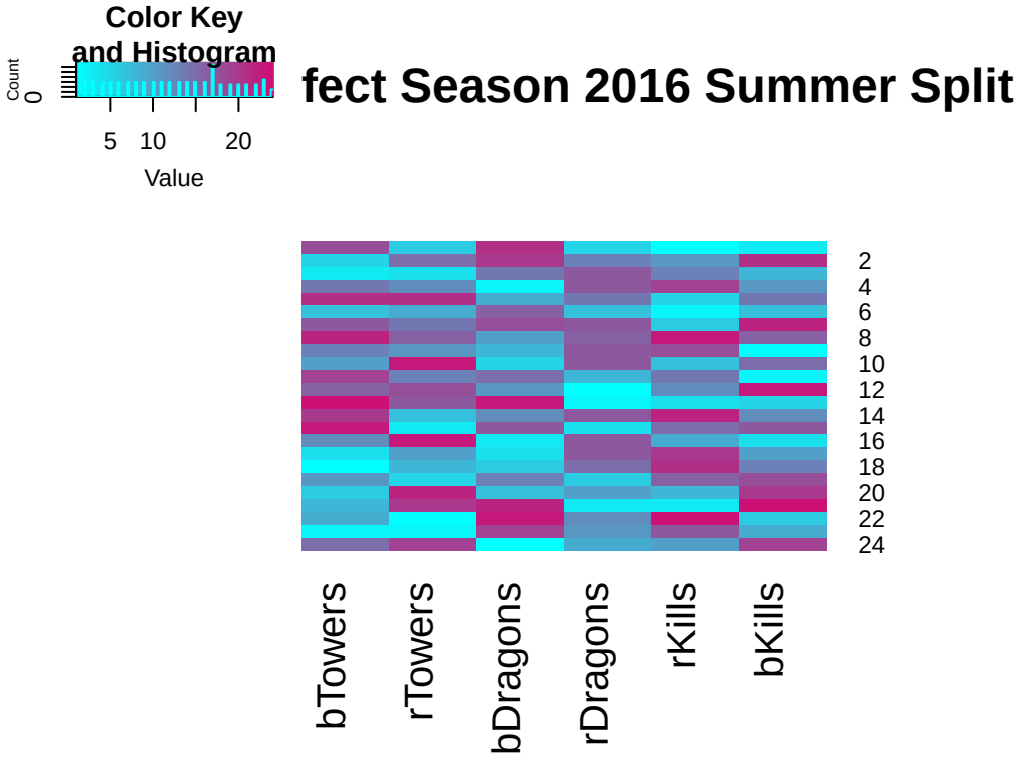
```
##   Year blueMiddle blueMiddleChamp          Type bResult League
## 1 2017      Faker      Cassiopeia International       1     WC
## 2 2017      Faker           Fizz International       1     WC
## 3 2017      Faker        Orianna International       1     WC
## 4 2017      Faker          Galio International       1     WC
## 5 2017      Faker        Taliyah International       0     WC
## 6 2017      Faker        Taliyah International       1     WC
## 7 2017      Faker          Galio International       1     WC
## 8 2017      Faker          Galio International       1     WC
```

```
##    Year redMiddle redMiddleChamp          Type rResult League
## 1  2017     Faker        Orianna International       1     WC
## 2  2017     Faker       Kassadin International       0     WC
## 3  2017     Faker           Fizz International       1     WC
## 4  2017     Faker          Corki International       0     WC
## 5  2017     Faker           Ryze International       1     WC
## 6  2017     Faker          Galio International       0     WC
## 7  2017     Faker          Galio International       0     WC
## 8  2017     Faker          Galio International       1     WC
## 9  2017     Faker     Cassiopeia International       0     WC
## 10 2017     Faker           Ryze International       0     WC
## 11 2017     Faker          Karma International       0     WC
```

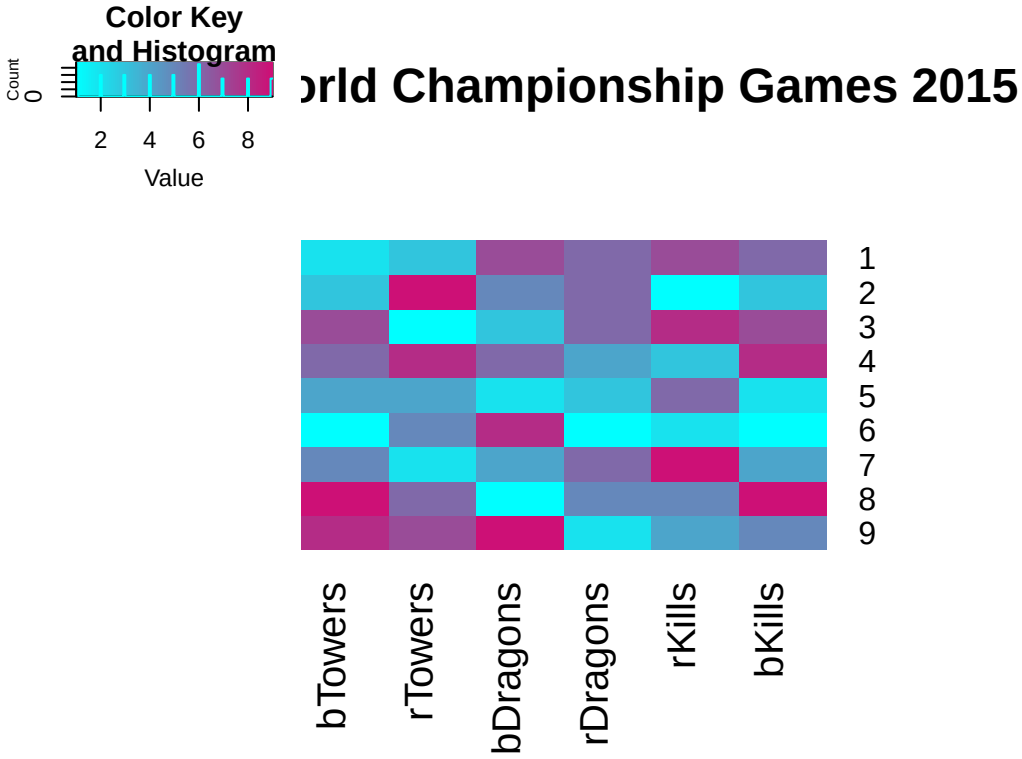
Fnatic's Perfect Season

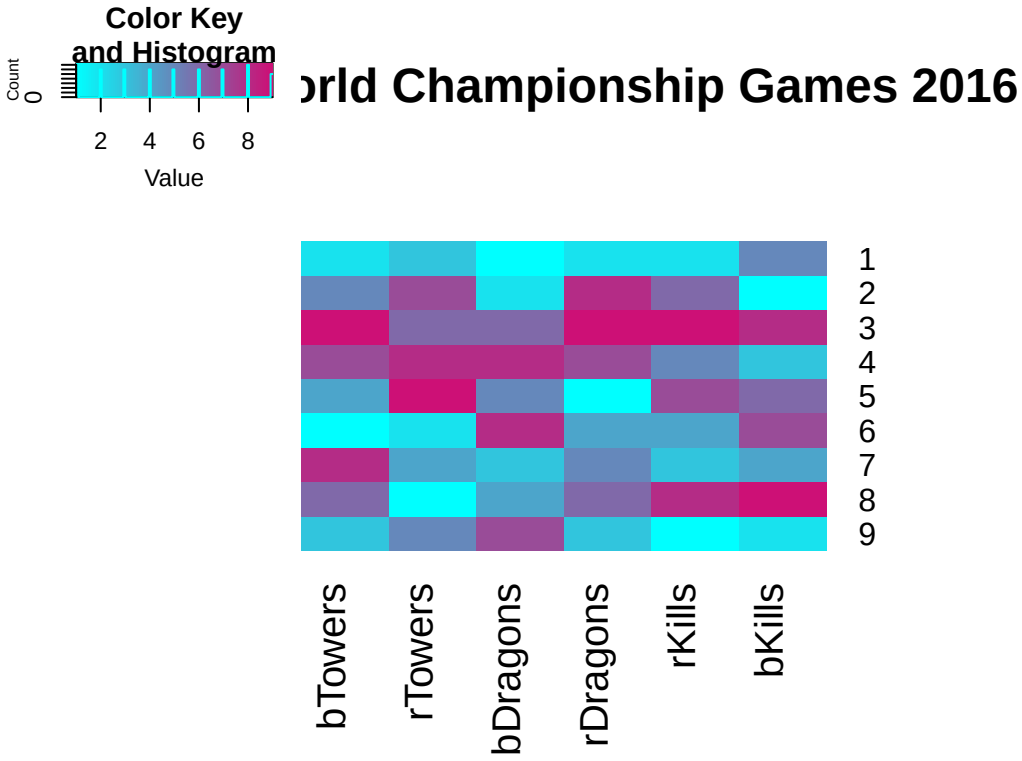
The reason why I used Fnatic's perfect season was because this is the only time in LCS did they win, but they had an abundant amount of games and as well as I can see the different objectives that helped win their games, and see which the most impactful one. As well as to see the correlation using a heatmap.

Now I will focus onto this one team in EULCS named fnatic because during this summer split, they were able to have a perfect record during this season which is crazy because no team has done this since last 2011, which was SKT. So then I have the variables and all of fnatics wins during the season and piped it into a heatmap, to show different correlations. One thing I could have done better was be able to label each square with a coefficient on it.



SKT's Championship Game





Conclusion

It was quite interesting to kind of relive this moment of my life when I was super invested into league back in middle school and nerd out a little haha. Yet the question still stands of who is the best league team by far and by data I found it was SKT. I examined multiple different variables that influenced their such structures, objectives or kills.

I didn't take a lot into gold because now looking back at it, gold is more of a dependent variable that would reflect based on the impact of the other independent variables. Such as when you get kills, you are granted 300 coins upon killing another player in the game. Where as when you get structures (towers,inhibitors), you also get 350 gold and 150 gold to your teammates, but you gain map control as well. As well objectives, such as the dragon and baron gives your teammates buffs to make your champion stronger and give gold. Now I realize this in the game of league, its a game of micro versus macro.

The macro of the game is the overall state of the game. Whether it comes from the structure of the game, how strong your team is, control on the map, rotating in different lanes to make the most out of it, and which team is in control of the game. The micro are more of the little things, such as kills and minion score which don't really make up the macro but definitely helps to influence how the macro will be. Kind of like building blocks or foundation of the team or your champion. I now realize why bans are super important because I used to view them as kind of a micro issue yet they have a voice because teams would have to start forming different teams on the spot to choose champions to synergize well with each other.

The heat maps help portray the image of how far more important the variables of towers, and dragons compared to how much less dense kills contribute to the game. As I examine Fnatic's perfect season in the spring season in the EULCS, which also had a high volume of games. This was very impressive, so why not examine their games and figure out what different variables helped influence. It's apparent that in their 24-0 run, the heat map with the most dense color of pink was on the left side, where the towers and objectives were. As well as I can see in their last couple of games, they completely dominated the bottom seed teams with just kills but for the majority of the games were won by more macro variables. SKT's is also another perfect example to support my insight on macro variables being the most impact and influential to win games despite losing their 3peat champion, they are still arguably the best team of that time.