FINAL PROJECT FINAL PRESENTATION
TEAM GYARADOS

Choose Your Side : Playing Selfish or Supportive

Remember The Story

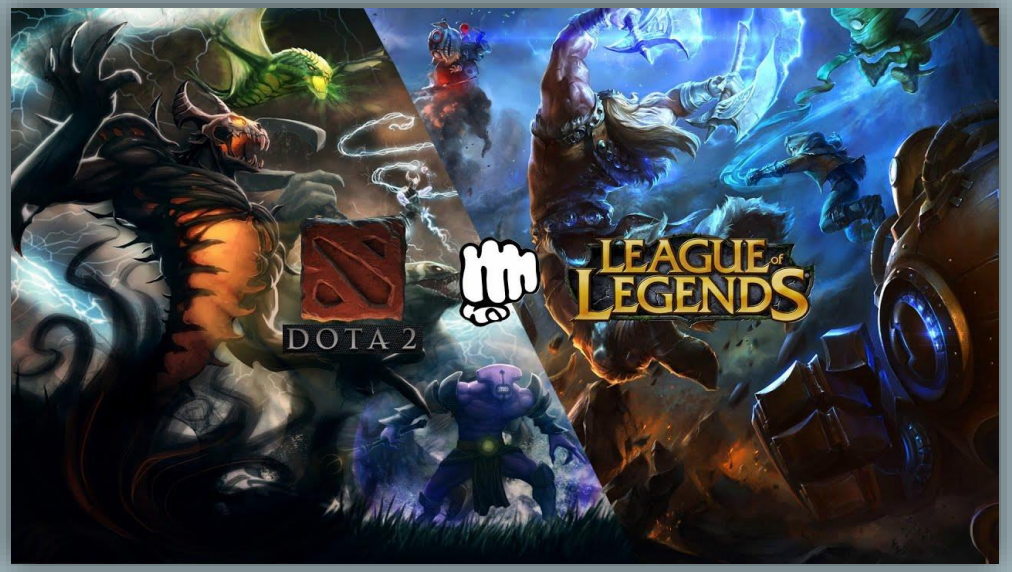
- In proposal, we talked about MOBA Games and our passion about this games. According to us, people prefer aggressive game style in this games. Based on this idea, we started work on this topic and analyze the datas about game.

- Even if you play well, your kill count may be low. The reason for this situation may be a greedy player in the team. In our opinion, this situation affects team play negatively.

About the Story

- Especially, we thought that some characters were played too aggressively by the players. This situation push us to analyze the gameplay of the characters.

- Sometimes this difference was seen before the game started. We can block the characters that we do not want the opposing team to get. People could ban the same characters over and over because they got bored characters aggressive playstyle.



What Have We Done

- **Visualizing**

- We examine the characters choose rates, banned rates, their roles, and their game stats like kills, deaths and assists.
- Then, we visualized
- characters choose pie chart,
- banned pie chart,
- top 10 selected characters bar chart,
- top 10 banned characters bar chart,
- density scatter plot for kills and deaths both of our games LOL and DOTA 2

What Have We Done

- Applying the **machine learning** methods

- **K-Means**

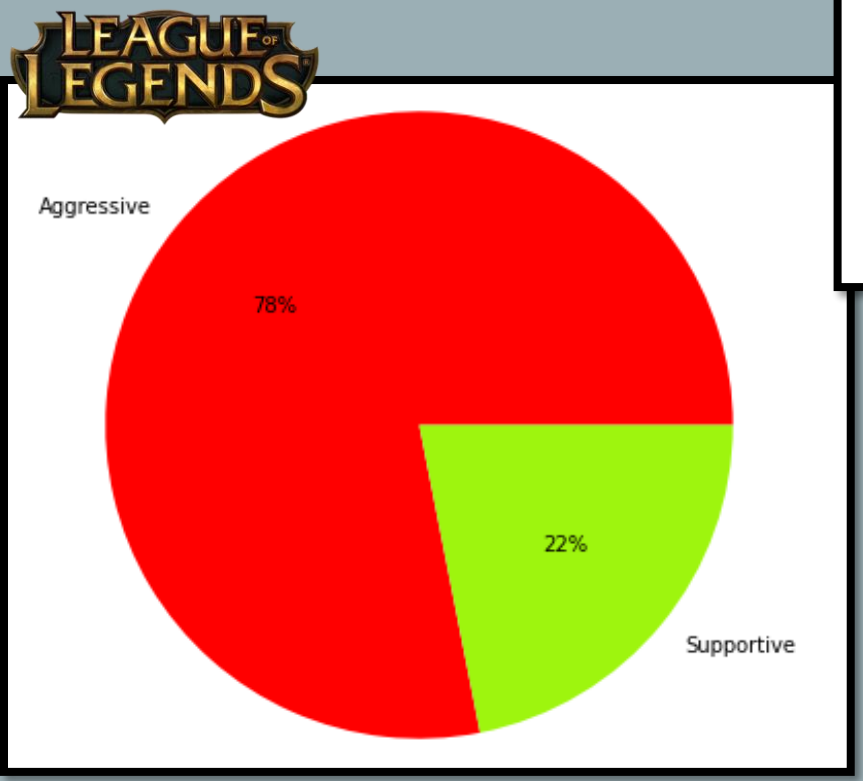
We divide 13 clusters kills/deaths stats of players with using K-Means method. Then, we reduced the clusters as 5 cluster for to give us a clear findings.

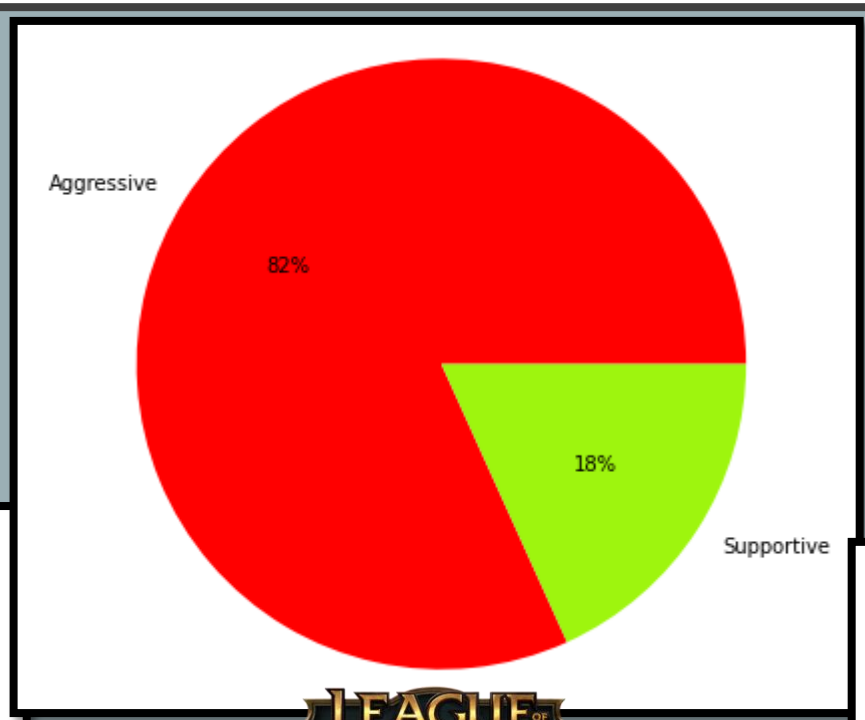
- **Decision Tree**

We applied the decision tree method according to players kill/death/assist stats. We have verified that the majority of players prefer an aggressive playstyle.

Findings

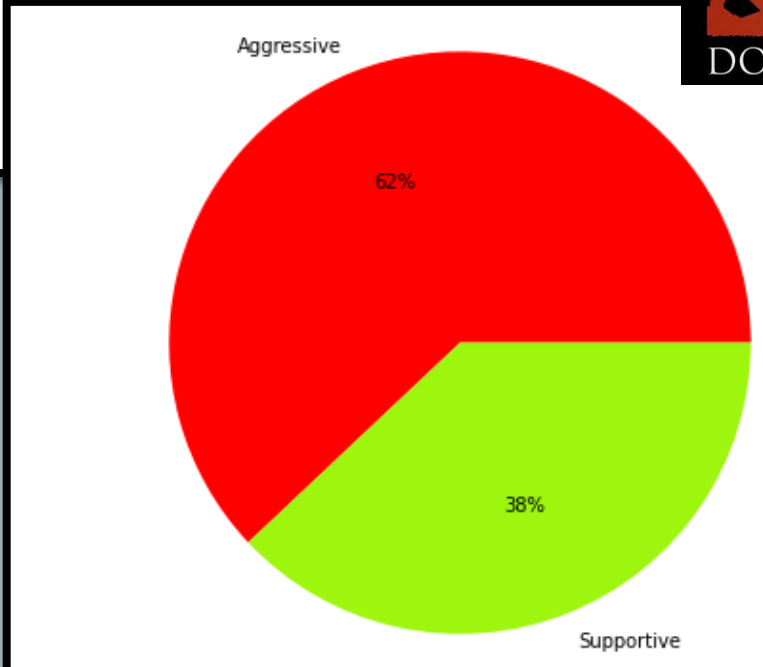
Most selected characters types: Aggressive or Supportive





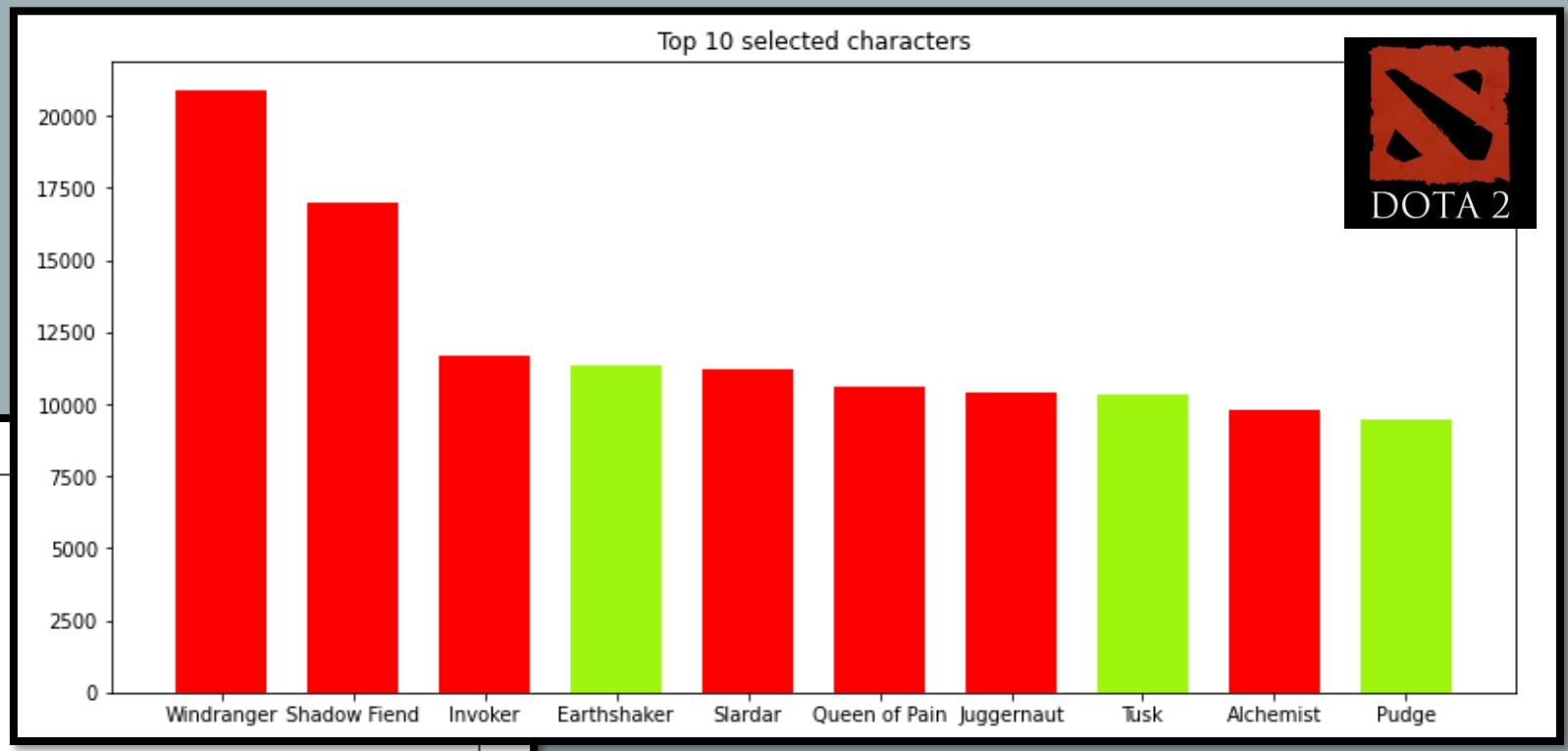
Most banned characters types: Aggressive or Supportive

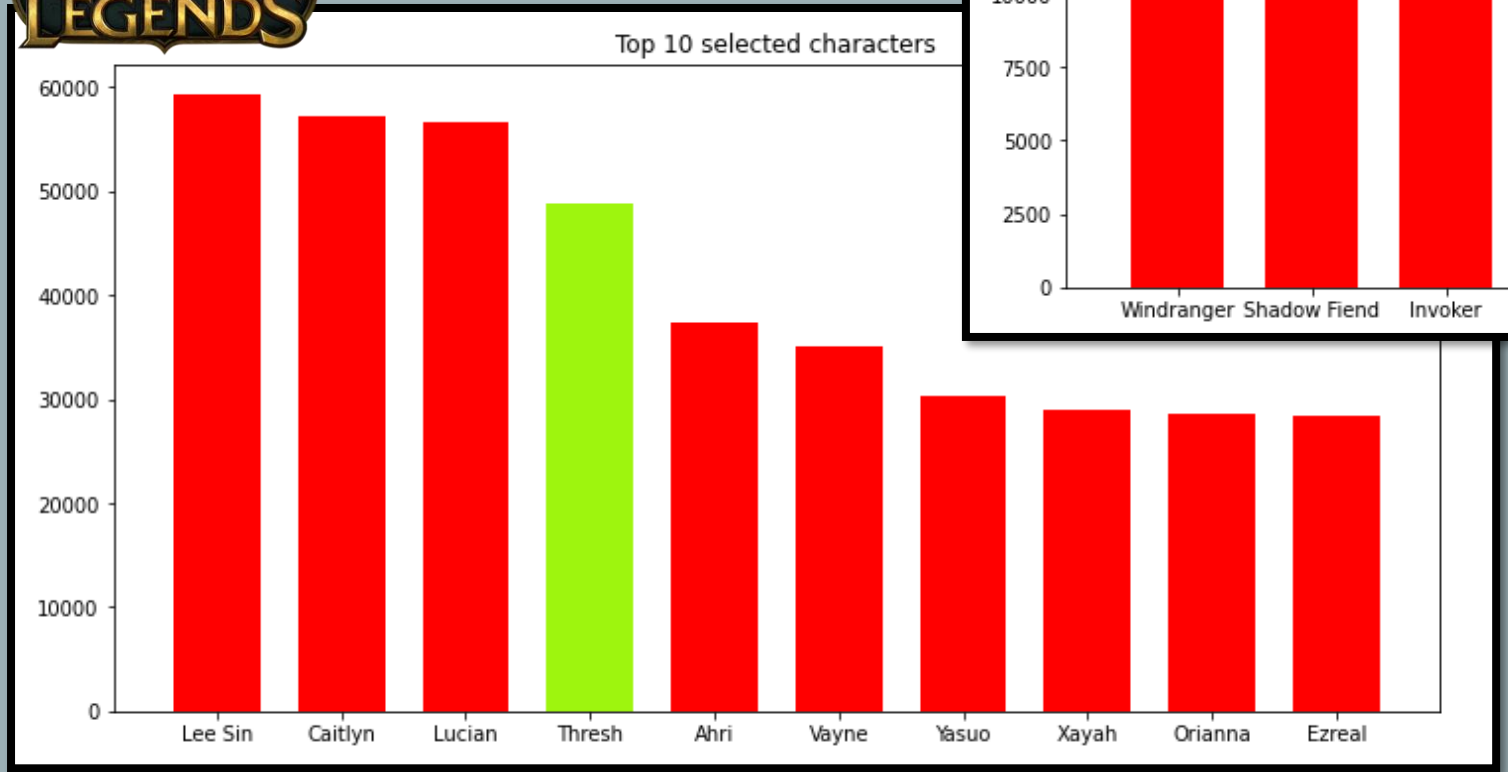
Most selected characters types: Aggressive or Supportive



Findings

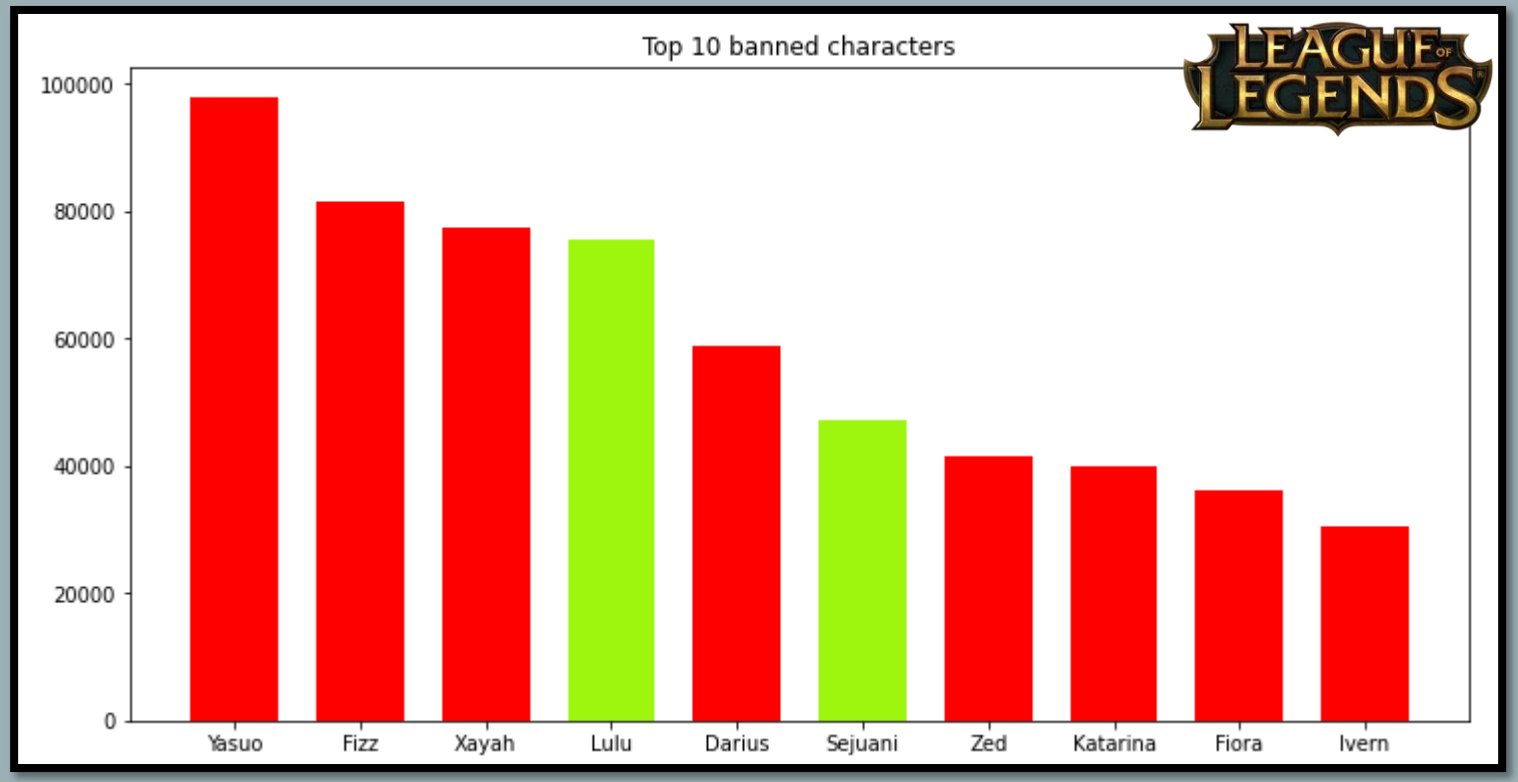
Top 10
Selected characters





Top 10
Selected characters

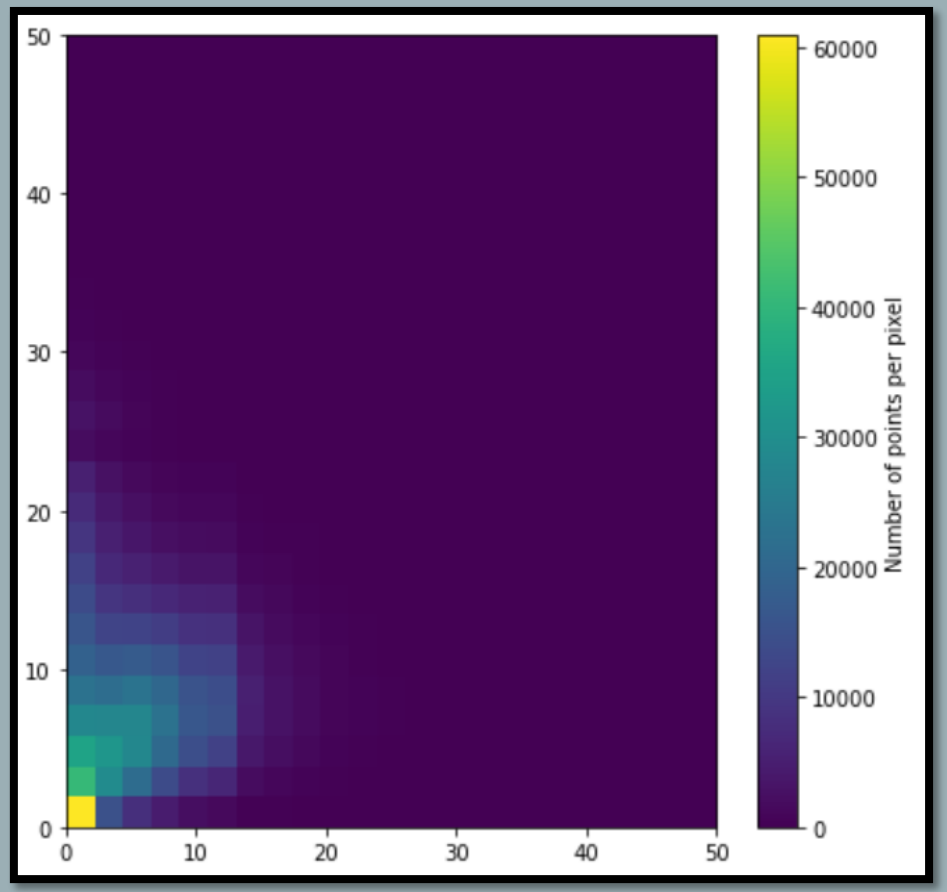
Findings



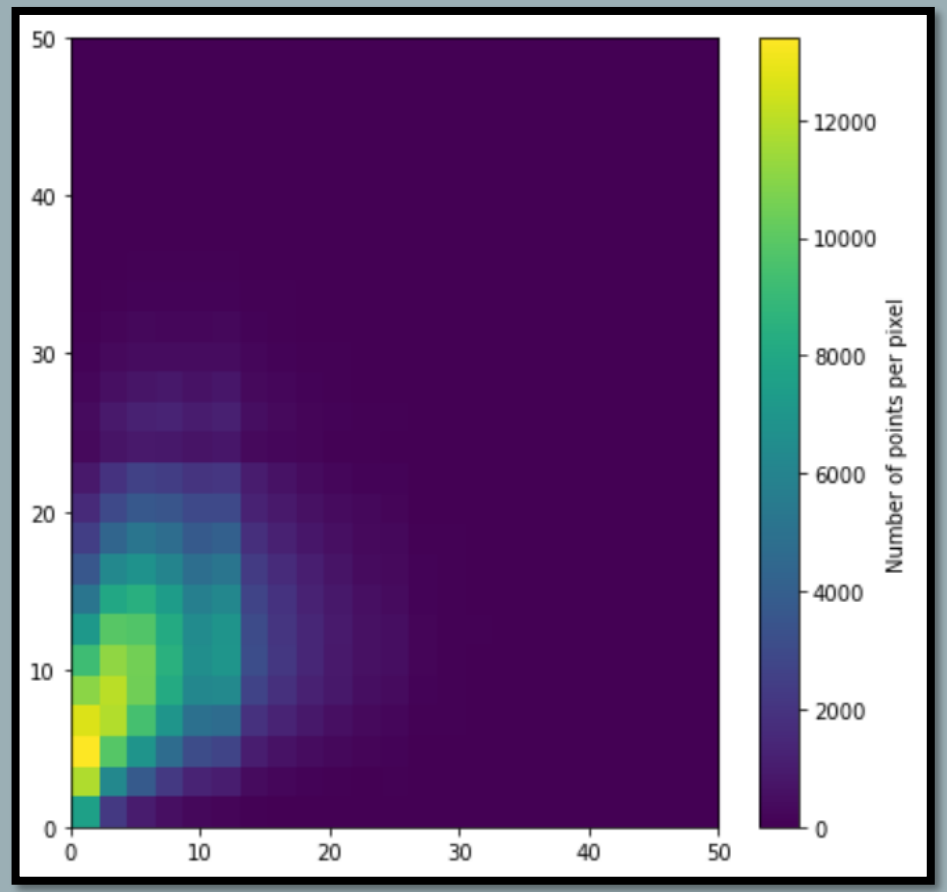
Top 10
Banned characters

Findings

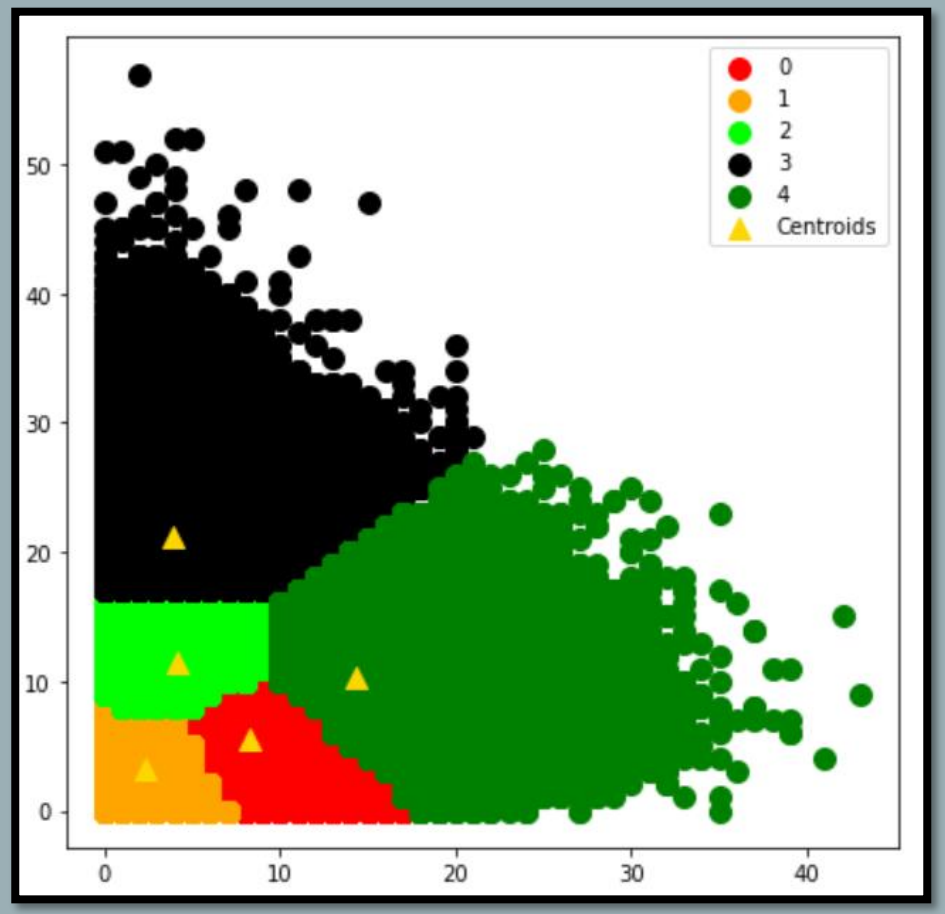
Kill and assists density



Kill and assists density



Insights

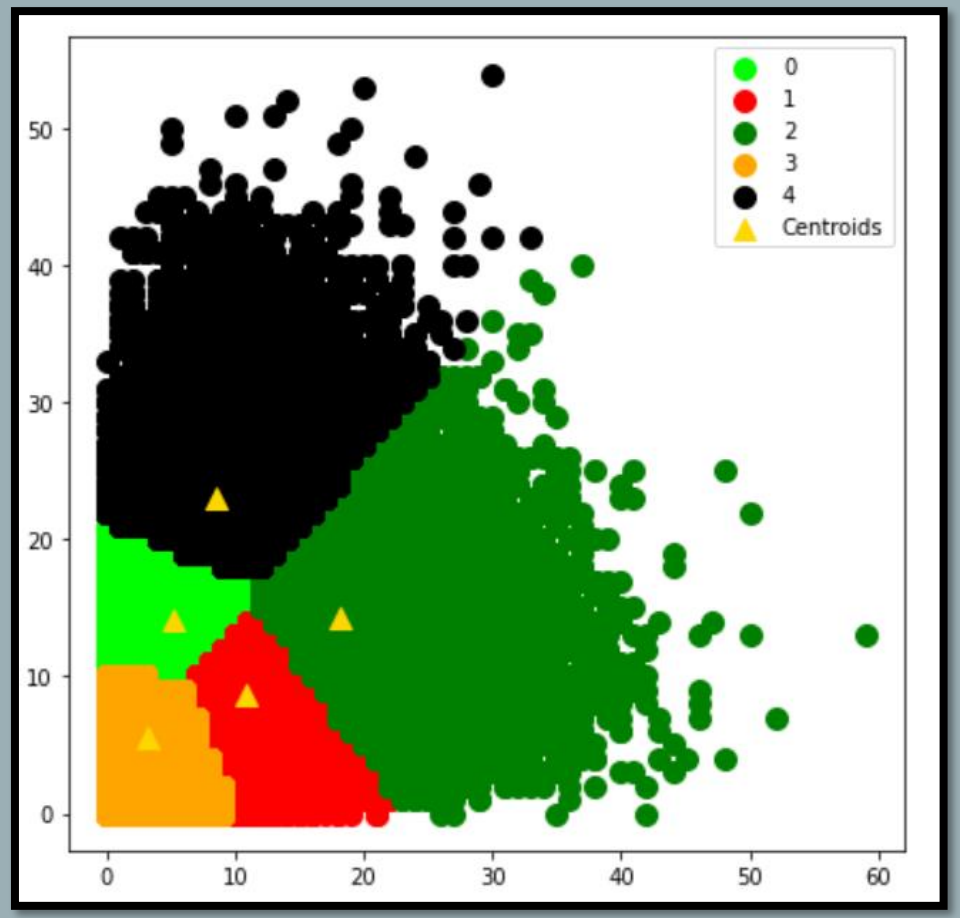


Using the K-Means algorithm, we divided about 1 million records into 4 clusters based on kills and assists. The upper left cluster (black cluster) in the clusters reflects the more supportive type of player. The cluster on the right (green cluster) reflects the more aggressive type of player.

Cluster 0 (Agressive) -> 233.901 -> %23 of players
Cluster 1 (Noobs) -> 312.281 -> %31 of players
Cluster 2 (Supportive) -> 245.914 -> %24 of players
Cluster 3 (Full Supportive) -> 88.573 -> %10 of players
Cluster 4 (Full Agressive) -> 119.330 -> %12 of players

%34 of total players are supportive.
%35 of total players are agressive.
%31 of total players are noobs.

Insights



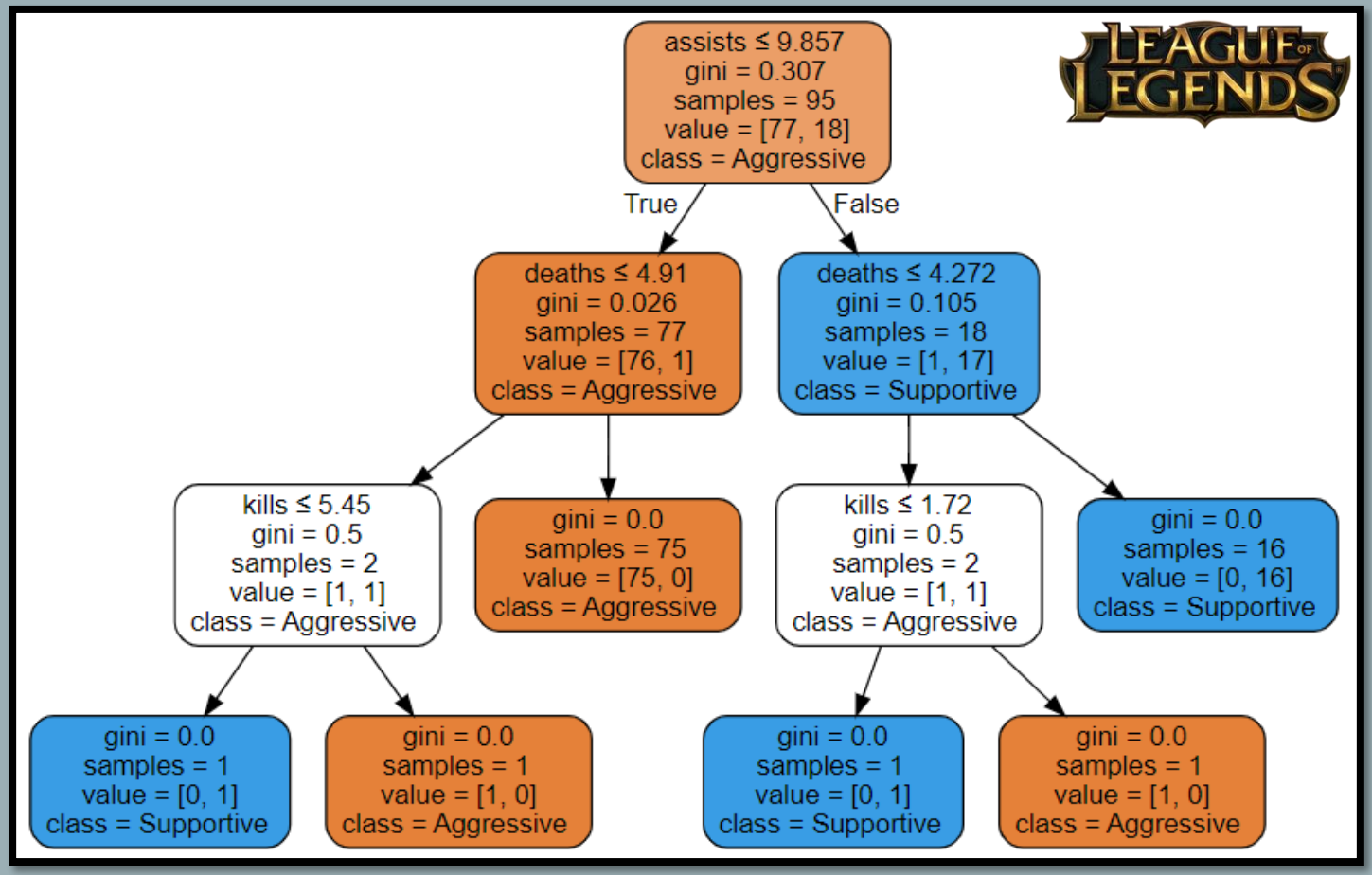
Same K-Means algortihm for DOTA 2 datasets which has 500.000 records.

Cluster 0 (Supportive) -> 142.853 -> %28 of players
Cluster 1 (Agressive) -> 91.034 -> %18 of players
Cluster 2 (Full Agressive) -> 53.280 -> %10 of players
Cluster 3 (Noobs) -> 148.700 -> %30 of players
Cluster 4 (Full Supportive) -> 64.133 -> %14 of players

%42 of total players are supportive.
%28 of total players are agressive.
%30 of total players are noobs.

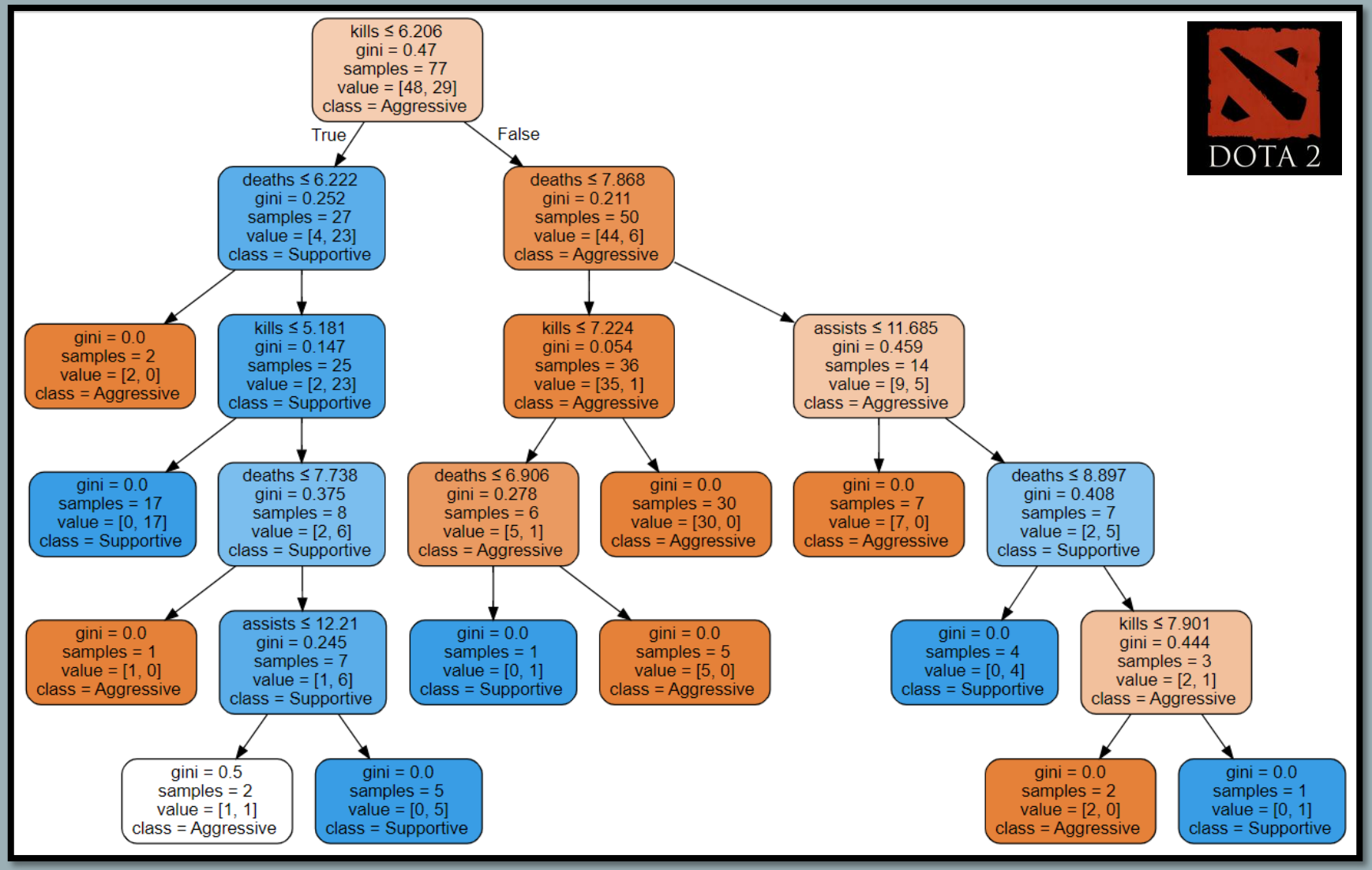
DOTA 2

Insights



For the game in LOL and DOTA 2, we designed our decision trees along with the average death, assist and kill data of the characters. Then it was concluded whether the in-game characters were played in an aggressive or supportive manner, and a success rate of about 93% was achieved.

Insights


kills ≤ 6.206
gini = 0.47
samples = 77
value = [48, 29]
class = Aggressive
True
False
deaths ≤ 6.222
gini = 0.252
samples = 27
value = [4, 23]
class = Supportive
deaths ≤ 7.868
gini = 0.211
samples = 50
value = [44, 6]
class = Aggressive
gini = 0.0
samples = 2
value = [2, 0]
class = Aggressive
kills ≤ 5.181
gini = 0.147
samples = 25
value = [2, 23]
class = Supportive
kills ≤ 7.224
gini = 0.054
samples = 36
value = [35, 1]
class = Aggressive
assists ≤ 11.685
gini = 0.459
samples = 14
value = [9, 5]
class = Aggressive
gini = 0.0
samples = 17
value = [0, 17]
class = Supportive
deaths ≤ 7.738
gini = 0.375
samples = 8
value = [2, 6]
class = Supportive
deaths ≤ 6.906
gini = 0.278
samples = 6
value = [5, 1]
class = Aggressive
gini = 0.0
samples = 30
value = [30, 0]
class = Aggressive
gini = 0.0
samples = 7
value = [7, 0]
class = Aggressive
deaths ≤ 8.897
gini = 0.408
samples = 7
value = [2, 5]
class = Supportive
gini = 0.0
samples = 1
value = [1, 0]
class = Aggressive
assists ≤ 12.21
gini = 0.245
samples = 7
value = [1, 6]
class = Supportive
gini = 0.0
samples = 1
value = [0, 1]
class = Supportive
gini = 0.0
samples = 5
value = [5, 0]
class = Aggressive
gini = 0.0
samples = 4
value = [0, 4]
class = Supportive
kills ≤ 7.901
gini = 0.444
samples = 3
value = [2, 1]
class = Aggressive
gini = 0.5
samples = 2
value = [1, 1]
class = Aggressive
gini = 0.0
samples = 5
value = [0, 5]
class = Supportive
gini = 0.0
samples = 2
value = [2, 0]
class = Aggressive
gini = 0.0
samples = 1
value = [0, 1]
class = Supportive
DOTA 2