

Data analytics for Esports

Project report

ABSTRACT

The main moto of the project is to increase the ranking by providing a strategy using exploratory data analysis based on Gun usage and the player's choice of movement. There are a lot of guns in the game, here we are going to analyse the gun's performance based on its attributes. Each gun has its own set of attributes like bullet speed, damage, etc which are used for analysing the gun performance. And a choice of player movement is made using a heat map by finding the peak points in the map.

Table of contents:

Introduction.....	3
Data collection	4
Data cleaning.....	5
Data Analysing.....	5
Strategy to approach blue zone	6
Approaches	8
Gun performance analysis	8
The value produced and future use.....	13

Table of figures:

Fig 1: Separation kills on the overall dataset.....	4
Fig 2: Separation kills on the random dataset from the original dataset	4
Fig 3: Separation kills happened in the dataset using guns and by other means.....	5
Fig 4: Intersection point of blue zone	5
Fig 5: the heat map of high rank players position	6
Fig 6: Damage and rate of fire data of guns in Pubg	8
Fig 7: Combination of ranking and assault rifle used.....	10
Fig 8: Combination of ranking and sniper rifle used by players	11
Fig 9: Combination of ranking and shotguns used by players	12

INTRODUCTION

The game Pubg chosen here is because of its beauty of realistic features which most of the gamers prefer to playing some unrealistic games. But there is some uneven distribution of win rate between the players i.e., the top players keep on moving to the top and the other players are still in search of a technique to compete with those players.

It is still a mystery to find the strategy to compete with those players and maintain their ranking in a stable and also increase the ranking. Because of this a lot of players are not regularly playing which was not happening before. Some people who are addicted to the game get frustrated because of their inability to compete with them. This project will provide the best approach towards the game which in turn provides relief for the players.

DATA COLLECTION

There are two different datasets that have been used for the project one is the dataset that contains weapon attributes which are to be used to select the best gun to be used in the match and the second dataset is regarding a match detail dataset that contains players details, and this is used to analyse the player's performance.

The data that is used here is a random dataset count of 1000 rows are selected from a large player dataset. Here there can be a question, whether the dataset taken here is correct or not as it is not a complete dataset, but I have enough evidence to prove both are the same. This is done by making a visualization based on death that occurred using guns. And the aim of doing this is to make the work easier and efficient.

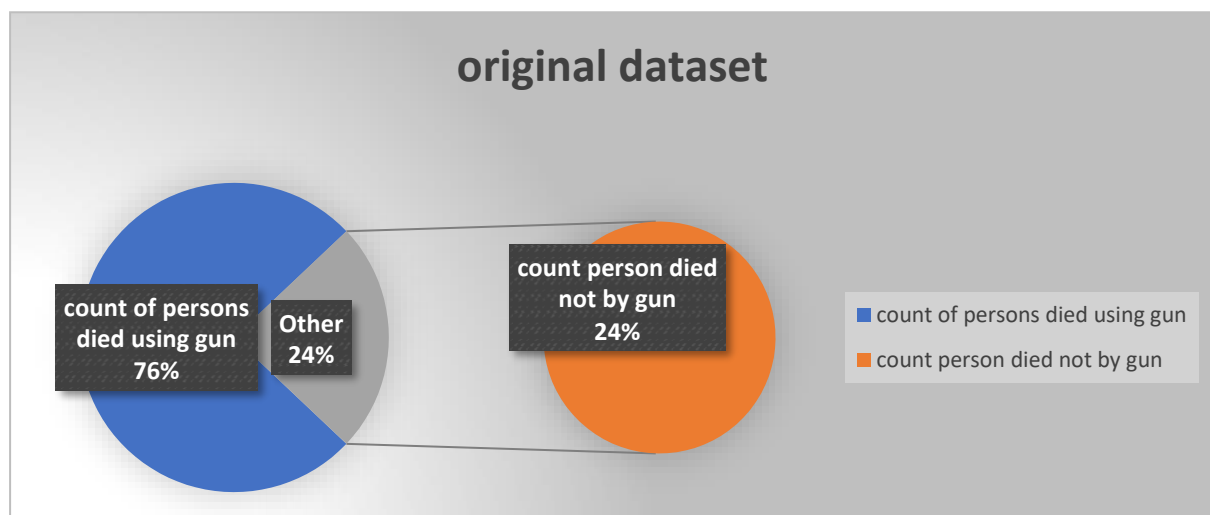


Fig 1: Separation kills on the overall dataset.

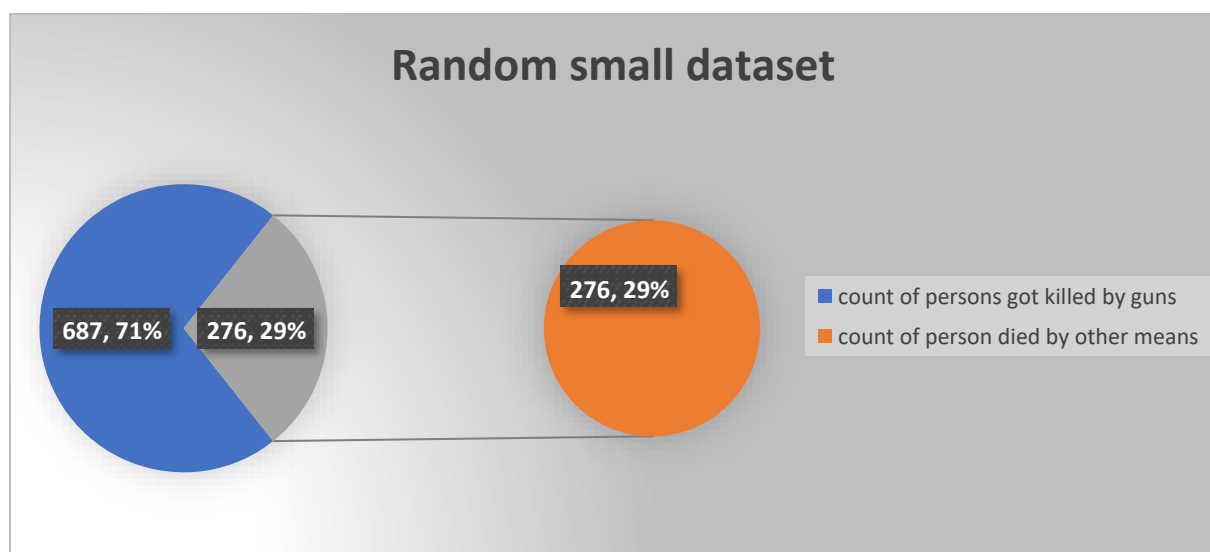


Fig 2: Separation kills on the random dataset from the original dataset.

From above the above visualization, the filtered dataset is perfect to be used for analysing, because both has similar ratio in death occurred using the gun.

DATA CLEANING

As the aim of the project is to improve the ranking by giving the best gun and best place to land, now there are some unneeded data in the game which are separated. Those unneeded data are not used for gun analysis but used for providing the starting idea for the project. And there are some outliers in the dataset which are the irrelevant values and missing values in the dataset that are removed from the dataset.

DATA ANALYSING

After the data cleaning process, the next step is to analyze the data and find some insights from the dataset.

The insights found fro

m the datasets are top player's gun preference and the places where the greatest number of fights have taken place. Based on these two things only our ideology or strategy is going to be created

The main strategy created are based on two things.

- 1) How to move in the map by knowing key positions in the map where best players play
- 2) The best gun to be used to tackle the top players.

First, the below figure, clearly shows that 25% of players die by other means like blue zone, drowning in water, falling from a high place, etc... If our player does not die from one of these things, then he/she is definitely in the top 75 rankings. The player can get rid of other things, but he needs a plan to get rid of the blue zone which will be discussed below.

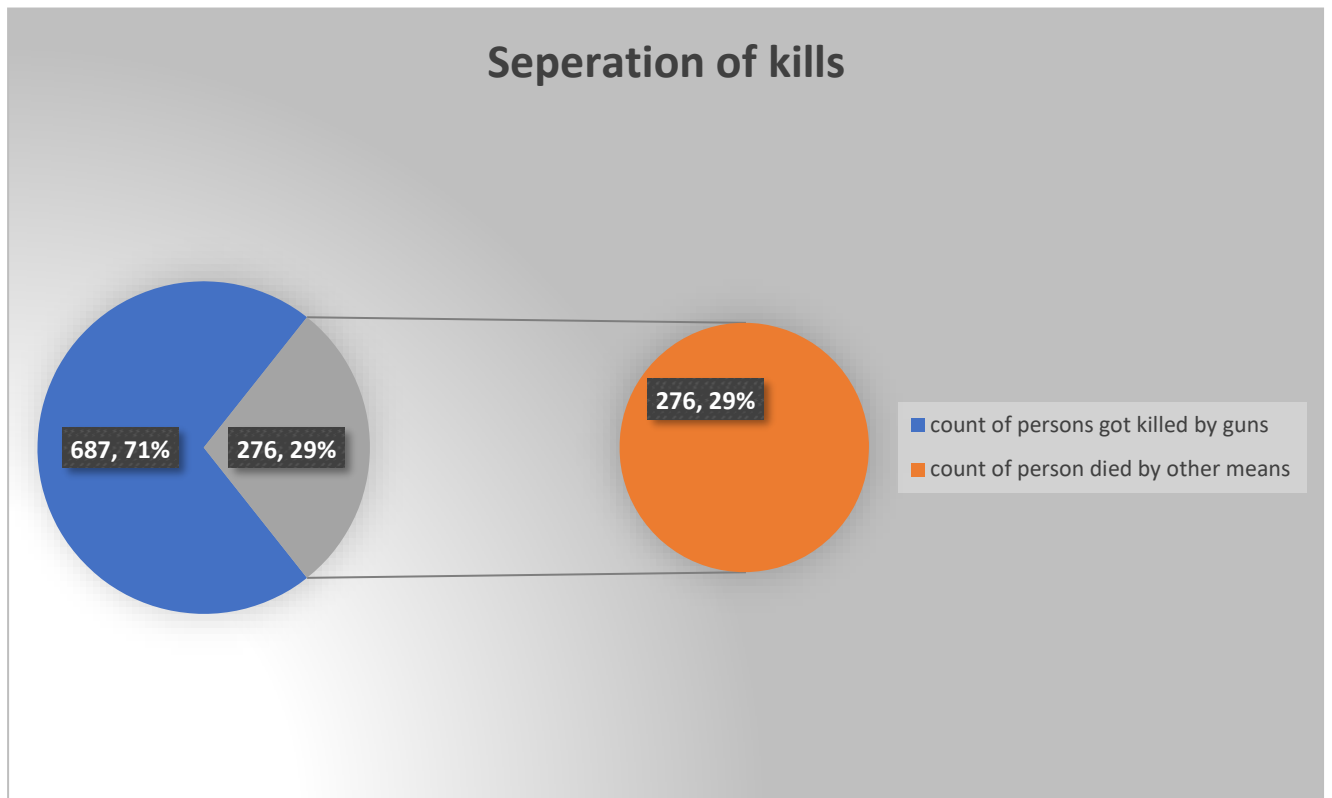


Fig 3: Separation kills happened in the dataset using guns and by other means

STRATEGY TO APPROACH BLUE ZONE



Fig 4: Intersection point of the blue zone.

The above figure is a sample random blue zone drawn in the Erangel map. The approach to be used to tackle the blue zone is done by drawing random circles inside the blue zone circle and find the intersection of those circles and moving to the centre or the intersection part of the circles will save the player from getting died due to the blue zone. Because however, the next blue zone circle appears a part of the next blue zone will be in the intersection part. This is approaching the player should use for getting rid of the blue zone. Now it's fixed that the player is definitely in the top 75.

Another ideology to be followed is that while moving towards the blue zone below the map shows the positions in the map where most of the top players stay and go for a fight. So, the player should approach these places carefully.



Fig 5: the heat map of high rank players position

GUN PERFORMANCE ANALYSIS

The performance of a gun can be checked by its damage, rate of fire. These are the two important attributes of a gun to be analysed.

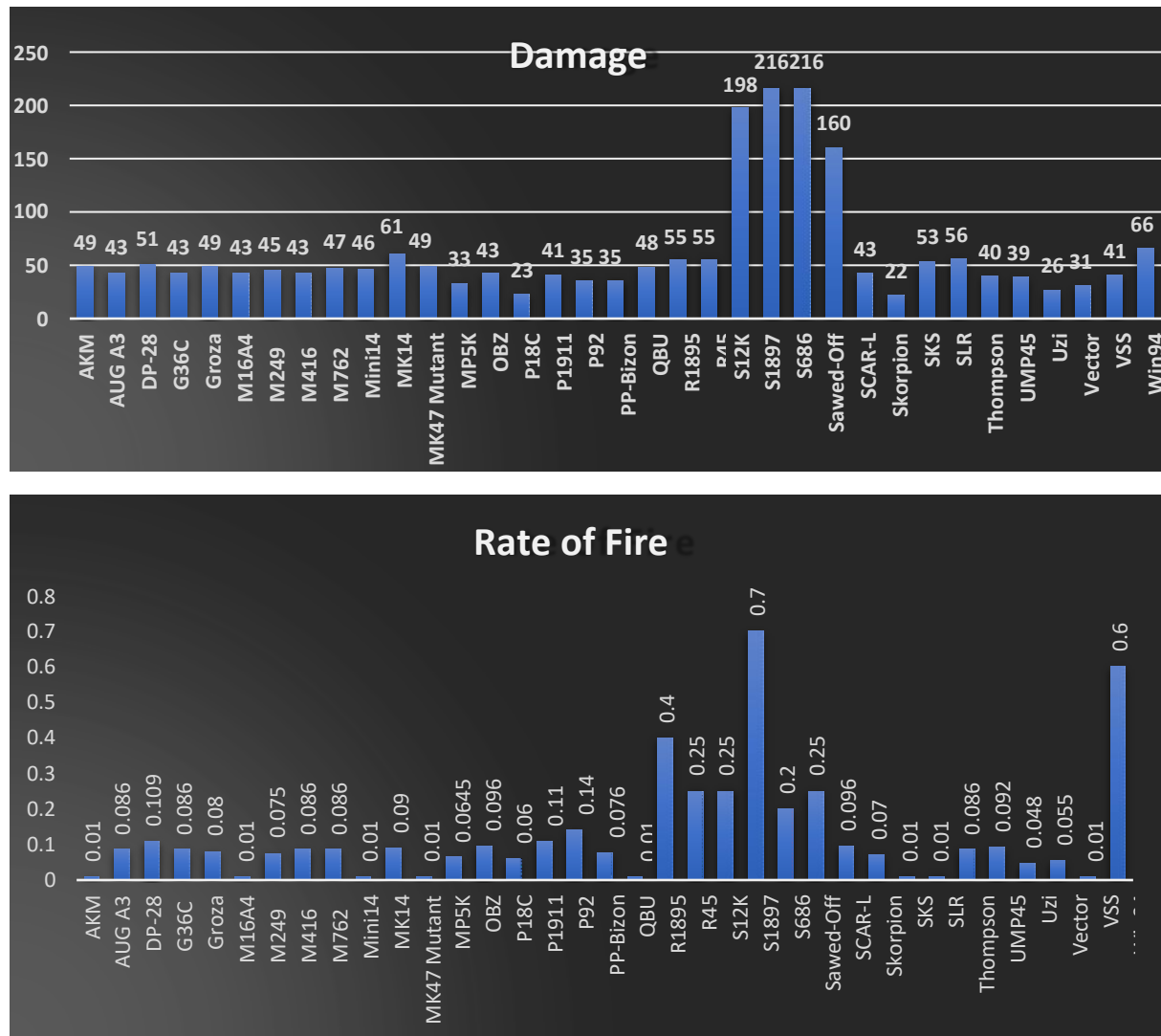
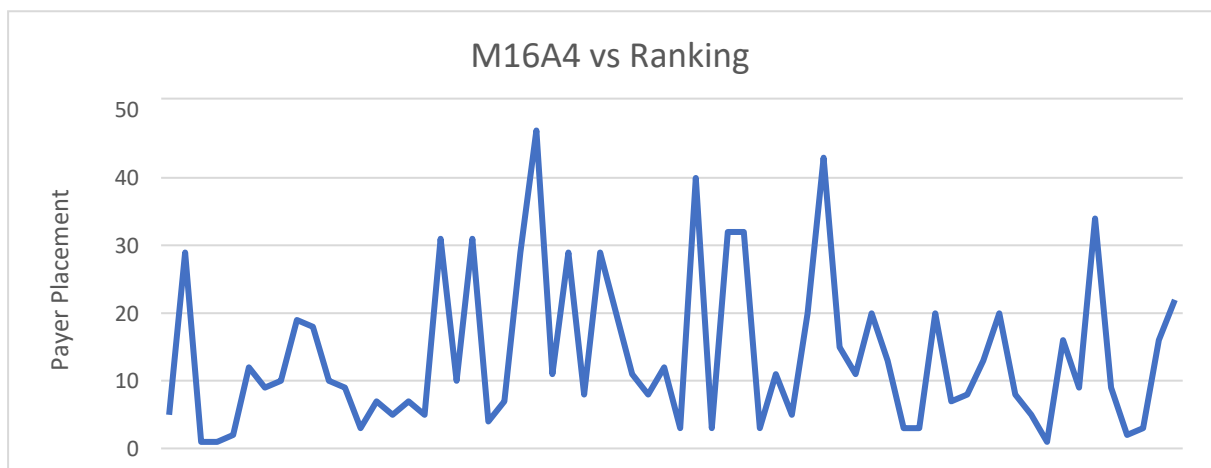
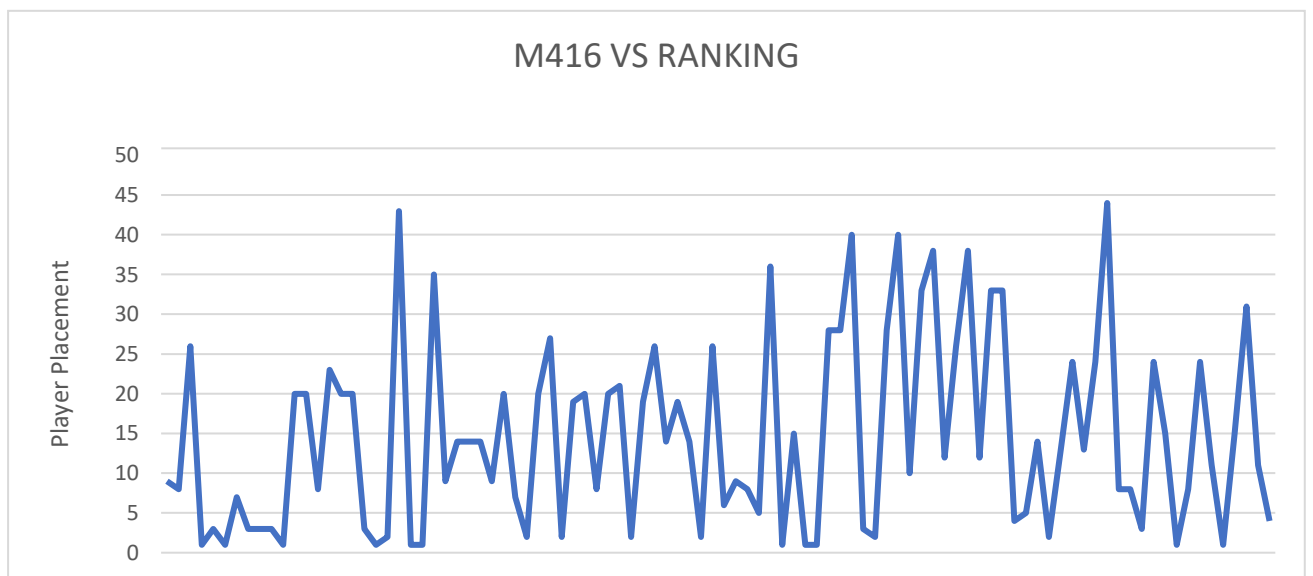
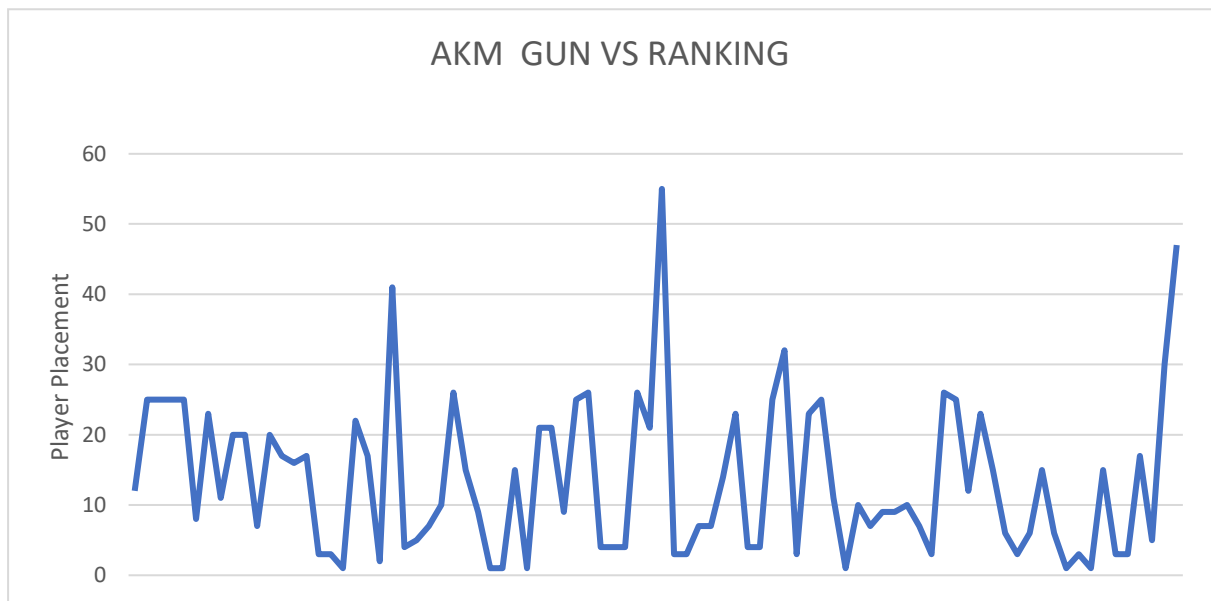


Fig 6: Damage and rate of fire data of guns In Pubg

From the visualization, the top guns are based on their category (Assault rifle, sniper rifle, shotguns). The other guns like pistols are left because they are some additional guns that can be carried. And the probability of using pistols is very less. So analysing pistol performance is not needed.

Now we are going to use this data along with guns used by the players in our dataset along with their rankings to select the best guns to be used. This is done by comparing the gun usage along with players ranking and comparing with the gun performance data. Because the greater the ranking, the greater the performance of a gun.

ASSAULT RIFLES



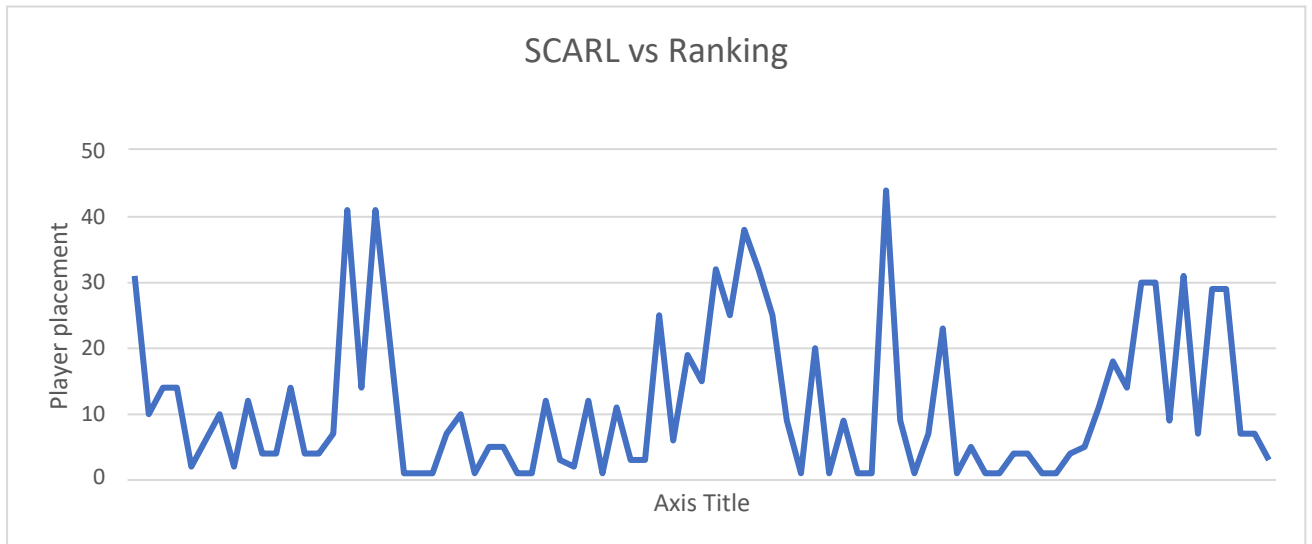


Fig 7: Combination of ranking and assault rifle used.

The above figure shows the ranking of players and guns used by them. Comparing these along with gun damage and rate of fire data, the goto gun in assault rifle are AKM and SCAR-L.

SNIPER RIFLES

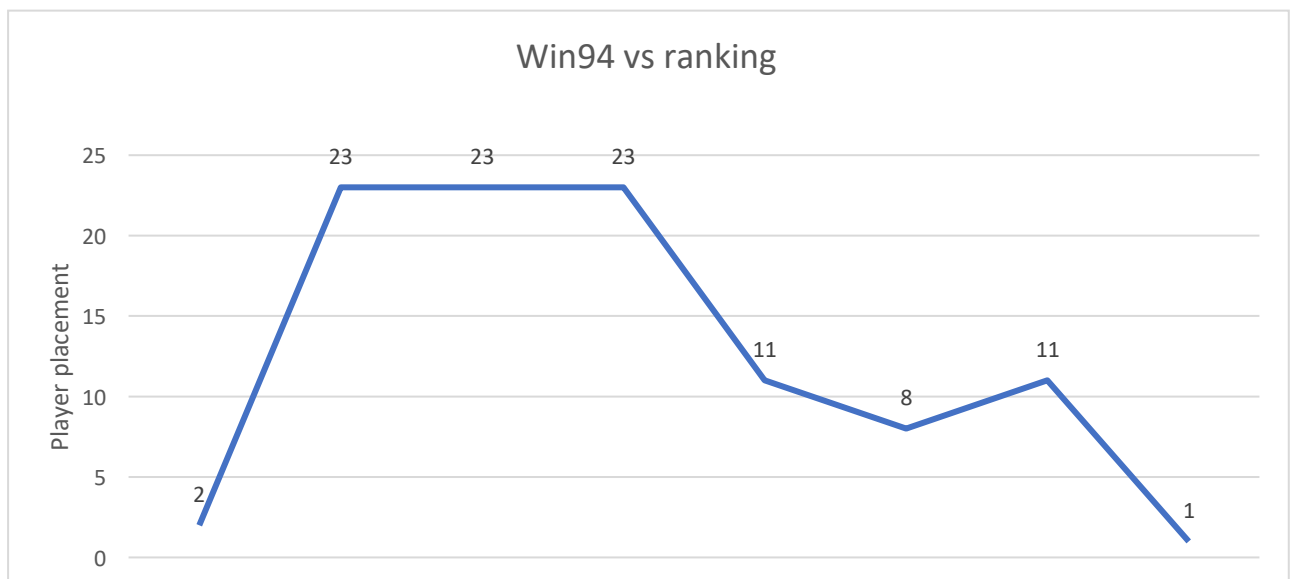
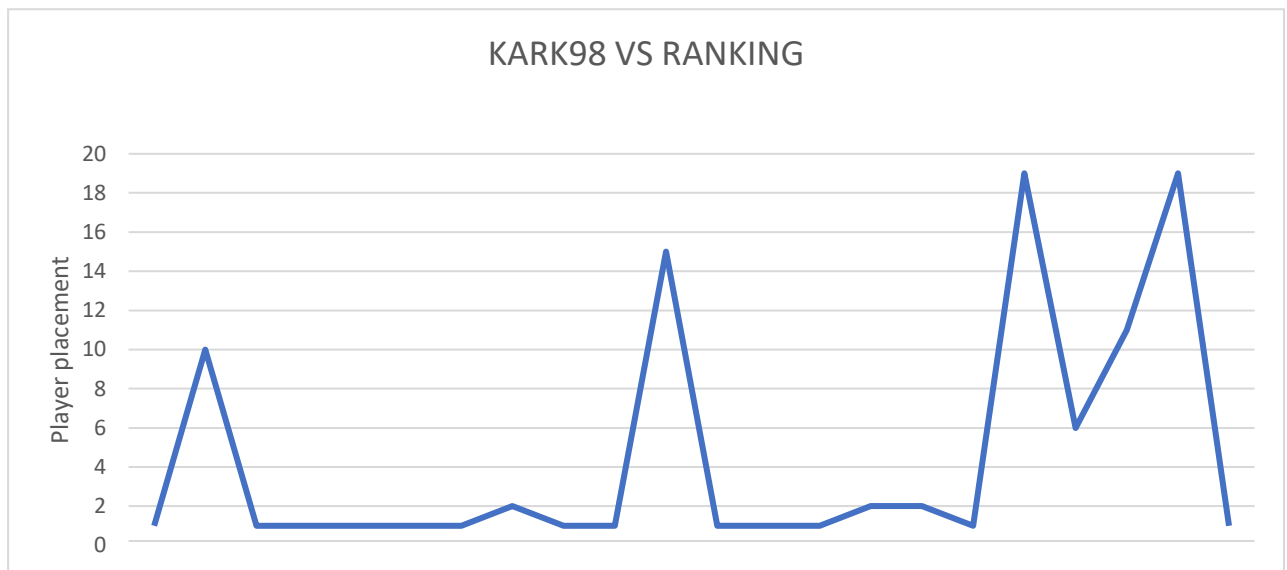


Fig 8: Combination of ranking and sniper rifle used by players.

The above graph and gun performance graph show that the goto sniper rifle is KARK98.

SHOTGUNS

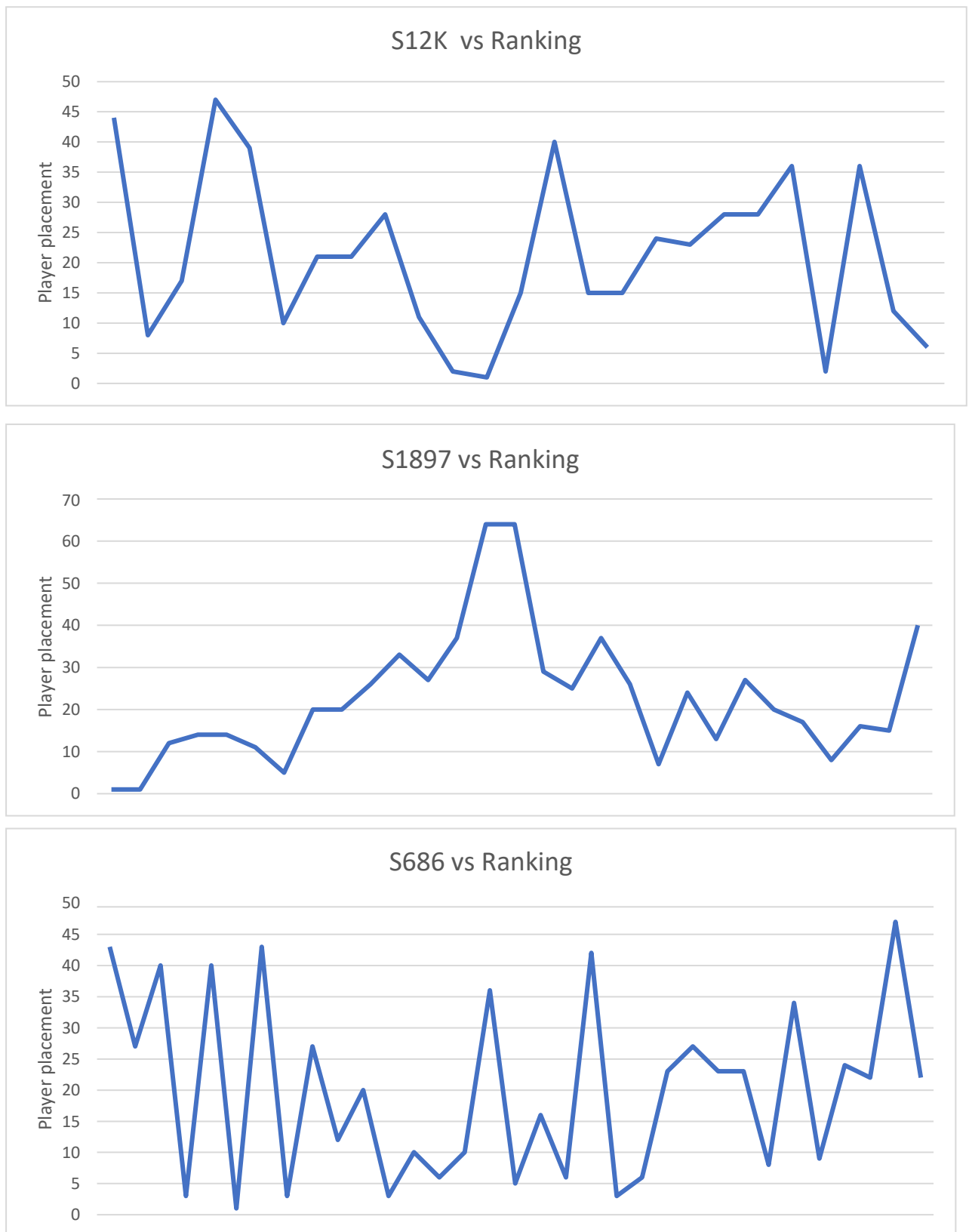


Fig 9: Combination of ranking and shotguns used by players.

From these graphs, the best shotgun to be used S12K and S686.

APPROACHES

Approach one

The first approach can be used to increase your ranking. Based on the heat map we can know the places where a lot of fights happens. Once this is known you avoid those places and move to some other parts of the map and take the fights at last to improve your ranking. In this approach, the player should prefer the best assault rifle along with the best shotgun given above and not prefer snipers because the player should take the fight at last and there is no need of using snipers in the last circle.

Approach two

The second approach is to increase the kill and death ratio. From the heat map, you can know the top players fighting positions. Once you know it, the next step is to get an assault rifle with a sniper rifle to take fights both in the long-range as well as in the short-range. The best guns are analysed and are given above.

Value produced and Future use

Based on the approach created, it's created based on the game dataset. A similar approach can be created for players while playing in a tournament and increase their performance. Then likewise the player position analysis can be done for some other dataset and can be used to find the important positions in other maps to change their game method accordingly.

Reference

- 1) <https://www.usgamer.net/articles/06-12-2018-pubg-tips-xbox-one-how-to-play-battlegrounds-essential-guide-to-win/best-weapons>
- 2) <https://wccfttech.com/pubg-pc-bluezone-uplink-update-4-3/>
- 3) <https://www.kaggle.com/aadhavvignesh/pubg-weapon-stats>
- 4) <https://www.kaggle.com/sdip28/pubg-exploratory-data-analysis-prediction>

Software used:

Tableau

Microsoft Excel

APPENDIX

[datasetused](#)