Determining eSports Team Potential Investment Value Using Machine Learning

Project Statement of Work V1

AI Algorithms – AIDI 1002

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Executive Summary

In recent years, eSports has been growing into a multi-million dollar industry [2, 4]. Many people and companies are looking to invest in this industry, but due its relatively new nature, there is very little information about which teams or players to invest in. This provides a need for a system which can assign values to teams based on performance and popularity to determine which teams are worth investing in. In this project, I propose using data from teams' past performance in games, as well as information on social media following and event viewership to create a model that will assign a value to the team to determine if it is worth investing in. The final deliverable will be a model where the user can input information on a team, such as their following or their past game performance, and the model will give a result on the projected value of the team.

Rationale Statement

Using artificial intelligence, we can determine which League of Legends eSports teams are the most valuable for investors. This can help the business grow even more with proper funding and can be helpful for those looking to invest their money.

Problem Statement

eSports is a growing industry, especially in recent years. One of the most prominent eSports games is League of Legends, whose championship events and tournaments bring in hundreds of thousands of viewers every year. In order for these events to continue to grow, there needs to be investment and sponsorships from people and companies. Currently, popular investors do not have much experience or expertise in eSports due to it being a relatively new and somewhat niche industry. Therefore, it is important for these people and companies to know which teams to choose that will bring in the most value to their investment.

In this project, I propose using Artificial Intelligence in predicting which teams have the most potential and bring the most value for investors. This can be based on many different factors, such as the team's history in tournaments and sporting events, the following of each team on various social media websites, the average viewership of players when they livestream, the viewership of each team's events, and other metrics. This would require plenty of data from different sources about each team eSports team, and even about each individual player since the players on the team could affect the revenue and competition results.

Data Requirements

For this project, a dataset is required that has different metrics that can be correlated to the revenue that each team might bring. Some examples of metrics include:

- Performance of each team throughout the years
- Performance of each player throughout the years
- Event viewership of each team
- Livestream viewership of each team
- Information on the team history of different players
- Social media followings of each team
- Information about team sponsorships
- In order to keep the scope of this project limited and realistic, we will only look at players and teams from the same region

Data

For potential datasets, we can use information on the past games in the season or during championships, as well as other non-official tournaments. Some potential datasets include from sportsdata.io [3], which provides free datasets with basic information about the player and team. There is a website called Oracle's Elixir [5], which provides more in depth information about the games and teams, which can be helpful in predicting their performance in throughout future games, which will help in assigning value to each player and team.

For information about online viewership, we can use statistics from TwitchTracker [6] which gives information about livestreams and the viewership and popularity for each streamer. This can be useful in determining the popularity of certain players or teams. We can also use information from eSports Charts [1] which gives information about tournament viewership, prize pools, team sponsorships and livestream statistics.

Model/Architecture Approach and Testing

In order to verify the plausibility of this project, we will need to determine if the results are accurate. The outcome of this project will be a result on the value of the team in terms of sponsorships, performance, and popularity. These are the testing metrics that will decide whether or not a team is worth investing in, since it can be correlated to the success of the team. We can determine the performance and likely future performance of a team based on their historical performance throughout history. This is most likely to be based on the player history since the team rosters are constantly changing. For popularity of the team, we can determine this based on the viewership of the team's tournament games, as well as the viewership of the individual players' personal livestreams. It can also be determined my looking at the following of the teams and players on social media.

Each team can be given a score based on each of these metrics and the investor will be able to choose which teams they would want to invest in based on which of these metrics are the most important to them. At the end of the project, the user of this program should be able to input information of a new team that they would like to invest in such as the players, the performance history of the team and be given a score which the user can use to determine if the team is worth investing in.

Project Plan

From this point in the project schedule, the next steps toward project completion are as follows:

1. Researching available algorithms and models related to predicting sports performance.
2. Performing initial exploratory data analysis on the datasets to make sure they are in the same format
3. Perform feature analysis to determine which metrics are most correlated to the success and performance of each team
4. Finalize which model will be used to score the value of each team depending on performance and popularity
5. Train model using the datasets collected to create a model that can predict the performance based on player and team
6. Test data against dataset to determine accuracy and see if there are any flaws in the model or if any improvements can be made to the accuracy
7. Tune the model to fix and flaws
8. Continue training, testing, and analyzing the model until the error is a reasonably small amount
9. Evaluate the model against other datasets, such as teams from other regions

Throughout the process, the model will also be evaluated to determine if the model is appropriate or if there are any flaws in the model. If there are any problems, other models may be considered and tested to see if they provide more accurate results.

References:

[1] Escharts.com. “Esports Teams and Events Stats: Dota 2, LoL, CS:GO.” Esports Teams and Events Stats: Dota 2, LoL, CS:GO | Esports Charts, escharts.com/.

[2] Gough, Christina. “Global ESports Market Revenue 2023.” Statista, 13 Oct. 2020, www.statista.com/statistics/490522/global-esports-market-revenue/.

[3] “League of Legends (LoL) Data Feed API.” SportsDataIO, sportsdata.io/developers/data-dictionary/lol.

[4] “League of Legends Esports Deep Dive: Worlds Viewership and How Format Changes Contributed to the LEC's Growth.” Newzoo, 18 Dec. 2019, newzoo.com/insights/articles/league-of-legends-esports-deep-dive-worlds-viewership-and-how-format-changes-contributed-to-the-lecs-growth/.

[5] Oracle's Elixir - LoL Esports Stats, oracleselixir.com/.

[6] Twitch Tracker, https://twitchtracker.com/