

BACKGROUND

Esports (competitive video games) is one of the fastest growing industries in the world. In League of Legends, weighing in at 111M peak monthly players and an \$8M prize pool, pro players take to "Summoner's Rift" for the chance to win big.

PREDICTION TASK

Is there a significant linear relationship (R^2 Squared > 0.75, p-value < 0.05) between a player's average kills, average deaths, average assists, rank, win rate in non-professional play and win rate in professional play?

DATA

We scraped data from:

- Oracle's Elixir, for player names, then
- TrackingThePros, for player IDs, then
- Riot Games API, for match history (kills, deaths, assists, win/loss), rank

Our sample is 40 players, the season roster size. Limited by the API, we could only scrape their 25 most recent matches.

METHODOLOGY

1. Query player's kills, deaths, assists, rank, and wins/losses. Calculate average kills, average deaths, average assists, and win rates.
2. Conduct simple regression analysis, calculate R^2 -squared.
3. Conduct a multiple regression analysis, calculate R^2 -squared, p-values.

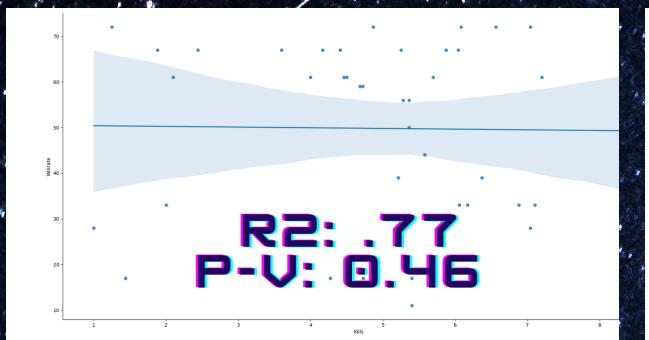


WHAT MAKES A WINNING PRO PLAYER?

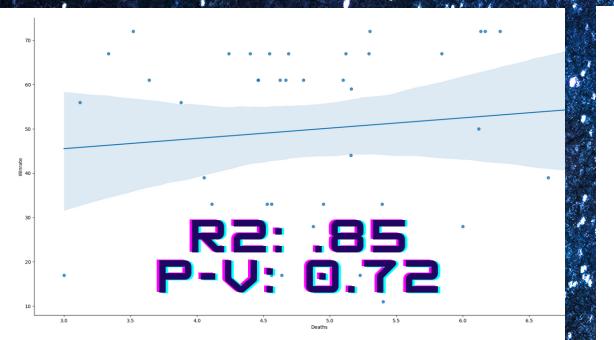
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RESULTS & VISUALIZATIONS

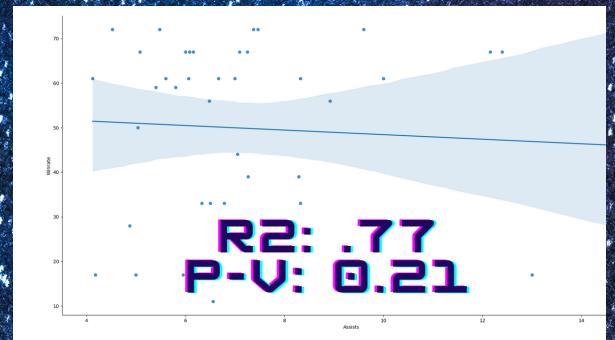
KILLS | WR



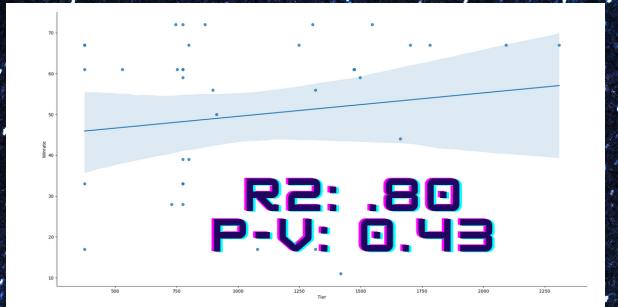
DEATHS | WR



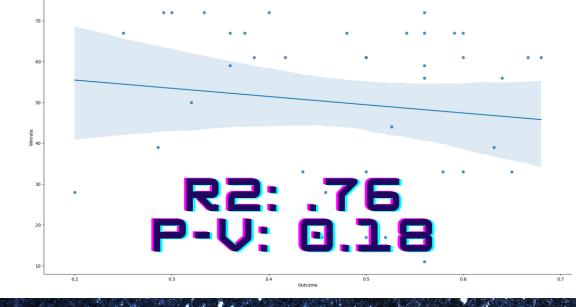
ASSISTS | WR



RANK | WR



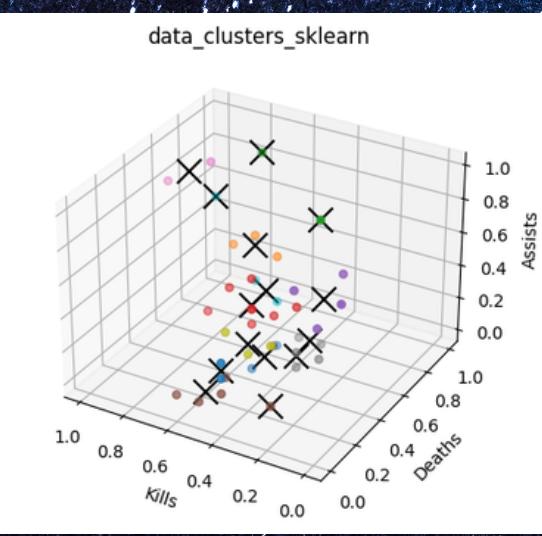
WIN RATE | WR



MSE

The R^2 -squared values are from the simple regression. The p-values are from the multiple regression.

KILLS, DEATHS, ASSISTS | WR



| | Training MSE | Testing MSE |
|-----------------|--------------|-------------|
| All | 360.48 | 292.90 |
| Average Kills | 349.84 | 476.71 |
| Average Deaths | 408.26 | 275.03 |
| Average Assists | 417.23 | 259.89 |
| Rank | 402.51 | 279.62 |
| Win Rate | 377.75 | 348.91 |

CONCLUSIONS

- None of the statistics had a significant linear relationship with win rate.
- Our statistics have a high R^2 -squared; it fits the model well. Our lines of best fit predict a player's professional win rate pretty accurately given a non-professional statistic.
- Our statistics have high p-values; the statistics do not hold a significant relation with win rate.
- The most significant linear relationship is between average deaths and win rate. Contrary to what's expected, the higher the average deaths, the higher the win rate.

LIMITATIONS

- Our sample sizes are too small (40 players and 25 matches per player). There are many more players, seasons, and matches.
- K/D/A confound each other. If you have a many kills, you probably have few deaths and many assists.
- Pro players specialize in a role (top, middle, bot, support, jungle). Many kills makes a good ADC but a bad support.
- It's a team game. A good player can lose a lot with a bad team and vice versa. Players play with different teams in non-pro play but play with the same team in pro play.