Predicting League of Legends Outcomes

Using Classification Models

By Amelia Lui

TABLE OF CONTENTS

What is League of Legends? Esports?

- Two Teams (Red/Blue)
- Five Players per Team
- Goal: Destroy the other team's Nexus Crystal!
- Other features: killing dragons to gain buffs, collecting coins for items

A very popular game to play, watch, analyze, and/or to bet on

ESports

Introduction

Motivation: Help fans and pro-gamers gain insight into what features of gameplay most affect game results, especially initial 10 minutes of gameplay

Goal: Single out the most telling features of gameplay

Methodology

Data: <u>a dataset from Kaggle</u>.

Tools: Numpy, Pandas, Matplotlib, Seaborn, Sklearn

Model: kNN, logistic regression, random forests

Model Evaluation:

- 80/20 training set and testing set
- Accuracy, precision, confusion matrix, ROC AUC
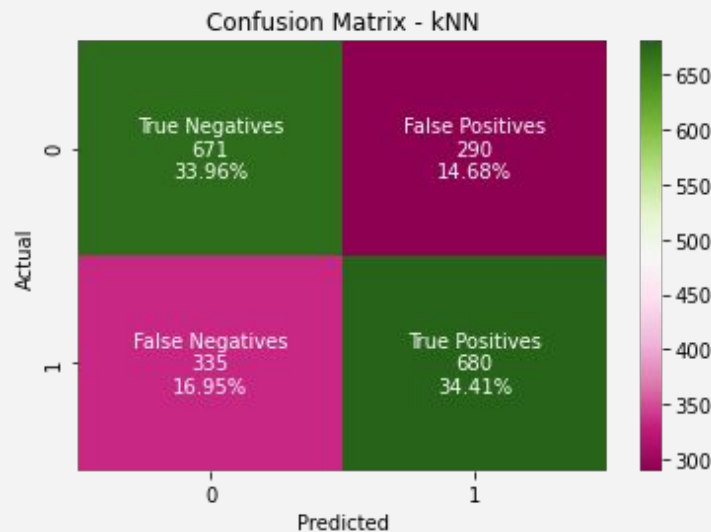
Results: kNN

Model: kNN

Test set accuracy: 0.6837044534412956
Train set accuracy: 0.7707199797545236
accuracy score: 0.6837044534412956
precision score: 0.7010309278350515

Confusion Matrix - kNN
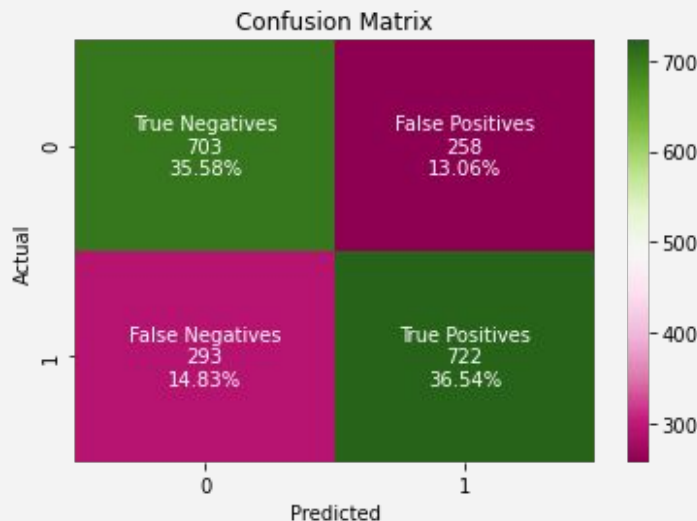
Results: Logistic Regression

Model: LogReg

Test set accuracy: 0.7211538461538461
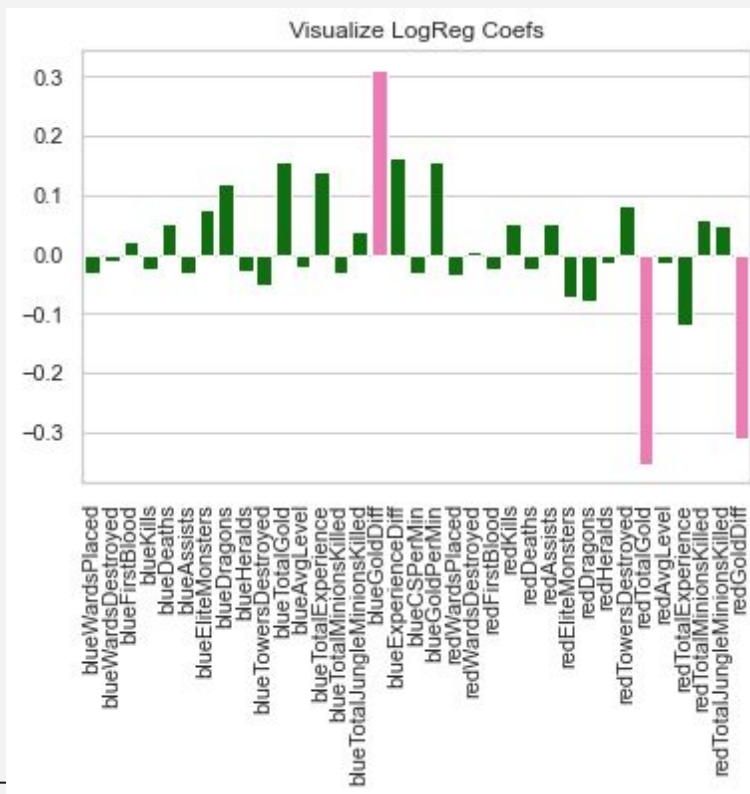Train set accuracy: 0.7368088067822346
accuracy score: 0.7211538461538461
precision score: 0.736734693877551

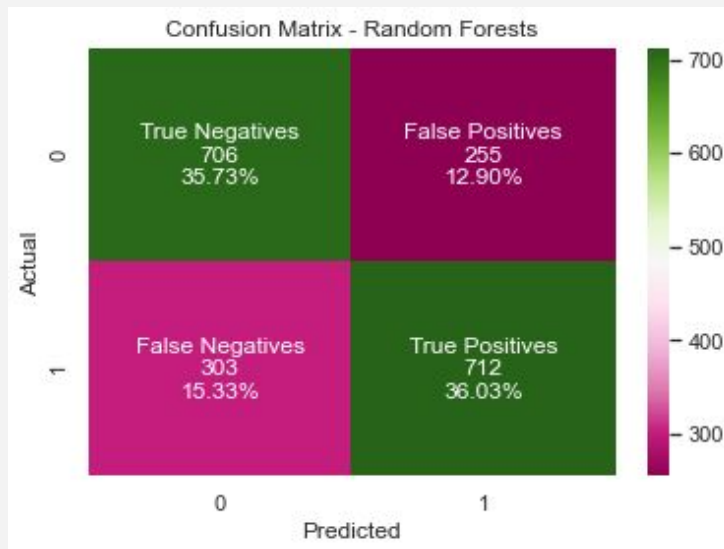# Results: Logistic Regression

Results: Random Forests

Model: Random Forests

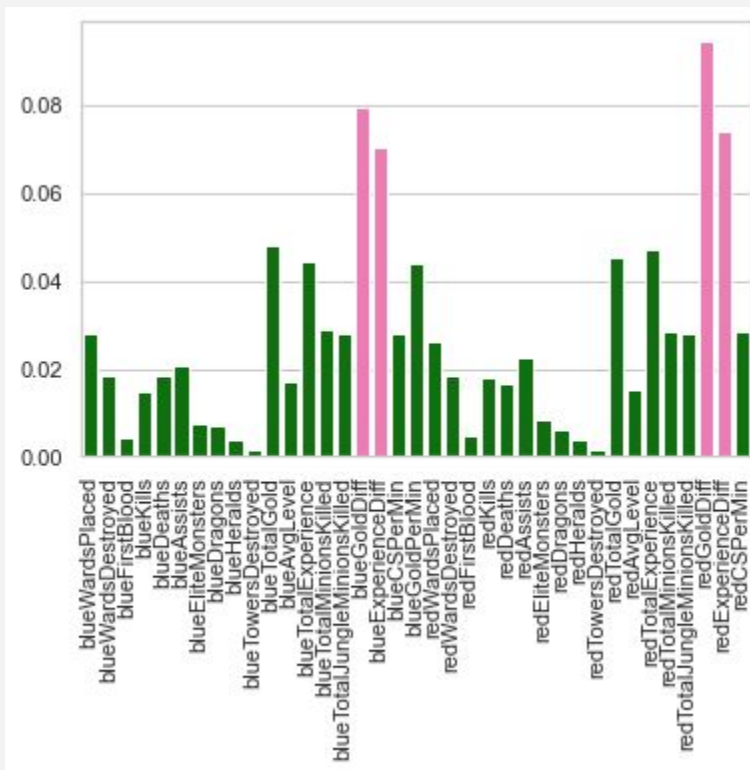Test set accuracy: 0.7176113360323887
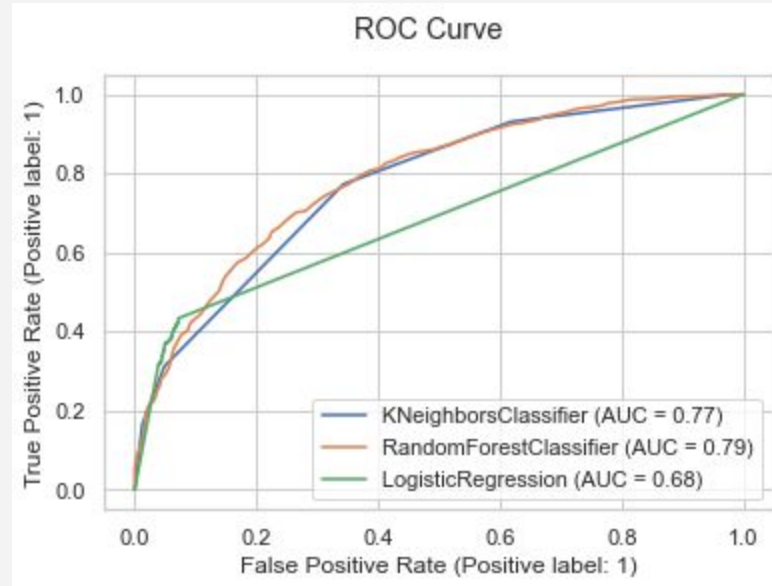Train set accuracy: 1.0
accuracy score: 0.7176113360323887
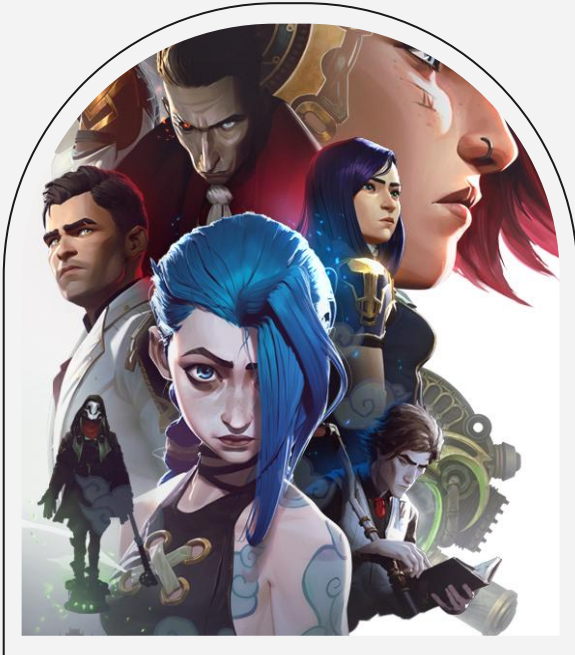precision score: 0.7362978283350569

Confusion Matrix - Random Forests

Results: Random Forests

ROC Curve

KNeighborsClassifier (AUC = 0.77)
RandomForestClassifier (AUC = 0.79)
LogisticRegression (AUC = 0.68)

Conclusions

Features of Note: Coins and Experience

Application

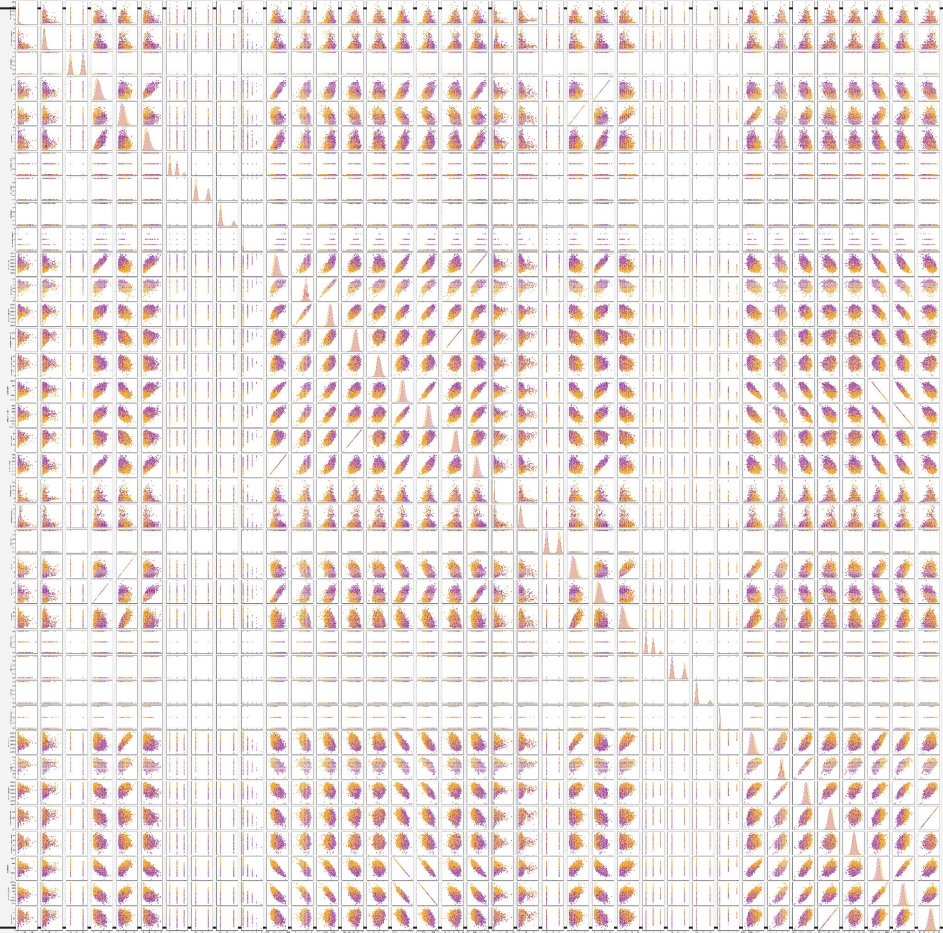**Future Work**: more models, using the game API to retrieve more features

THANKS!

CREDITS: This presentation template was created by **Slidesgo**,
including icons by **Flaticon** and infographics & images by **Freepik**
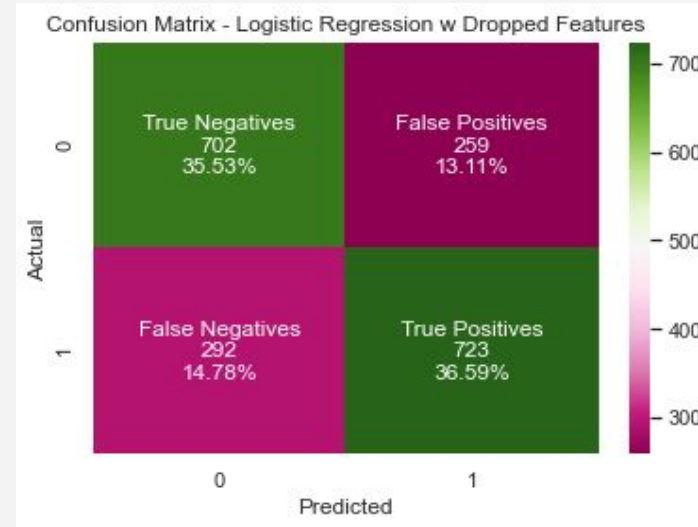
+Artwork by League of Legends (Riot Games)

Appendix

EDA-Scatterplot

(not quite helpful)

Confusion Matrix - Logistic Regression w Dropped Features

Model: LogRegDropped

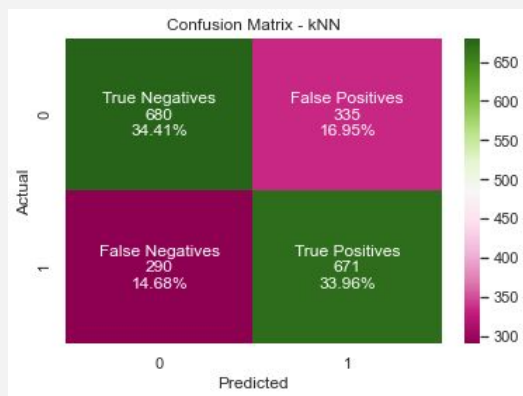Test set accuracy: 0.7211538461538461
Train set accuracy: 0.736429204099709
accuracy score: 0.7211538461538461
precision score: 0.7362525458248472

Logistic Regression

With dropped features

that had low coefficients

# Would there be a big difference if blue and red were flipped?

Model: kNN (flipped)

Test set accuracy: 0.6837044534412956
Train set accuracy: 0.7707199797545236
accuracy score: 0.6837044534412956
precision score: 0.6669980119284294

Model: LogReg (flipped)

Test set accuracy: 0.7211538461538461
Train set accuracy: 0.7368088067822346
accuracy score: 0.7211538461538461
precision score: 0.7058232931726908
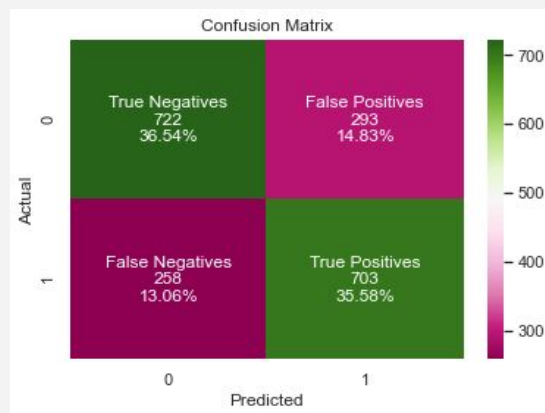
Model: Random Forests (flipped)

Test set accuracy: 0.715080971659919
Train set accuracy: 1.0
accuracy score: 0.715080971659919
precision score: 0.7002012072434608