

# Predicting Game Win/Loss Rate

## League of Legends



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METIS Project IV





- One of the most popular team-based Esports game (5 vs 5)
- Objective of Game: Break enemy Nexus(structure)

*Interaction with minions and opponent*

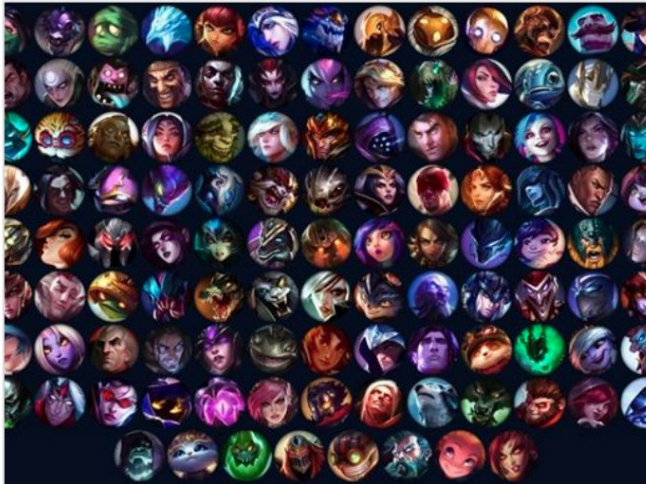


*Team fight with multiple Champions*

*Removing a turret*



*Victory secured*



# Goal

**Build a Classification Model to  
predict Win/Loss Rate + Interpret  
important determining features**

- Dataset from Kaggle - collected from highest ranking players
- Contains both Blue + Red Team

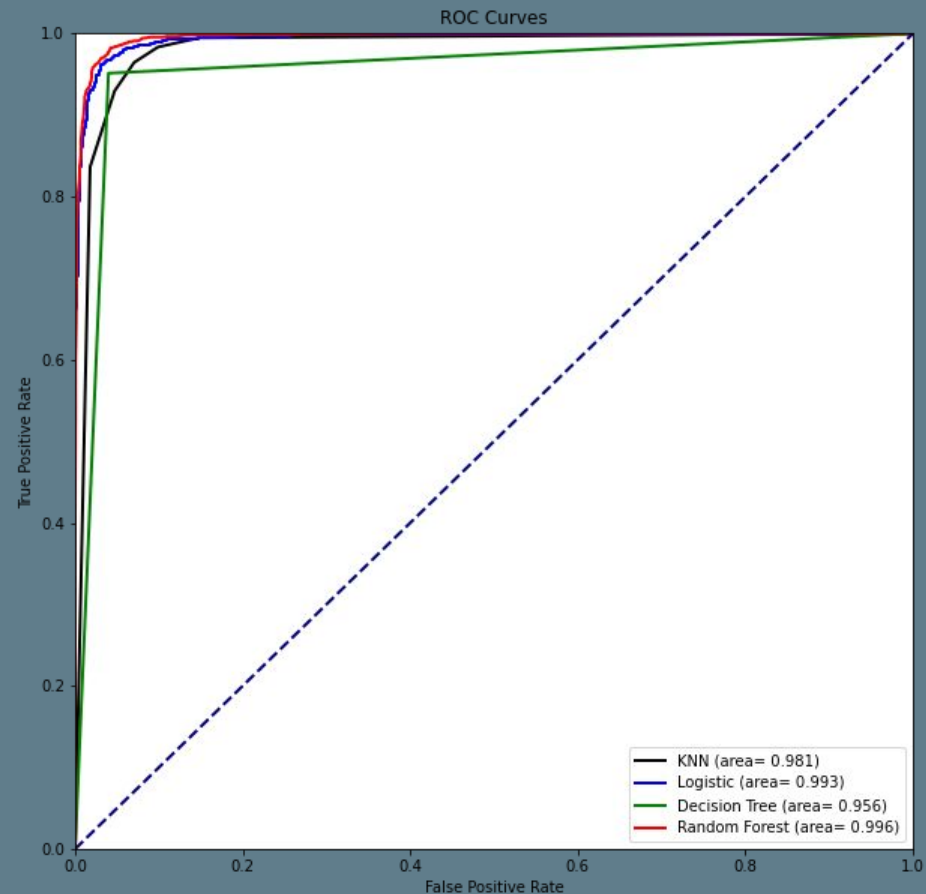


**26,904** rows

**50** features →  
**25** features  
(Gold, # of kills,  
# of deaths,  
objectives  
secured...etc)

# Classification Metric

- ❑ AUC/ROC curve - model comparison
- ❑ F1 Score - balance between precision + recall



## Top 3 Models

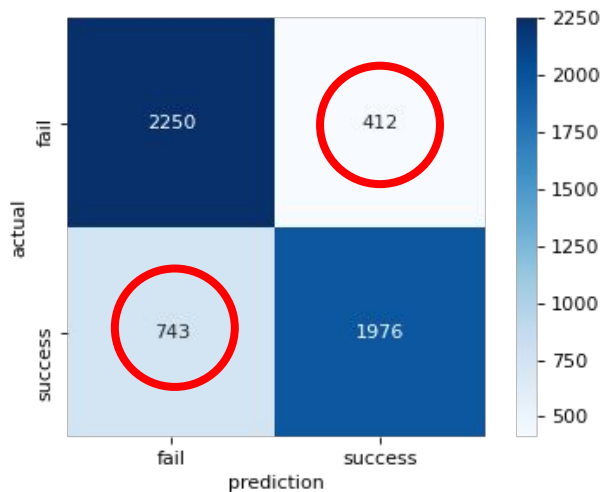
1. Random Forest

2. Logistic  
Regression

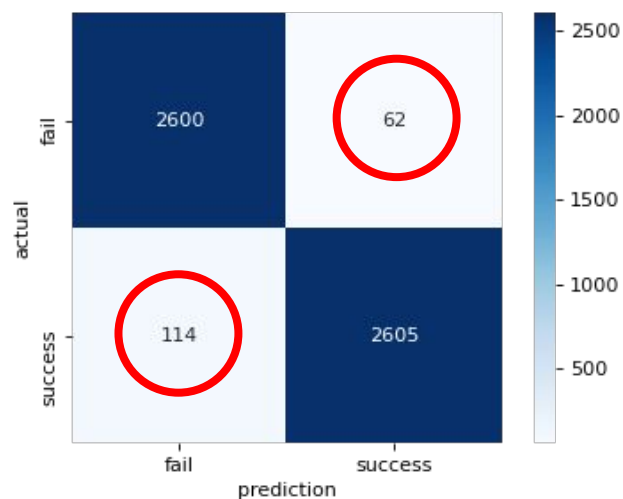
3. KNN

	Baseline Model #1 (more categorical features)	Baseline Model #2 (more continuous features)	All Features
<b>F1</b>	<b>0.797</b>	<b>0.946</b>	0.973
Precision	0.786	0.942	0.972
Recall	0.808	0.950	0.974

Baseline Model 1



All Features



# Exploring Coefficients for Logistic Regression

	Coefficients
Assist	1.22 e -01
Kills	5.05 e -02
TotalLevel	2.87 e -02
TowerKills	2.17 e -02
TotalMinionKills	1.48 e -02
FirstDragon(Objective)	1.16 e -03
FirstBaron(Objective)	1.05 e -03
WardPlaced	-3.72 e -02

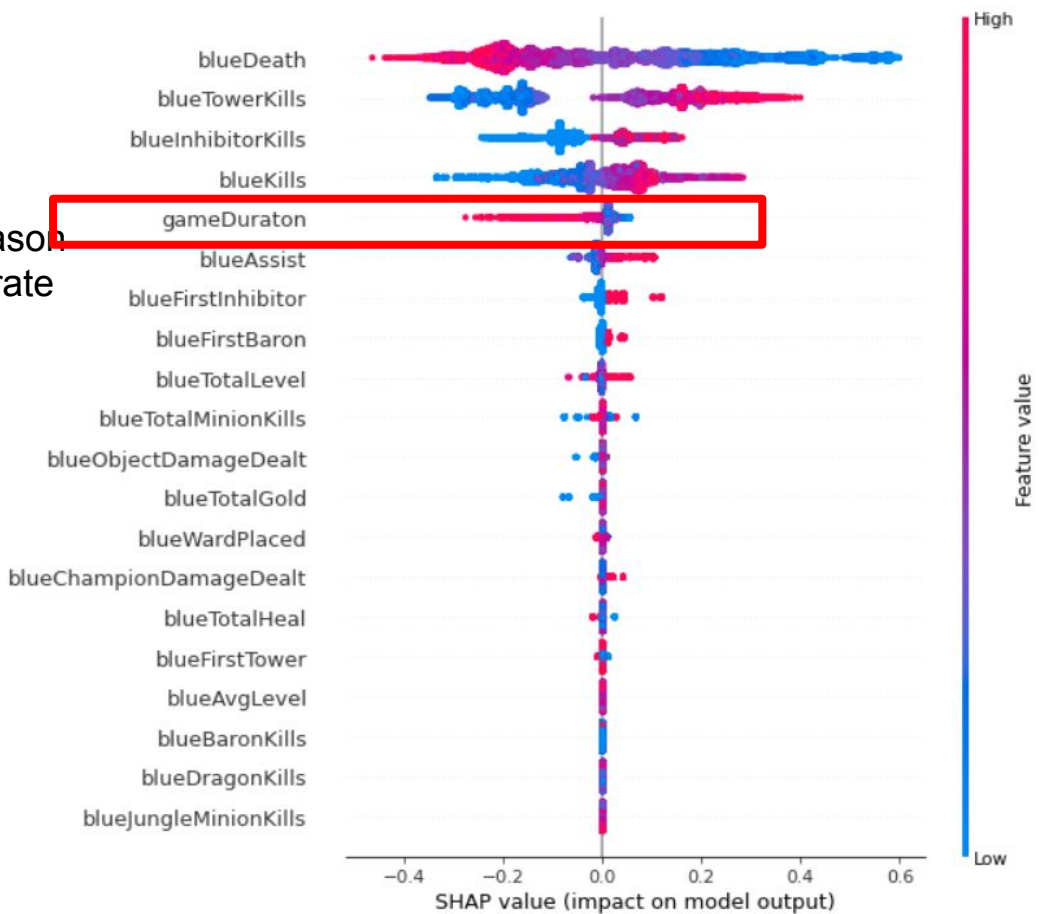
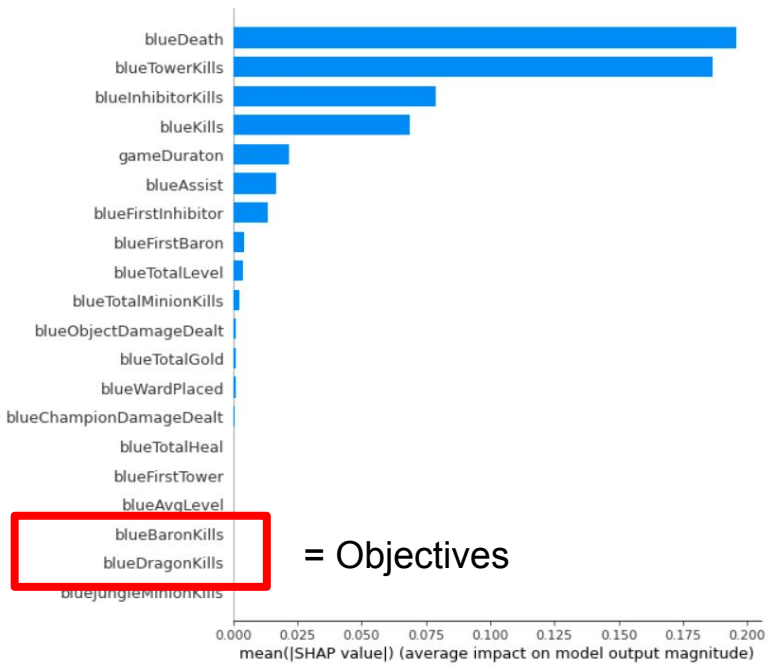
## Takeaways

- Assist + Kills more important than trying to secure objectives (relatively more important)
- Fighting to secure objective happens often in actual game → give up objective and focus more on securing kills/assists



# Feature Interpretation

- Longer game time doesn't help in winning
- Low death improves chance of winning
- Less emphasis on objectives → potential reason why the game has been updated to concentrate more on objectives nowadays



# Understanding the Patch Notes through Data Findings

## Here's how League of Legends' preseason patch is changing dragons

*Drakes can even give Summoner's Rift an overhaul now*

By Austen Goslin | @AustenG | Nov 20, 2019, 1:08pm EST

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Riot Games



### PRESEASON 2020 GAMEPLAY: RISE OF THE ELEMENTS

Stop in for a rundown of this preseason's gameplay changes!

2 YEARS AGO

GAME UPDATES | AUTHOR: SUMMONER'S RIFT TEAM

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## Elemental Rifts

**GOAL:** Every game, Summoner's Rift presents a variety of distinct and memorable environments for players to master.

## Elder Dragon

**GOAL:** Elder buff is more satisfying; Elder buff doesn't favor the team with more dragons.

- Notable update that Riot(game company) has been implementing → shows focus on “objectives”



**Thank you**