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)

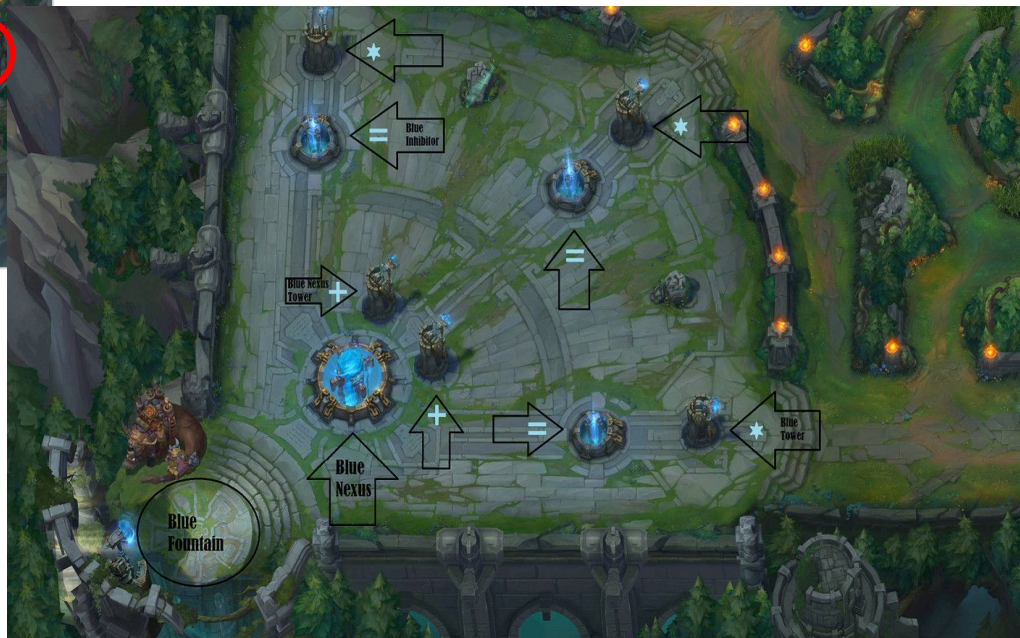
- Objective of Game: Break enemy Nexus(structure)

Interaction with minions and opponent

Removing a turret

Team fight with multiple Champions

Victory secured


Blue Inhibitor
Blue Nexus Tower
Blue Tower
Blue Nexus
Blue Fountain

Goal

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

- Dataset from Kaggle - collected from highest ranking players

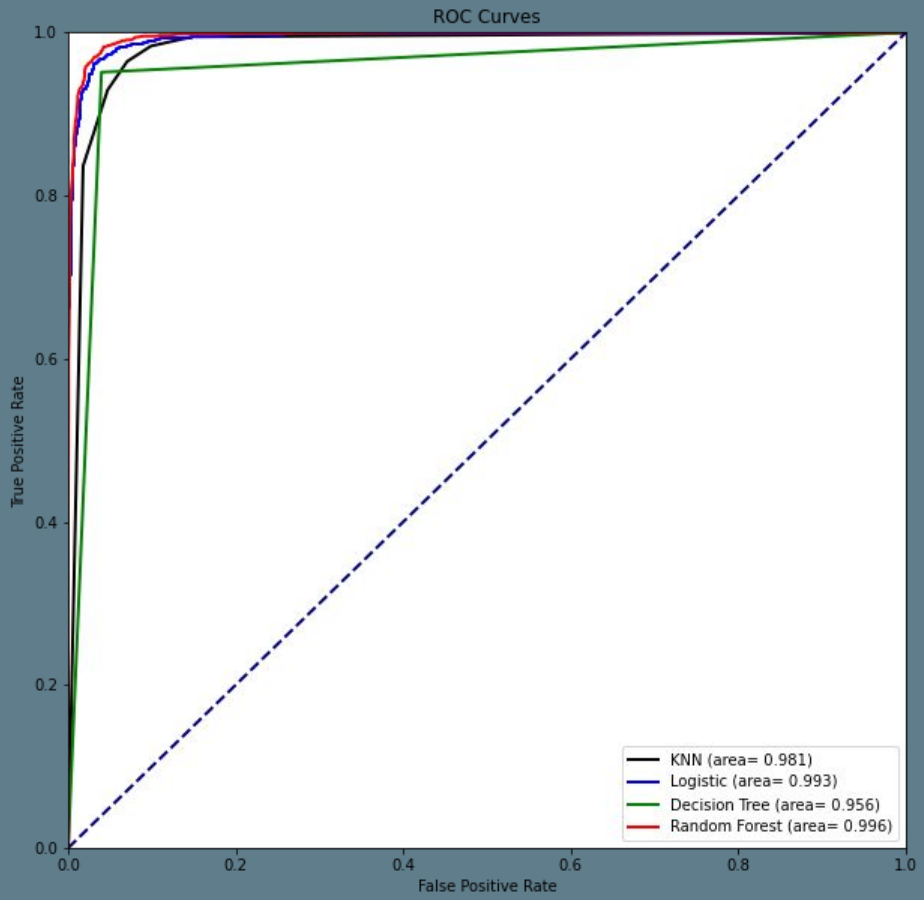
- Contains both Blue + Red Team

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

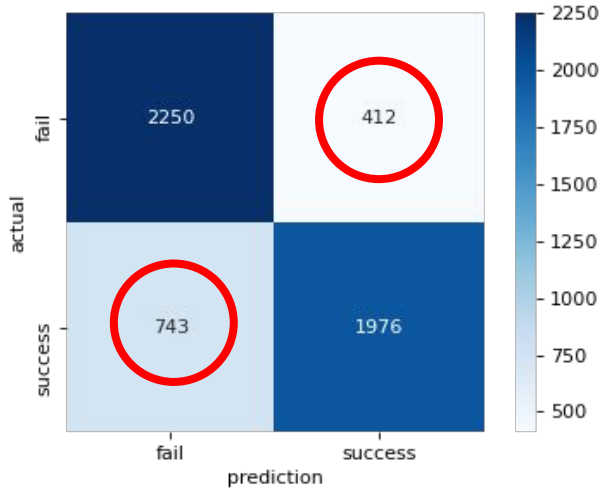


Top 3 Models

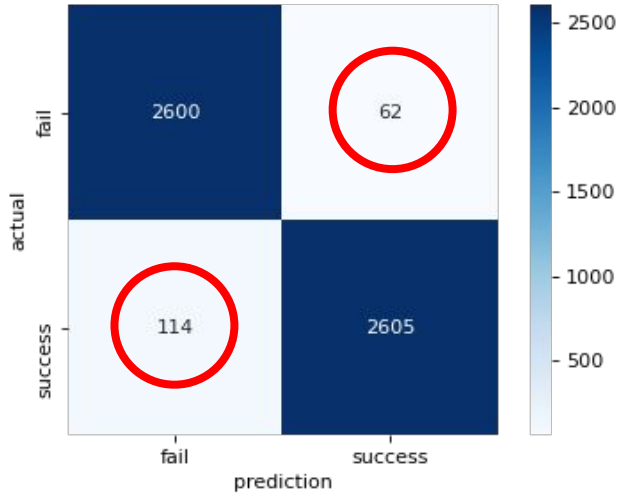
1. Random Forest
2. **Logistic Regression**
3. KNN

	Baseline Model #1 (more categorical features)	Baseline Model #2 (more continuous features)	All Features
F1	**0.797**	0.946	**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

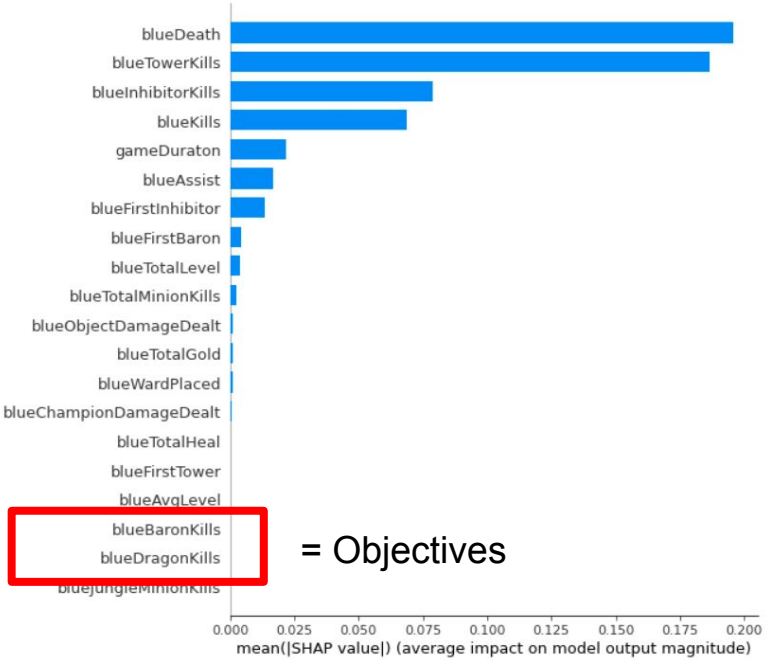
Takeaways

- Assist + Kills more important than trying to secure objectives (relatively more important)

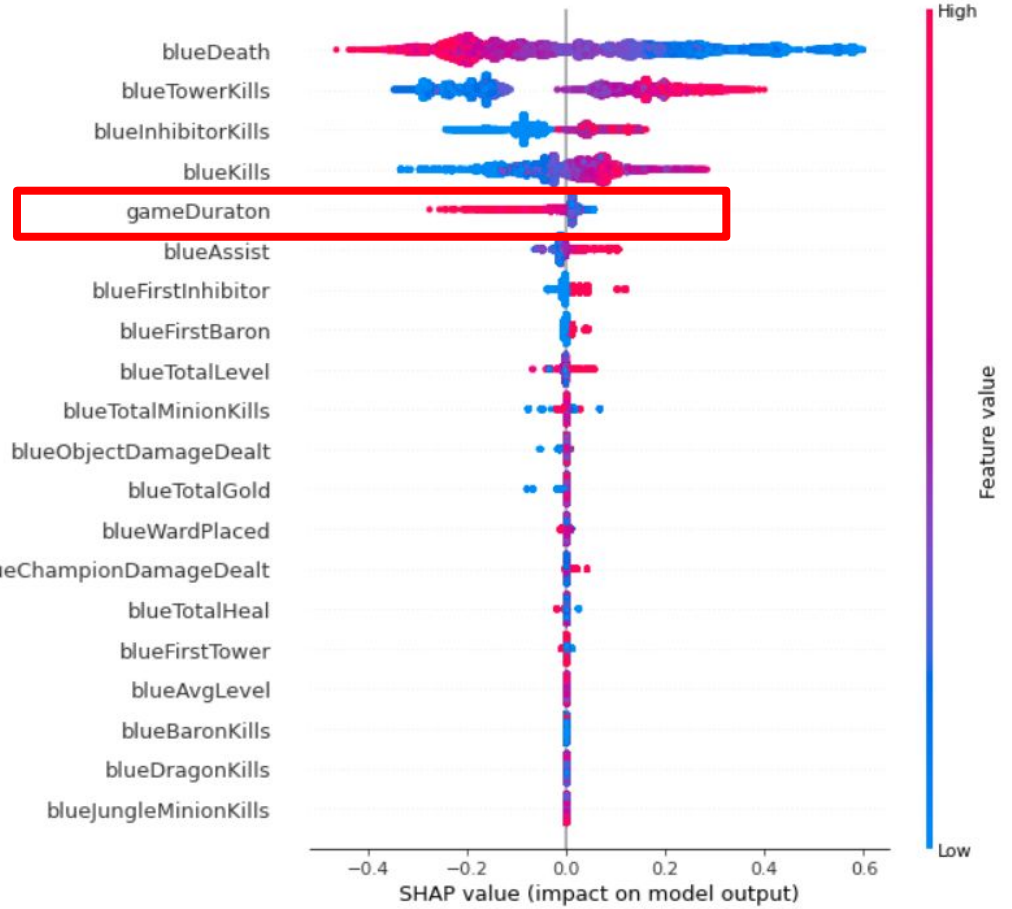
- Fighting to secure objective happens often in actual game → give up objective and focus more on securing kills/assists

Feature Interpretation (ordered by importance)

- Longer game time doesn't help in winning
- Low death improves chance of winning
- Less emphasis on objectives(components that help you get stronger)



= Objectives



Thank you