

Predicting who wins the DOTA 2 game

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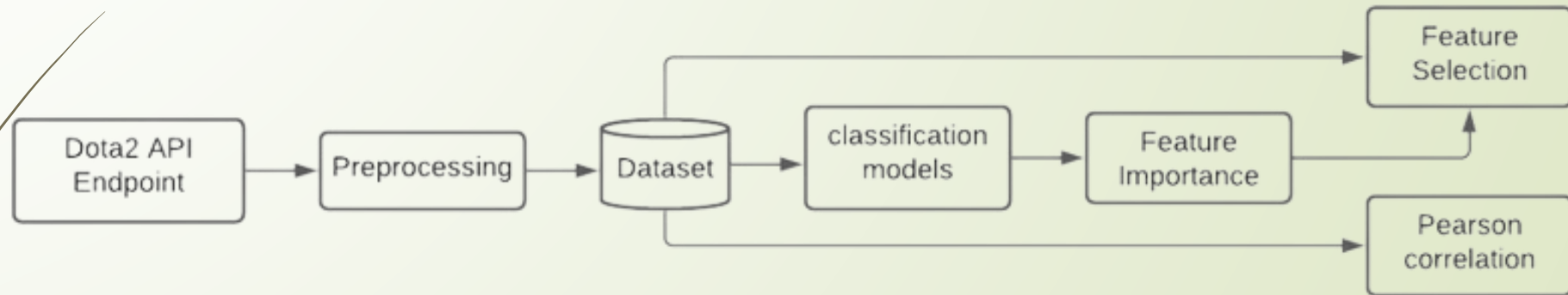
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Introduction

- ❓ AI has been involved in things like Chess and GO since a long time
- ❓ Machine learning has found its way to the competitive industry like ESPORTS
- ❓ We are proposing a way to predict who would win given a certain team composition



Project Pipeline



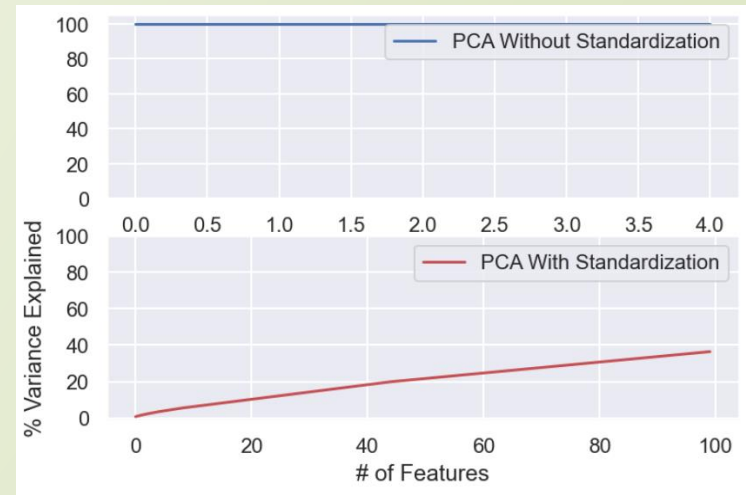
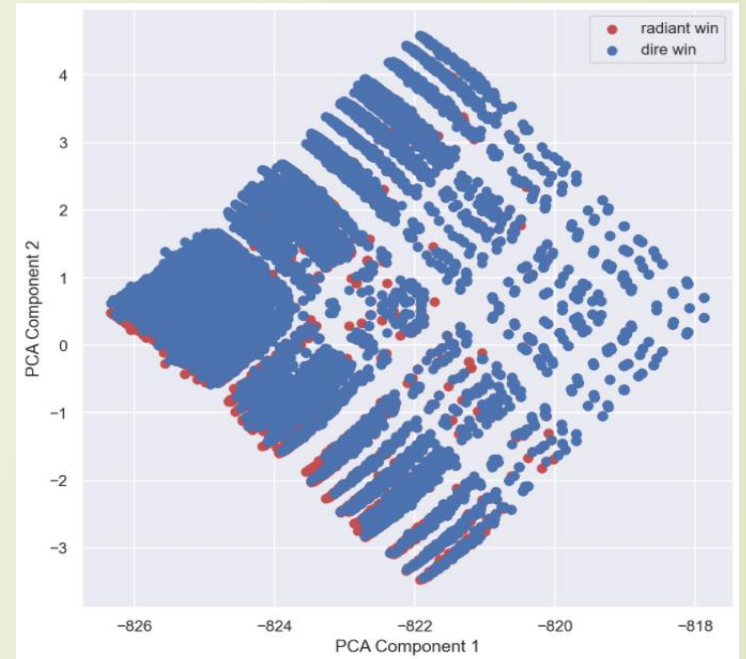


Our Data

- ❑ Contained 200k samples and 400 features
- ❑ Team statistics for both dire and radiant team
 - ❑ Rating
 - ❑ Total number of wins
 - ❑ Total number of losses
- ❑ The rest of the features were the 121 characters used in the game


Dimensionality Reduction

- ❓ Why?
 - ❓ Reduce the dataset size, and the complexity
- ❓ Results?
 - ❓ On the top graph you'll see the effect on variance
- ❓ Even with standardization, the variance capture was only 40% for 100 features





Machine Learning Models

- ❑ Split data into training-validation-test set
 - ❑ Decision Tree
 - ❑ Random Forest
 - ❑ Naive Bayes
 - ❑ Logistic Regression
 - ❑ Artificial Neural Networks
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Model Statistics

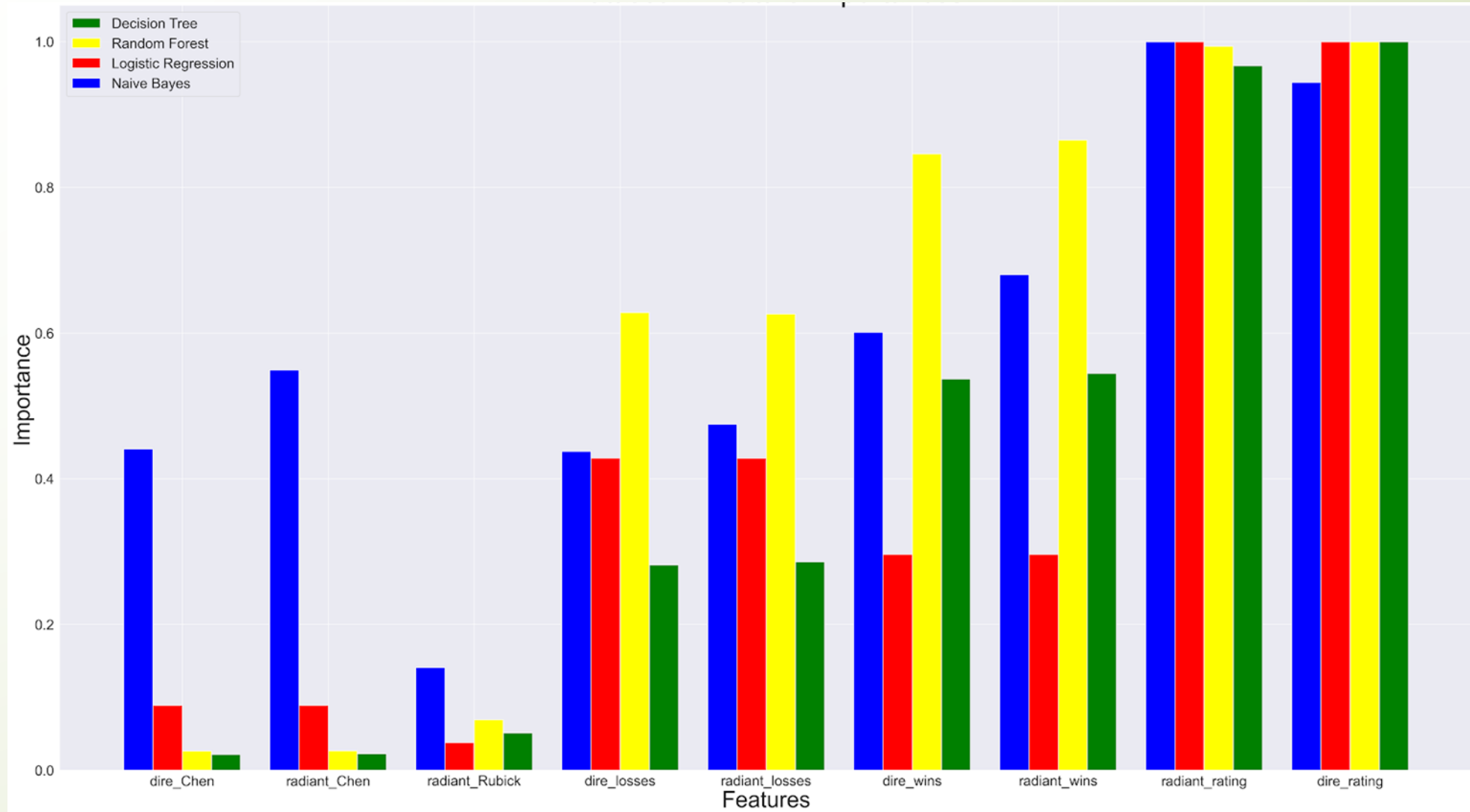
	Precision	Recall	F1
Decision Tree	0.6051	0.6044	0.6047
Random Forest	0.6566	0.6729	0.6646
Naive Bayes	0.4394	0.5473	0.3787
Logistic Regression	0.6353	0.6362	0.6358
ANN	0.569	0.549	0.551



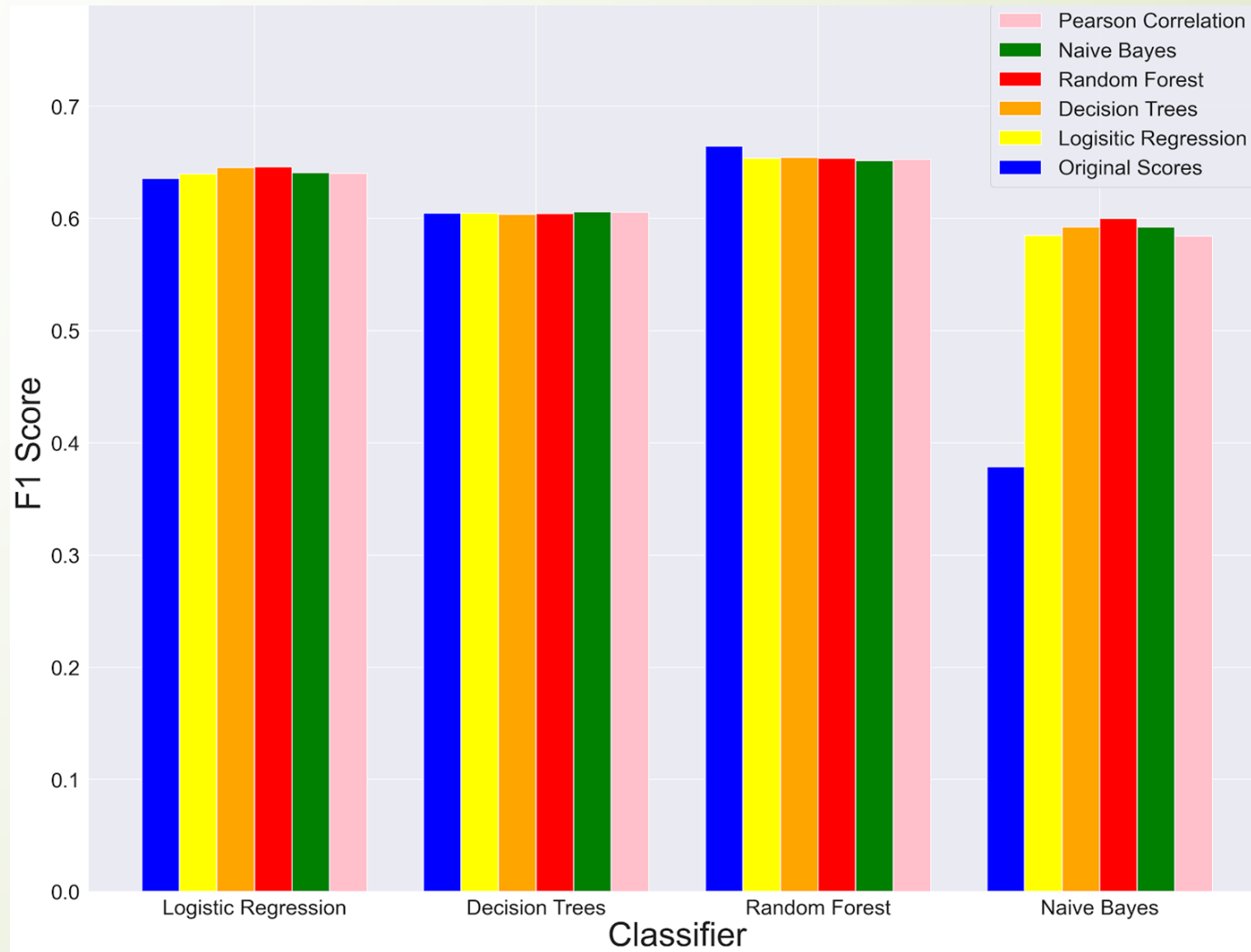
Feature Importance

- ❑ Used the coefficients obtained from running our models as inputs to Ridge Regression
- ❑ Having used scikit-learns feature selection libraries
 - ❑ We kept the 10% of important features

Most important Features

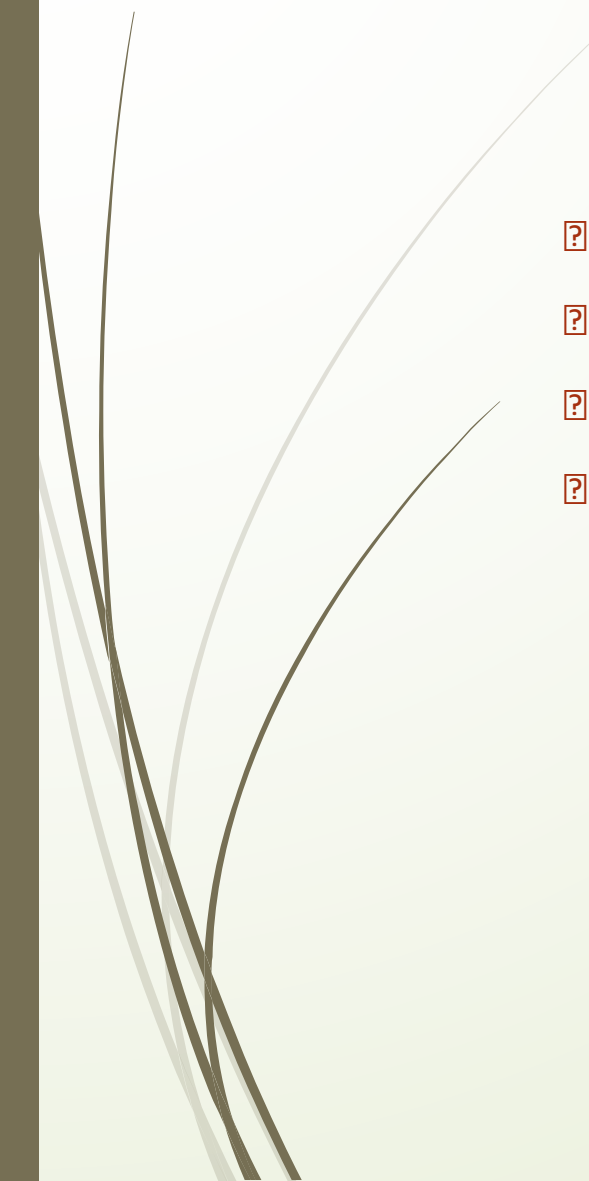


Feature selection results





Conclusion & Future work

- ❑ Apply more complex models
 - ❑ Get a much bigger dataset
 - ❑ Genetic Algorithms
 - ❑ Usable for Esports team and management
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Thank You!

Any questions?