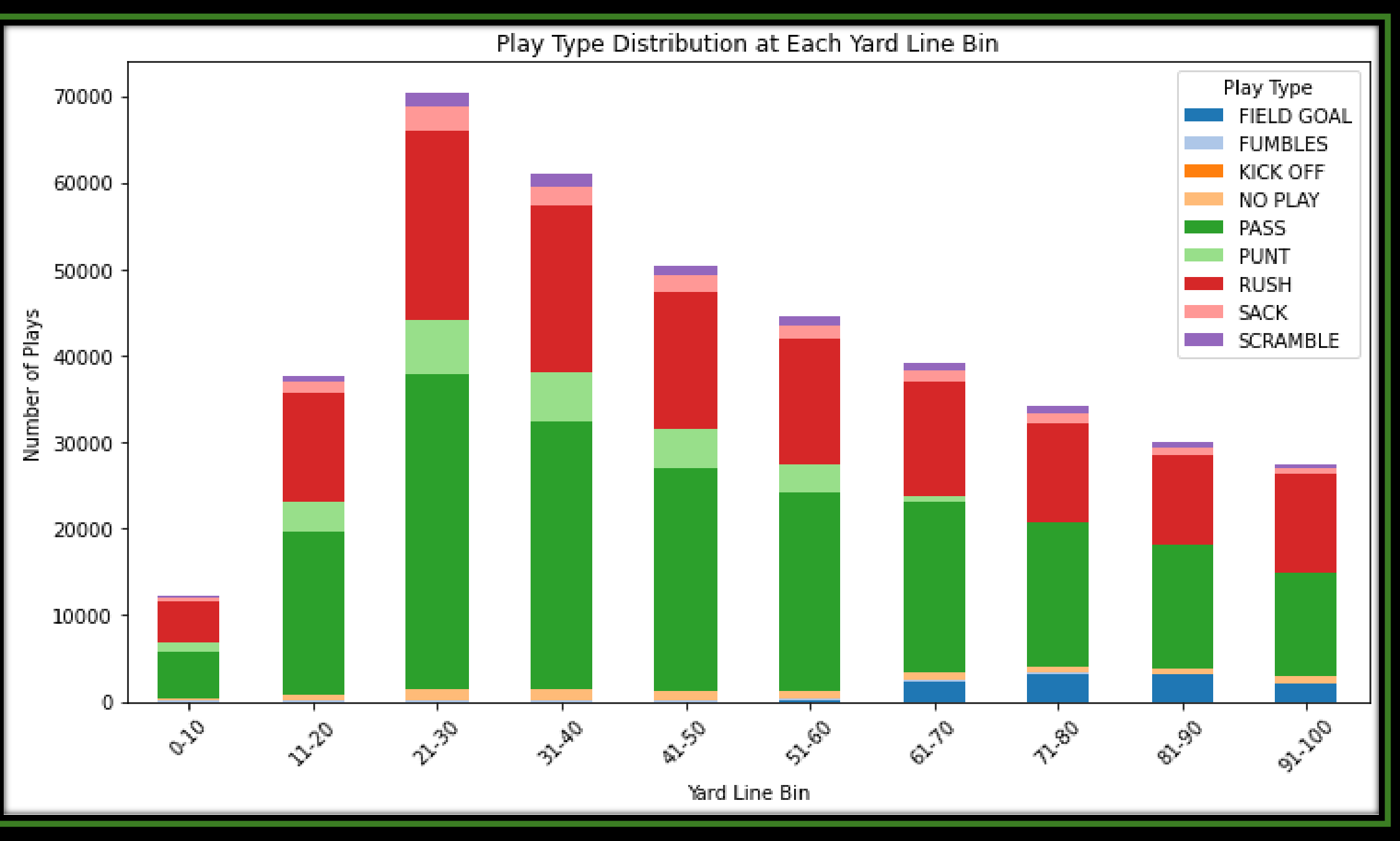
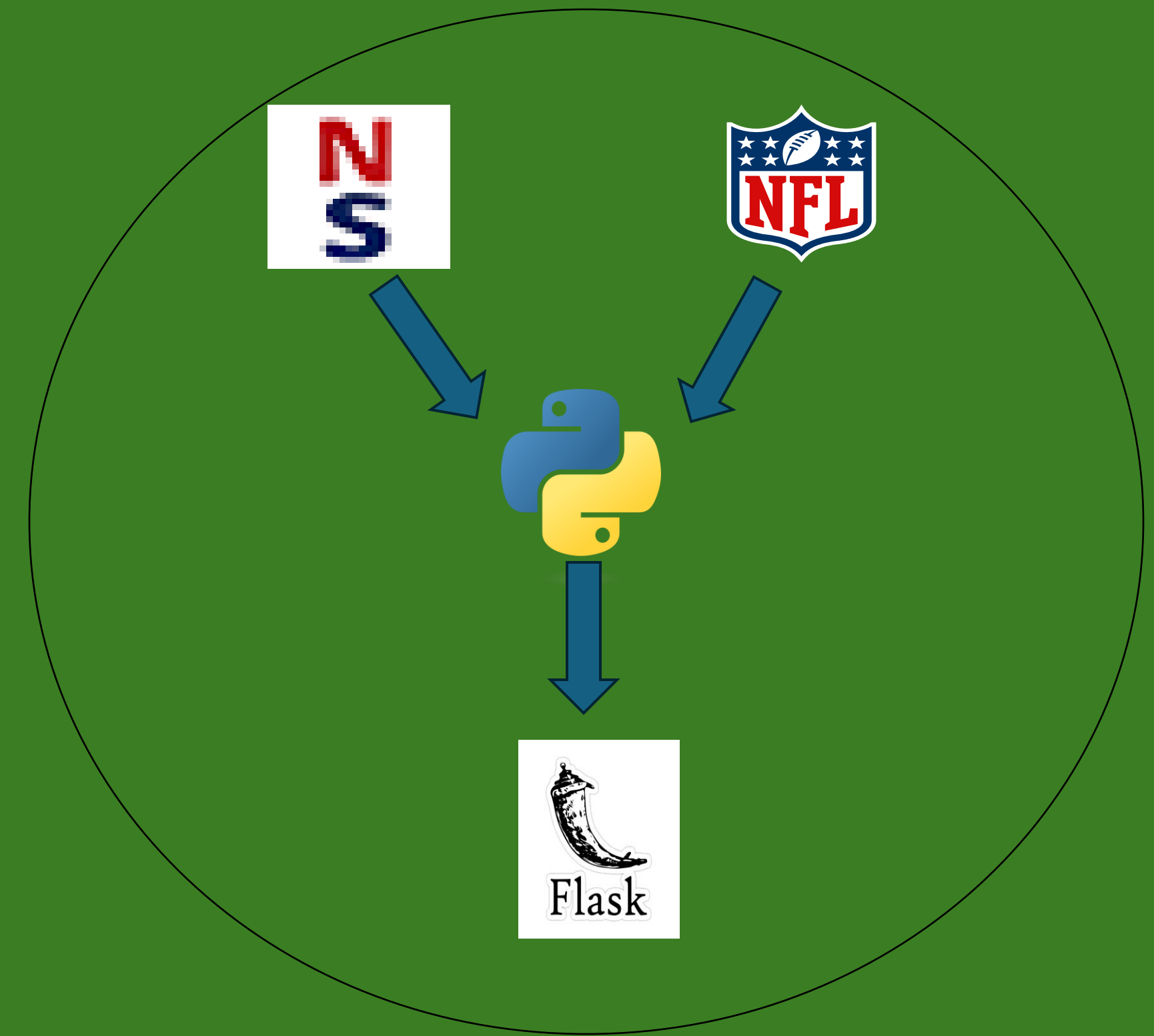


CSE 6242 – Final Project – Team 200

Predicting Success of NFL Play Calling

Motivation & Introduction

- Problem:
 - Most win-prediction models or websites do not incorporate formation when calculating their predictions.
- Importance:
 - Formation is an important variable in football that is not often used when examining prediction of success

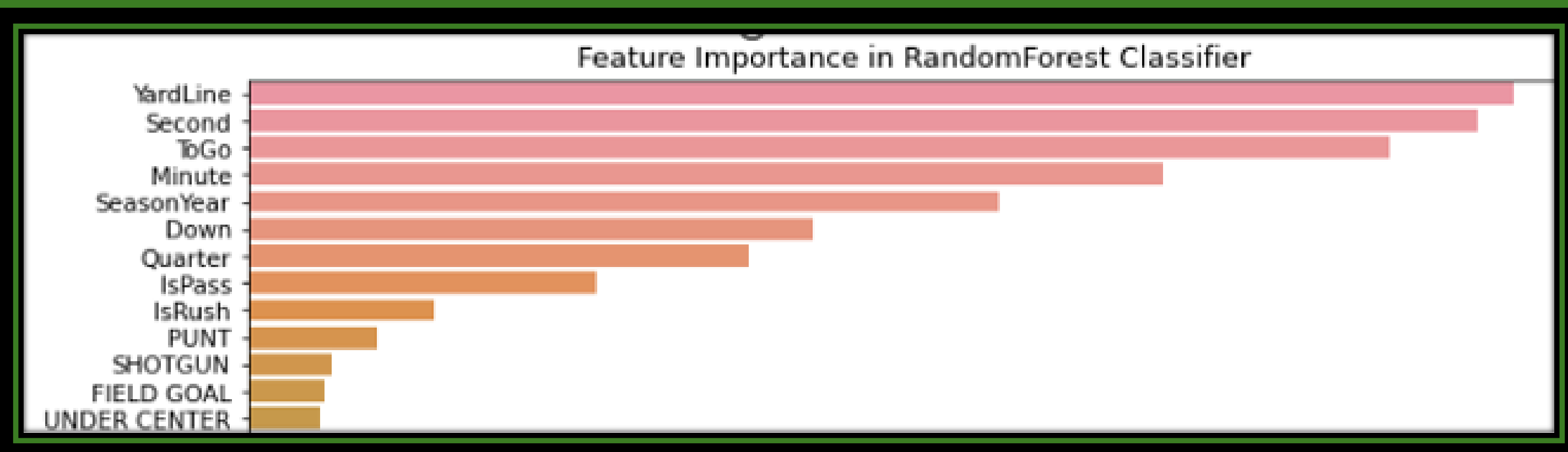
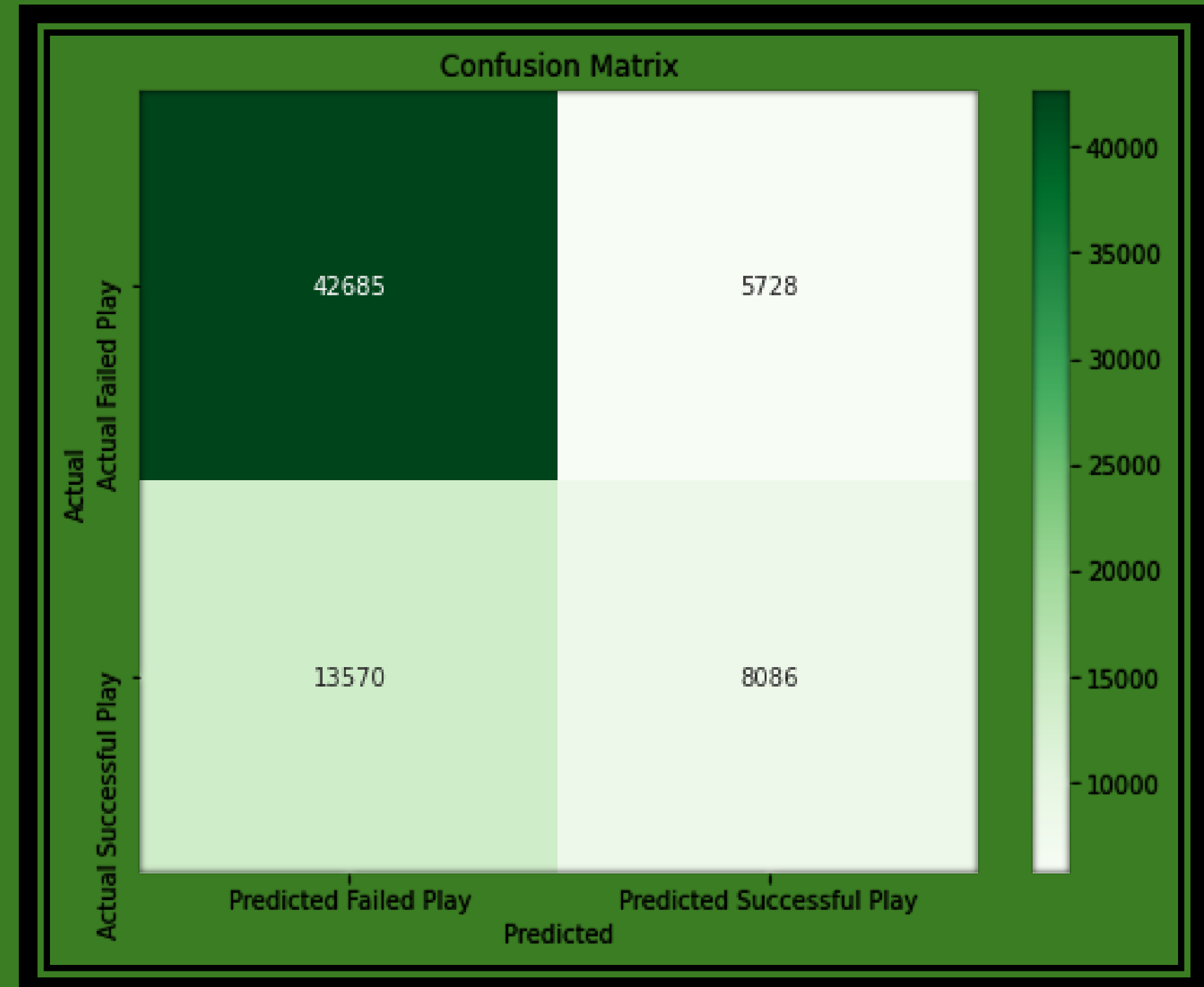


Approach

- Data was collected from nflsavant.com
- Clean data and add variables that our team looked to analyze
 - Ex: Define redzone, change of possession, etc.
- Perform statistical modeling on prepared data
- Create visualization to display results
- Create website and add ability to have user input

Data

- Data Collection
 - Downloaded yearly play data from nflsavant.com and merged 10 seasons together (2014 – 2023)
 - Roughly 500k plays were called during this time frame
- Data Processing
 - K-Means Clustering (unsupervised)
 - Random Forest (supervised)
 - Confusion Matrix



Experiments & Results

- Website allows user to input their desired features to determine the success probability.
- Determined that Yard Line, Yards to Go, and Time were the best predictors.

NFL Play Success Prediction Tool

Welcome to the NFL Play Success Prediction tool! Use the form below to input game parameters such as quarter, time, teams, and play details. Once submitted, the system will analyze the inputs and predict the likelihood of success for the play.

Quarter:

1

Minutes:

{{ minute }}

Seconds:

{{ second }}

Offense Team:

{{ team }}

Defense Team:

{{ team }}

Down:

1

To Go (Yards):

Yard Line:

Formation:

{{ formation }}

Is Rush:

☐

Run Analysis

[illegible]