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README.md

MLB Pitch Outcome Classification Capstone

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Overview

This project is the final/Capstone project for Flatiron School's bootcamp program in Data Science. We have created a hypothetical situation as a Data Scientist and are hoping to provide value to our business for the scenario.

Business Problem

We have been hired as a hypothetical member of the Cardinals baseball organization: a member of the coaching staff. As a coaching analyst, our job is to create a model that will give us insights into pitch quality and classify a pitch, given its metrics, as a negative, neutral, or positive outcome for the pitcher.

Project Deliverables

- A GitHub repository

- A Jupyter Notebook
- A non-technical presentation

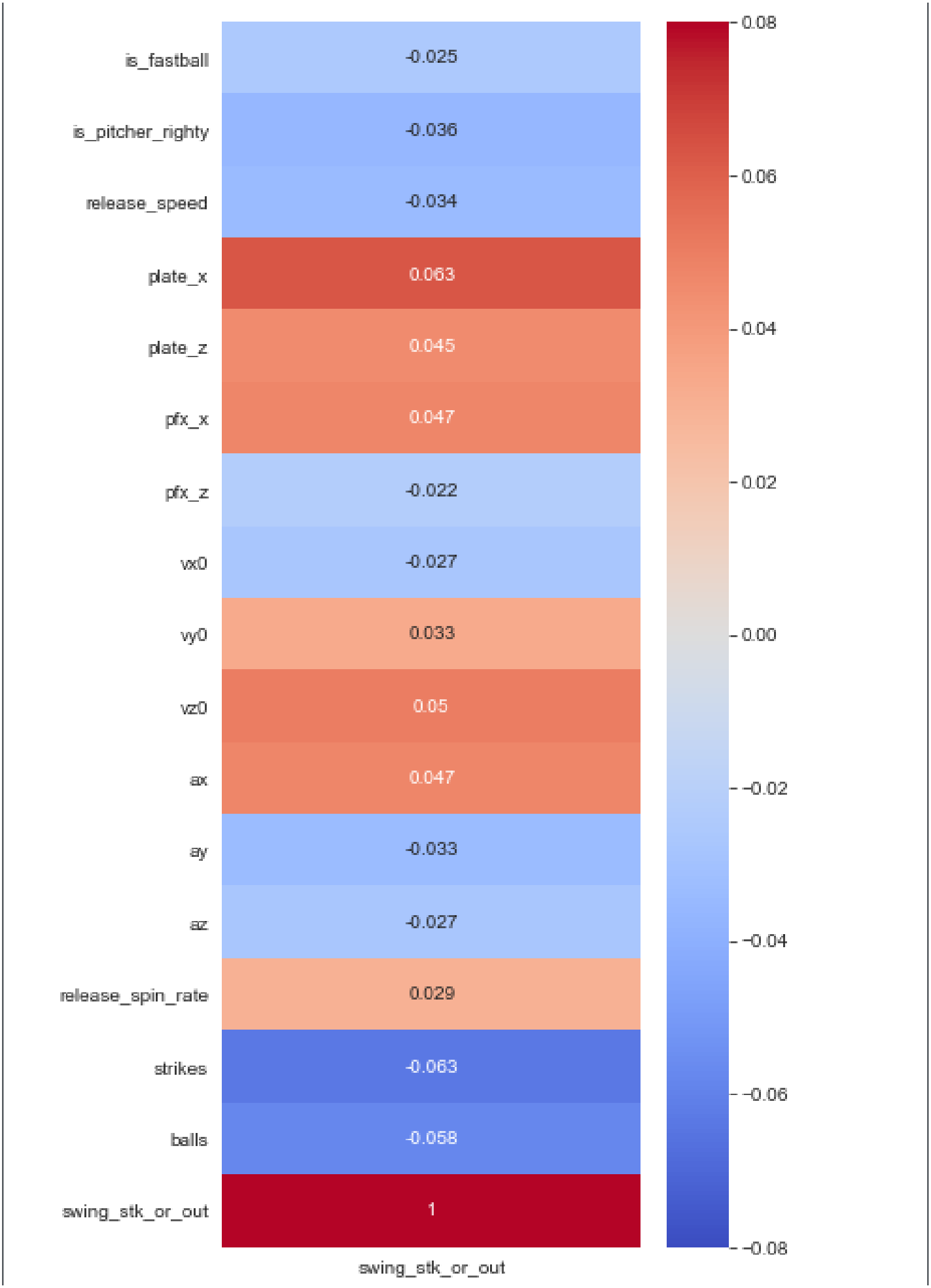
Project Summary

I devised these questions that I believed could be answered through data analysis.

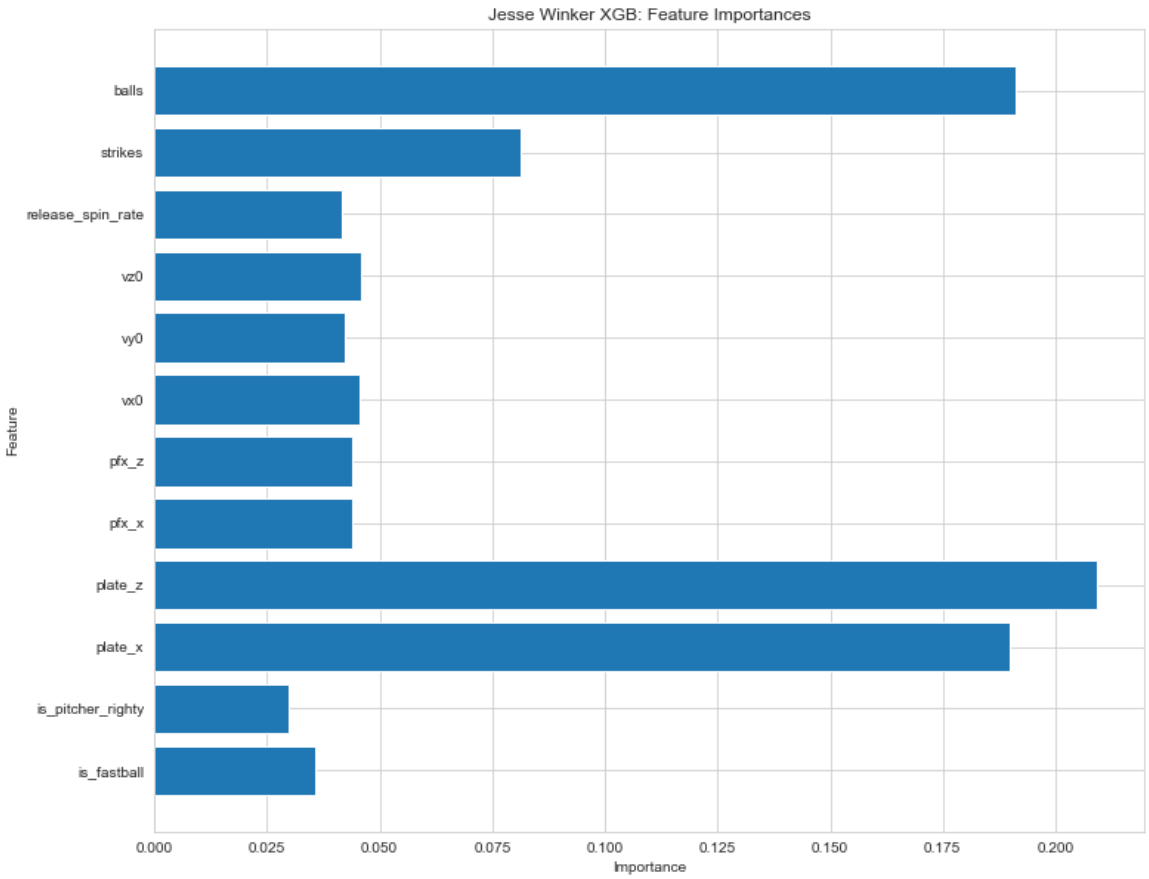
- i. What are the most important metrics that go into a pitch?
- ii. What is the least important metric that goes into a pitch?

I explore this thoroughly in the pitch-classification.ipynb file contained within this repository via classification modeling. I progressively alter the scope of the models as I iterate over different options. Here are some visualization previews of the data I investigated.

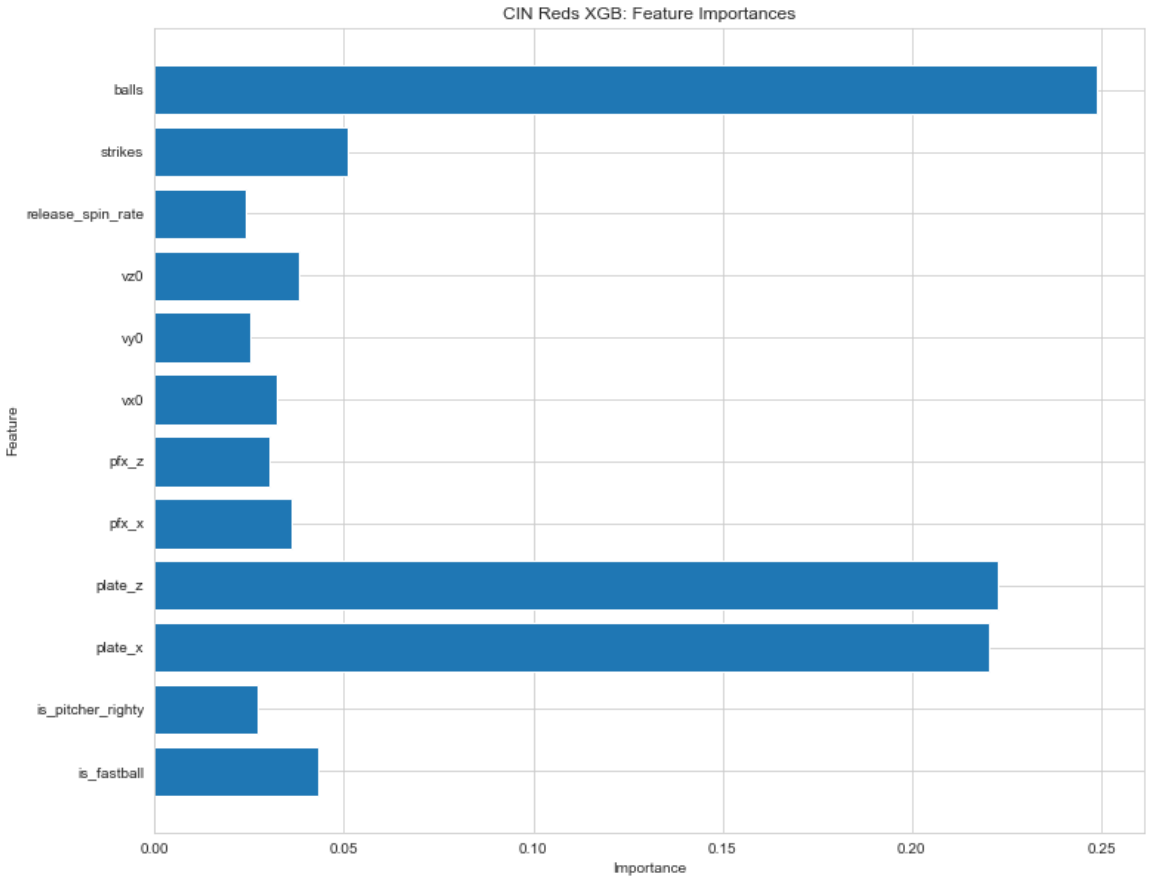
Corr Heatmap Between Features and Pitch Outcome


is_fastball
-0.025
is_pitcher_righty
-0.036
release_speed
-0.034
plate_x
0.063
plate_z
0.045
pfx_x
0.047
pfx_z
-0.022
vx0
-0.027
vy0
0.033
vz0
0.05
ax
0.047
ay
-0.033
az
-0.027
release_spin_rate
0.029
strikes
-0.063
balls
-0.058
swing_stk_or_out
1
swing_stk_or_out
0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06
−0.08

Single Player XGB Model Feature Importances



Entire Team XGB Model Feature Importances



Repository Structure

```
├── data
├── README.md
├── lol_presentation.pdf
├── lol_notebook.pdf
└── league-analysis.ipynb
```

Releases

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Packages

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Languages

- Jupyter Notebook 100.0%