Capstone Project

PREDICTING NBA PLAYER CAREER TRAJECTORY

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A G E N D A

- Problem Overview
- Vision / Model Proposal
- Impact of Solution
- Exploratory Data Analysis
- Model and Model Evaluation

THE PROBLEM

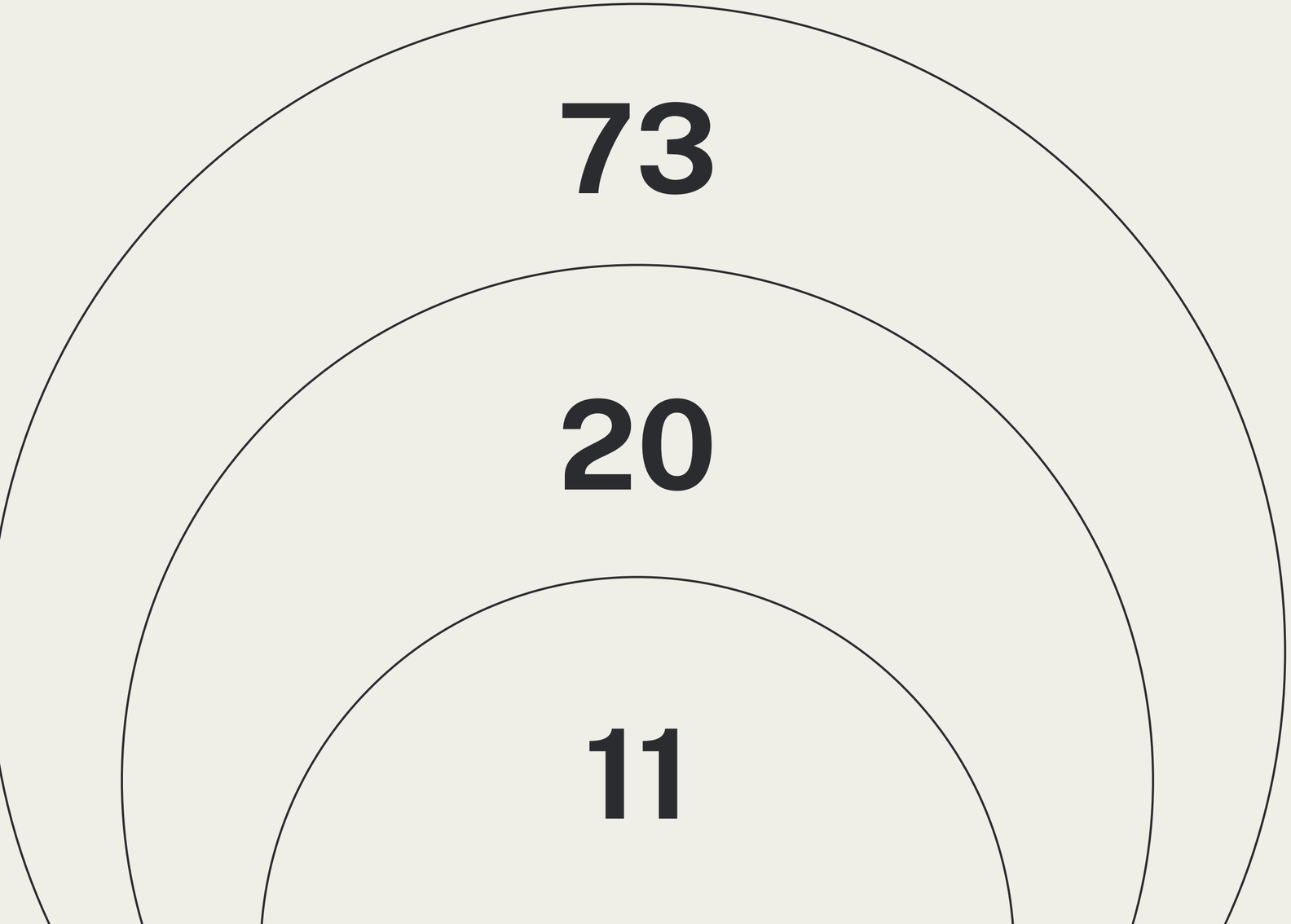
- Every NBA team's goal: win a championship
- Teams look to add players every year
- Stats, personal life, personality, connections, and on and on and on
- Is it possible to even get a hint if a player will pan out?

VISION FOR MODEL

Using metrics from the game (i.e., excluding awards and championships) to predict Hall of Fame status

Goal: To use just metrics from the game to predict a player's career

CAN WE MAKE WINNING EASIER?



Number of NBA Season Played

There have been 73 NBA seasons played.

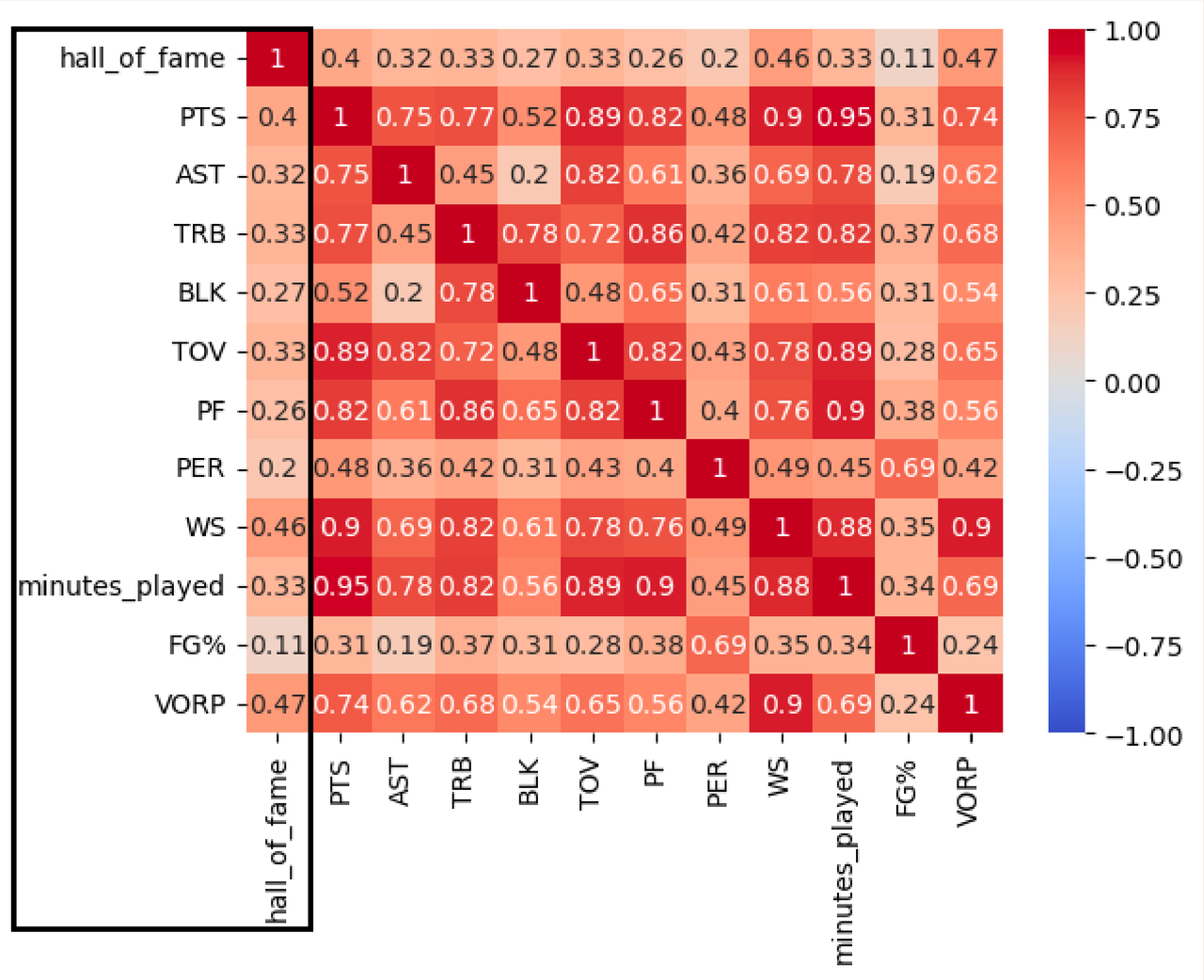
Number of Teams that Have Been Champions

20 teams have won a championship in those 73 years.

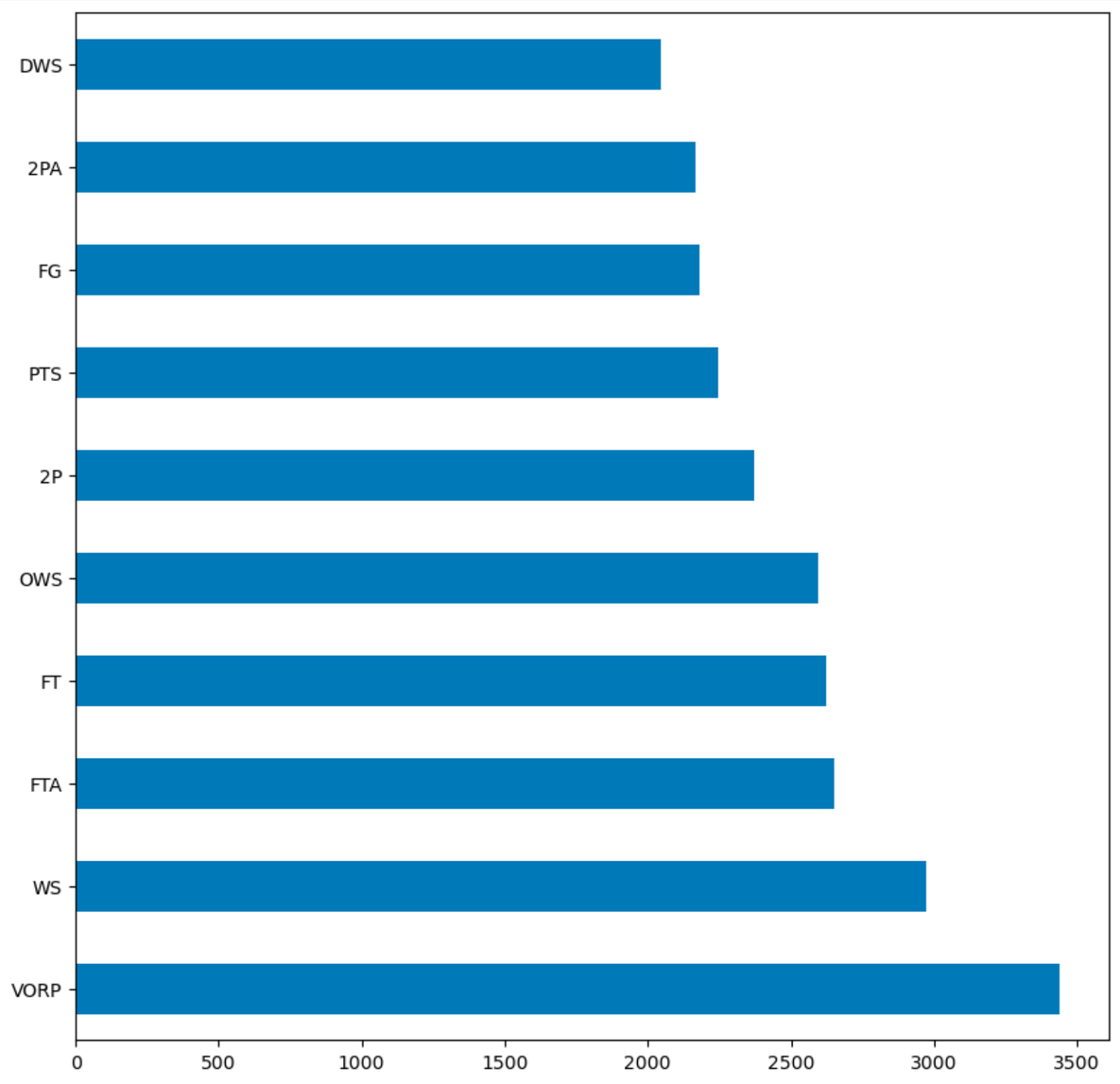
Number of Teams that Haven't Won a Championship Ever

11 have never won. 5 teams have never made it to the championship, and 3 teams haven't won even a single playoff game in 20 years.

EXPLORATORY DATA ANALYSIS - CORRELATIONS



FEATURE SELECTION



FIRST MODEL

Pipeline and Grid Search

Scalers: MinMax and Standard
Feature Engineering: PCA and SelectKBest
Models: Logistic Regression, Decision Tree Classifier, and SVC
Hyperparameters: C, K Dimensions, N Components, Kernel, Max Depth

Scaler: MinMax Scaler
Feature Engineering: PCA
Number of Components: 5
Model: Logistic Regression
C: 1

MODEL EVALUATION

0: True Negative (Not in the Hall of Fame)

Precision: 0.99

Recall: 1.00

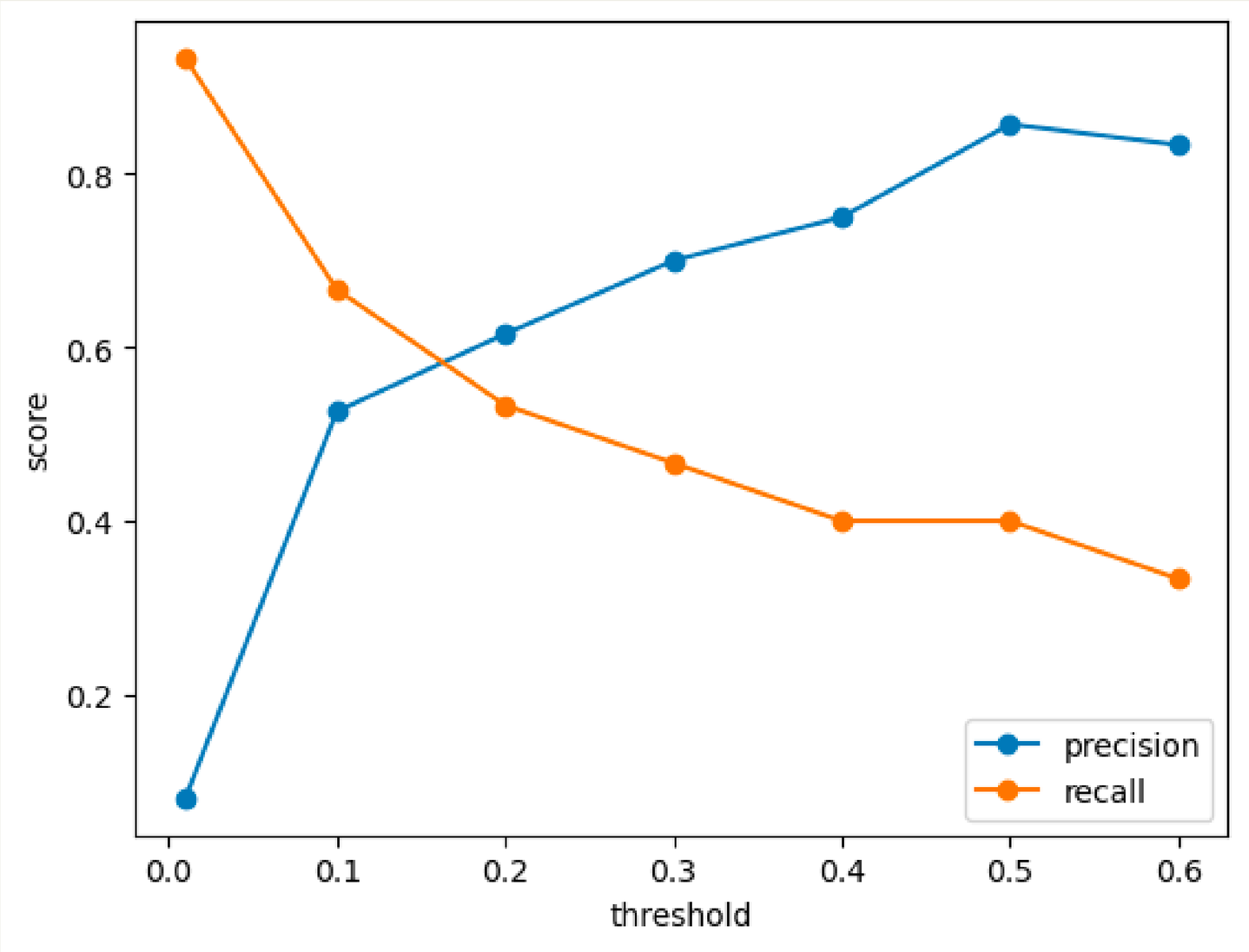
1: True Positive (In the Hall of Fame)

Precision: 0.86

Recall: 0.40

Accuracy: 98.4%

MODEL EVALUATION



NEXT STEPS

- Improve model accuracy
- Attempt to improve model recall without much sacrifice of precision

Questions?