Predicting an NBA Total

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2/11/21
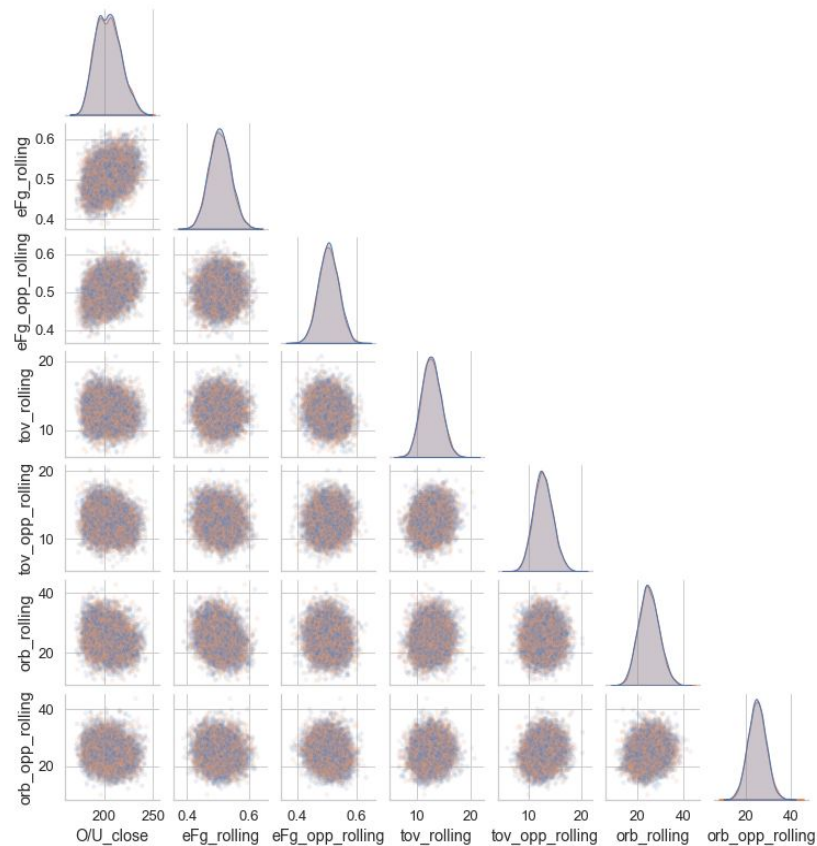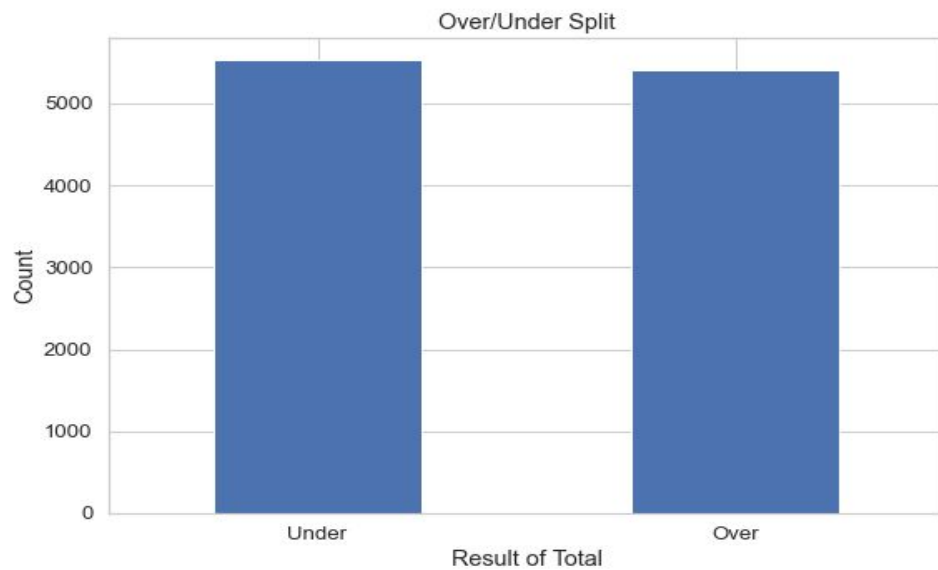
Background

- Over $1B bet on basketball every year
- NBA has partnership with multiple sportsbooks and data distributors
  - 2nd most bet sport

- Target: Total - Over/Under
  - Will a game go OVER or UNDER TOTAL points scored in a game
  - Example: Warriors v Magic : O/U 224.5
- Goal: give 2 teams get a classification
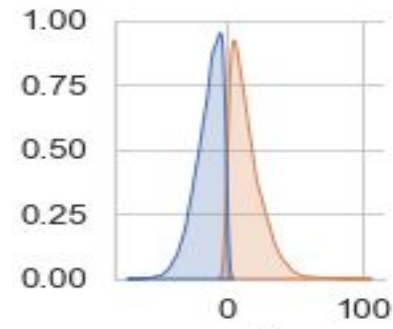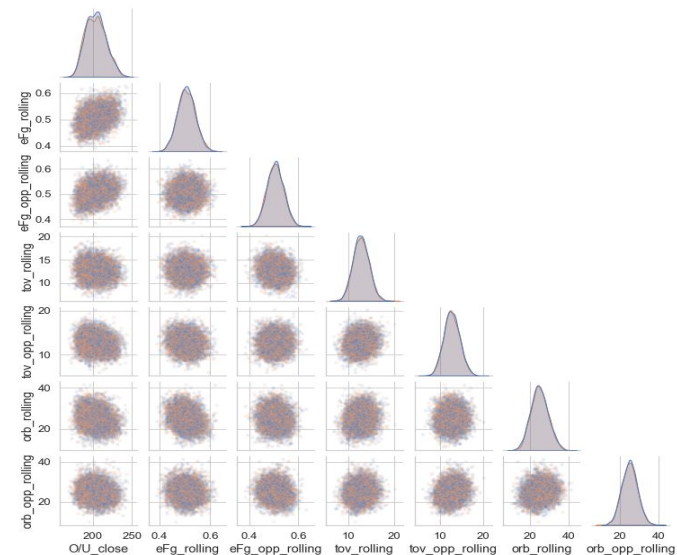 - Warriors, Magic → Over
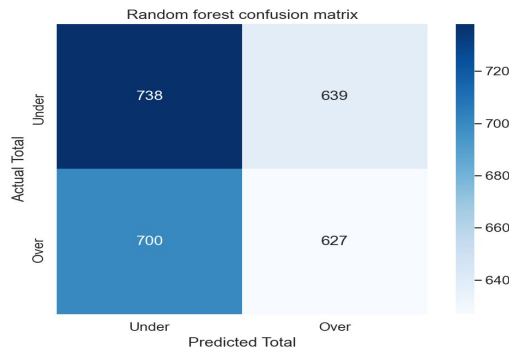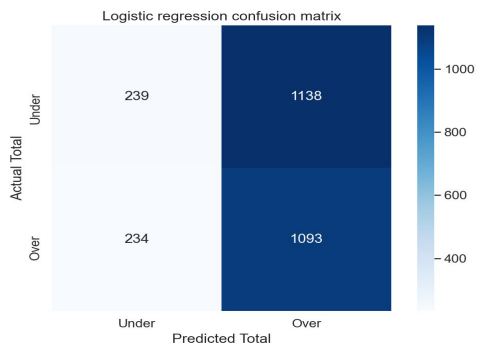
EDA

Models & Results

Model	Logit	Decision Tree	Random Forest	XGBoost	Bagged Decision Tree
Accuracy (%)	50.1	50.4	50.1	49.5	49.4
AUC ROC	0.505	0.505	0.505	0.499	0.505

Failure Analysis & Conclusions

- No deployable model discovered
- Features aren't very indicative of the target
- Regression may have better results
  - Compare regression prediction to line to classify

Logistic regression confusion matrix

Random forest confusion matrix

Future Work

1. Deploy Web Application

2. Feature Engineering

   a. Interaction terms

   b. Incorporating league average comparison

   c. PCA

3. Find Odds Data pre-2007

Sources

1. https://www.thelines.com/betting/revenue/
2. https://www.cnbc.com/2019/11/04/draftkings-partners-with-nba-as-authorized-betting-operator-for-the-league.html
3. https://www.nba.com/news/nba-partnership-william-hill-official-release
4. https://www.nba.com/news/nba-extends-u-s-betting-data-partnerships-with-sportradar-and-genius-sports-group
5.