2024 NBA Future Analytics Stars Coding Exercise

Task

Predict each player's three-point percentage at the end of the 2022-23 season given their shooting statistics from October/November 2022. You have the last 12 columns to create your prediction and the second column, **three_pct_season** to test your prediction accuracy (data dictionary below).

Deliverables

Please submit the below materials to futureanalyticsstarsprogram@nba.com no later than Monday, December 4, 2023 at 11:59 PM EST.

1. All Code and Cited Sources (your analysis should be completely reproducible)
2. 2-3 PowerPoint Slides
   a. Describe your methodology for creating the model (what type of model did you run, which variables did you select, and why)
   b. Measure and report your prediction accuracy, as well as your reasoning for selecting your prediction accuracy metric

Notes

- The expected time spent on this project should not exceed four hours. Your submission will be judged primarily on your process and the clarity with which you describe your methodology and present your findings and secondarily on the accuracy of your predictions.
- Feel free to use any approach, programming language, or software you prefer; however, only use the dataset provided.
- Using online resources such as Stack Overflow is encouraged! Just please include a citation (by including a comment in your code with a link to the resource).
- *Note: This dataset excludes some shot locations and does not perfectly match 2022-23 official NBA stats.*

Data Dictionary

The file fas_2024.csv provided contains 14 columns from the 2022-23 NBA season dataset:

- **Name** - player's name
- **three_pct_season** – the player's three-point percentage over the course of the full season (not including shots from the backcourt)
- **lwr_paint_pct_oct_nov** - the player's field goal% from shot attempts within 8 feet of the basket in october and november
- **upr_paint_pct_oct_nov** - the player's field goal% from shot attempts between 8 to 16 feet of the basket in october and november
- **mid_pct_oct_nov** - the player's field goal% from shot attempts greater than 16 feet from the basket that are not three point attempts in october and november
- **three_non_cnr_pct_oct_nov** - the player's field goal% from non-corner shot attempts from three point range in october and november

- **three_cnr_pct_oct_nov** - the player's field goal% from corner shot attempts from three-point range in october and november
- **ft_pct_oct_nov** - the player's free throw% in october and november
- **lwr_paint_shots_oct_nov** - the player's total shot attempts from shot attempts within 8 feet of the basket in october and november
- **upr_paint_shots_oct_nov** - the player's total shot attempts from shot attempts between 8 to 16 feet from the basket in october and november
- **mid_shots_oct_nov** - the player's total shot attempts from shot attempts greater than 16 feet from the basket that are not three-point attempts in october and november
- **three_non_cnr_shots_oct_nov** - the player's total shot attempts from non-corner shot attempts from three point range in october and november
- **three_cnr_shots_oct_nov** - the player's total shot attempts from corner shot attempts from three point range in october and november
- **ft_shots_oct_nov** - the player's free throw attempts in october and november

Helpful Links

NBA Glossary of Terms

Court Zone Definitions

Legend:
- Lower paint
- Upper paint
- Mid range
- Corner 3
- Non-corner 3