

## **Home-Court Advantage**

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### **Question:**

- What factors explain home-court advantage in the NBA, and how do attendance, travel distance, and scheduling fatigue affect the probability of a home team win?

### **Research Questions within overall question:**

- How does game attendance influence the likelihood of a home team winning an NBA game?
- How does travel distance for away teams affect home-court advantage?
- How do rest days and back-to-back games impact home-court advantage?

### **Data sets:**

NBA Dataset - Box Scores & Stats, 1947 - Today

- <https://www.kaggle.com/datasets/eoinamoore/historical-nba-data-and-player-box-scores>
- Attendance can be found on many box scores

NBA games data

- <https://www.kaggle.com/datasets/nathanlauga/nba-games>
- Can use the game's date information to flag back-to-back games

Sports Stadium Locations

- <https://www.kaggle.com/datasets/logandonaldson/sports-stadium-locations>
- Includes longitude and latitude for NBA team stadiums that will allow us to calculate how distance/ travel time affects away game performance, as well as how they performed the night before, rest days, etc.

### **Methods:**

1. First, we will clean the data to ensure that we have only the data we want, especially with the stadium locations data, so it's focused just on the NBA
2. Next, we will create the new columns we need for data. This will include Attendance, Travel Distance, Back-to-Back Games, Rest Days, etc.
3. We will then do our exploratory analysis and statistical modeling.
4. Then we will do time series to compare time periods and seasons to see if home court advantage is real not just for one season but always.
5. Lastly, we will do geographical visuals using the stadium locations to show how distance plays a factor, and the win probabilities based on the travel burden

