Case 7: Factors on Housing Prices

Real estate companies and homeowners need to accurately estimate house prices based on various characteristics. This case study analyzes residential properties in a midsize American city to determine the key factors that influence house prices and develop a predictive model. Research questions are the following:

1. Which housing characteristics significantly influence sale prices?
2. How well can we predict house prices using these characteristics?
3. What are the relative impacts of different features on house prices?

The dataset contains information on 200 house sales from 2024 (download data):

1. Sale_Price: Sale price in dollars (response variable)
2. Square_Feet: Total living area
3. Bedrooms: Number of bedrooms
4. Bathrooms: Number of bathrooms
5. Age: Age of house in years
6. Lot_Size: Lot size in square feet
7. Garage: Number of garage spaces
8. Distance_Downtown: Distance to downtown in miles
9. Pool: Presence of pool (binary: 0/1)
10. School_Rating: Nearby school rating (1-10)
11. Crime_Rate: Neighborhood crime rate per 1000 residents

Case:

Initial Questions

1. What are the research objectives?

2. What are the statistical questions?

3. What is the response variable, and what is the data type of the response variable?

4. What are the explanatory variables of interest?

5. Are there covariates?

6. What is the population of interest?

7. What is the subject, and what is the number of distinct subjects?

8. Are there subject-level data?

9. Are response variables dependent (repeated measures / clustered subjects)?

10. Are the subjects selected randomly?

11. Are the subjects randomly assigned to different groups?

Initial Thoughts

