

# Bobblehead Promotion Strategy

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Team Bubble Gum



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# Executive Summary

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Adopting bobblehead promotion in Dodgers' games results in an increase in both attendance and profitability

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## Key Steps

Exploratory Analysis

Model Building

Model Interpretation

Business Implication

## Key Insights

10715+  
increase in  
attendance

\$700000+  
increase in  
ticket sales





# Challenges

Dodger stadium, with capacity of 56,000, is the largest ballpark in the world. However, in the year 2012, it was filled to capacity only twice.

Management is concerned about the effectiveness of previous bobblehead promotion effect and how to improve attendance and overall profitability in the future.

# Objectives

Evaluate if bobblehead promotions have positive effect on increasing attendance  
Compare promotion cost (fixed & variable) with revenue generated from increased attendance  
Generate strategic recommendations to help management develop future promotion initiatives to improve performance.

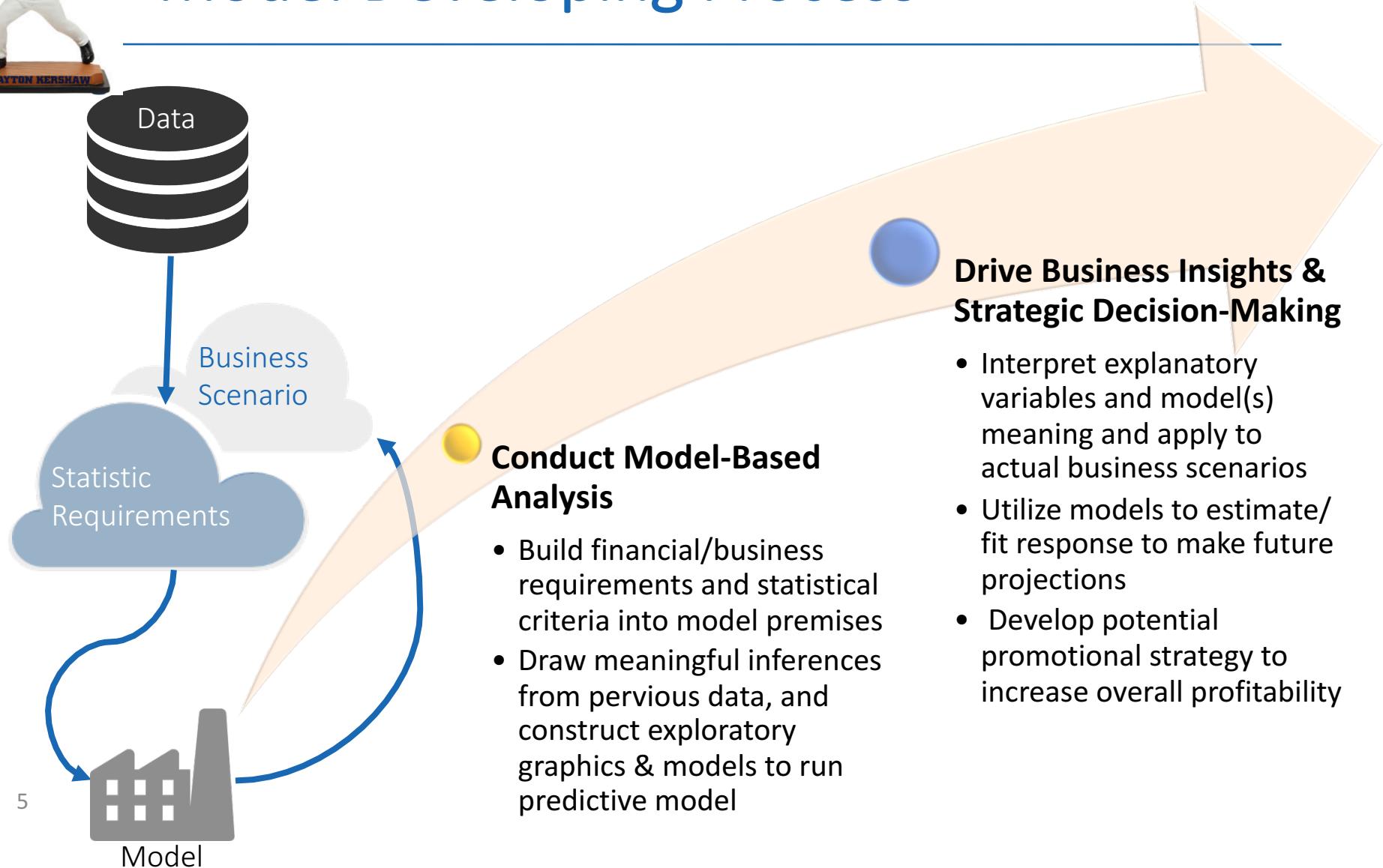


# Dataset Description

- Dataset “Dodgers.csv” contains 12 variables
- Target response variable: “attend”: attendance of each game
- Categorical variables: day of week, opponent, skies, day\_night, cap, shirt, fireworks, bobblehead
- Quantitative variable: temp
- Target of modeling: to predict if bobblehead promotion will increase number of attendance to games

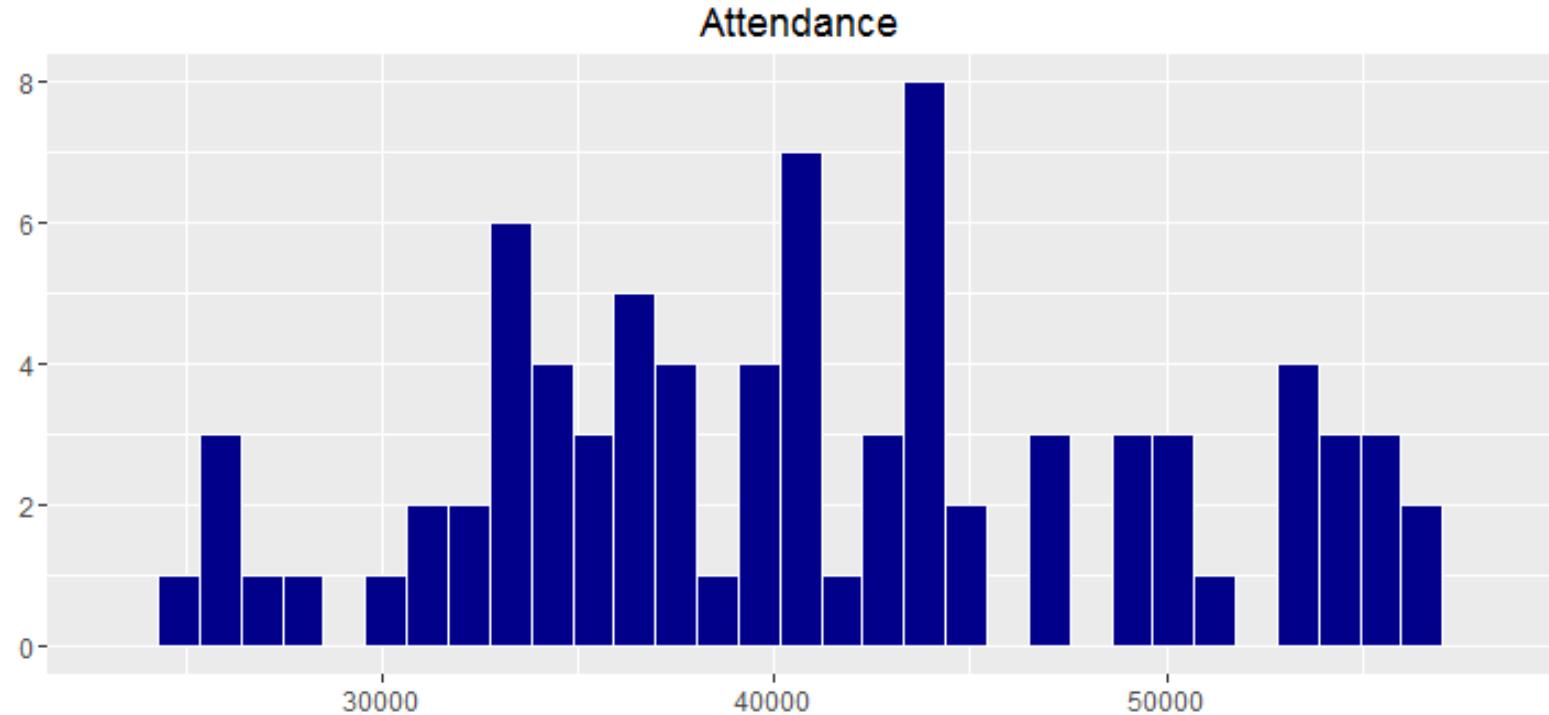
month	day	attend	day_of_weel	opponent	temp	skies	day_night	cap	shirt	fireworks	bobblehead
APR	10	56000	Tuesday	Pirates	67	Clear	Day	NO	NO	NO	NO
APR	11	29729	Wednesday	Pirates	58	Cloudy	Night	NO	NO	NO	NO
APR	12	28328	Thursday	Pirates	57	Cloudy	Night	NO	NO	NO	NO
APR	13	31601	Friday	Padres	54	Cloudy	Night	NO	NO	YES	NO
APR	14	46549	Saturday	Padres	57	Cloudy	Night	NO	NO	NO	NO
APR	15	38359	Sunday	Padres	65	Clear	Day	NO	NO	NO	NO
APR	23	26376	Monday	Braves	60	Cloudy	Night	NO	NO	NO	NO
APR	24	44014	Tuesday	Braves	63	Cloudy	Night	NO	NO	NO	NO

# Model Developing Process





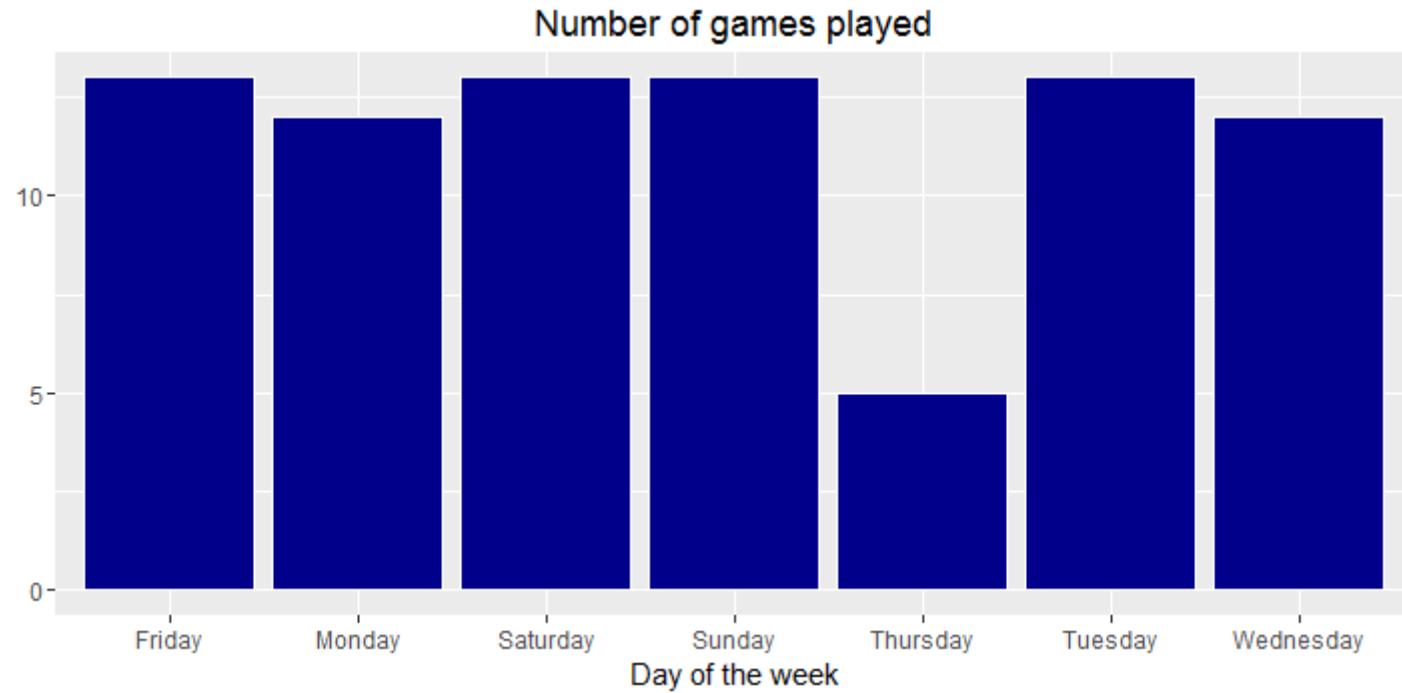
# Data Exploration





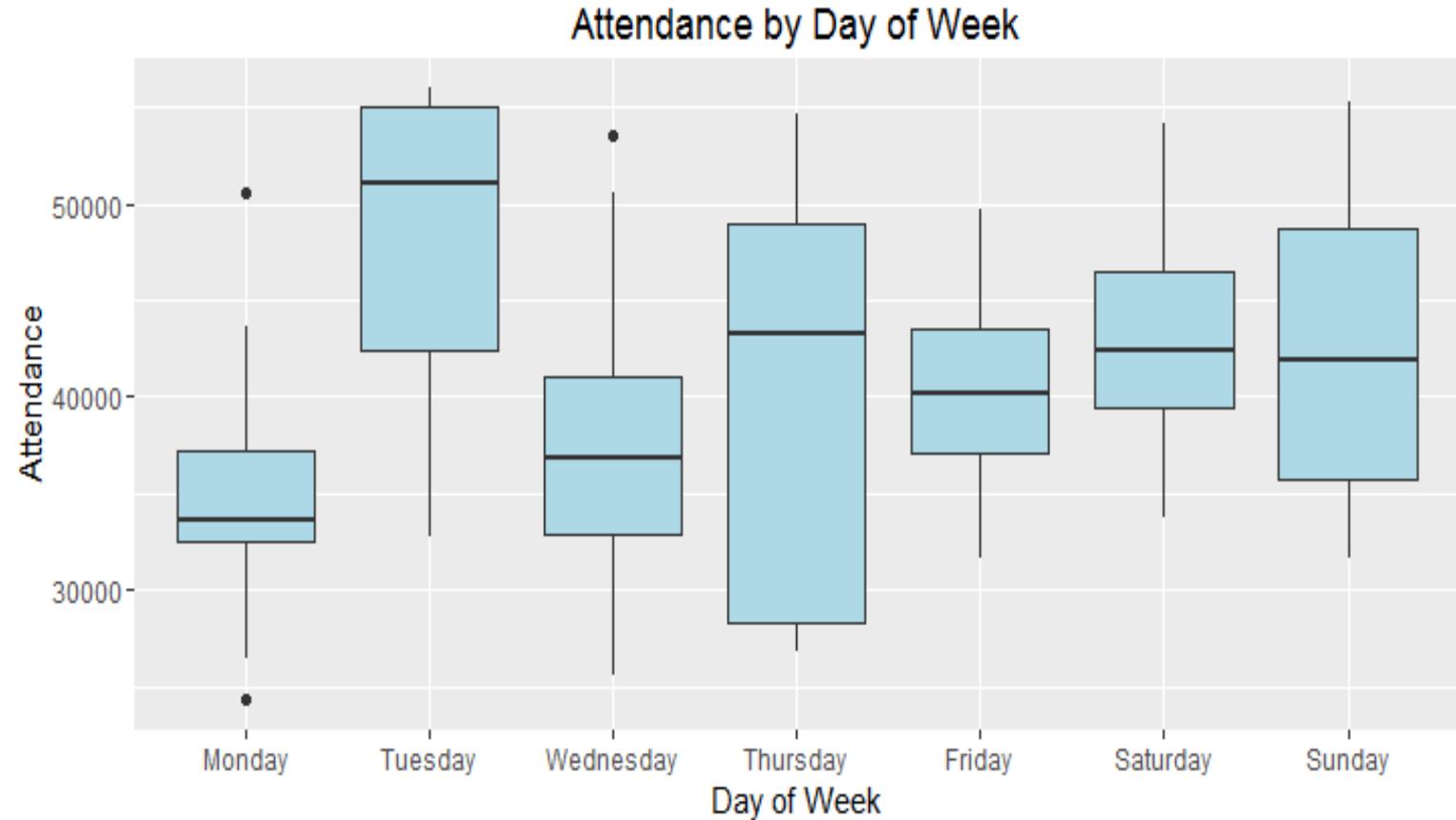
# Data Exploration

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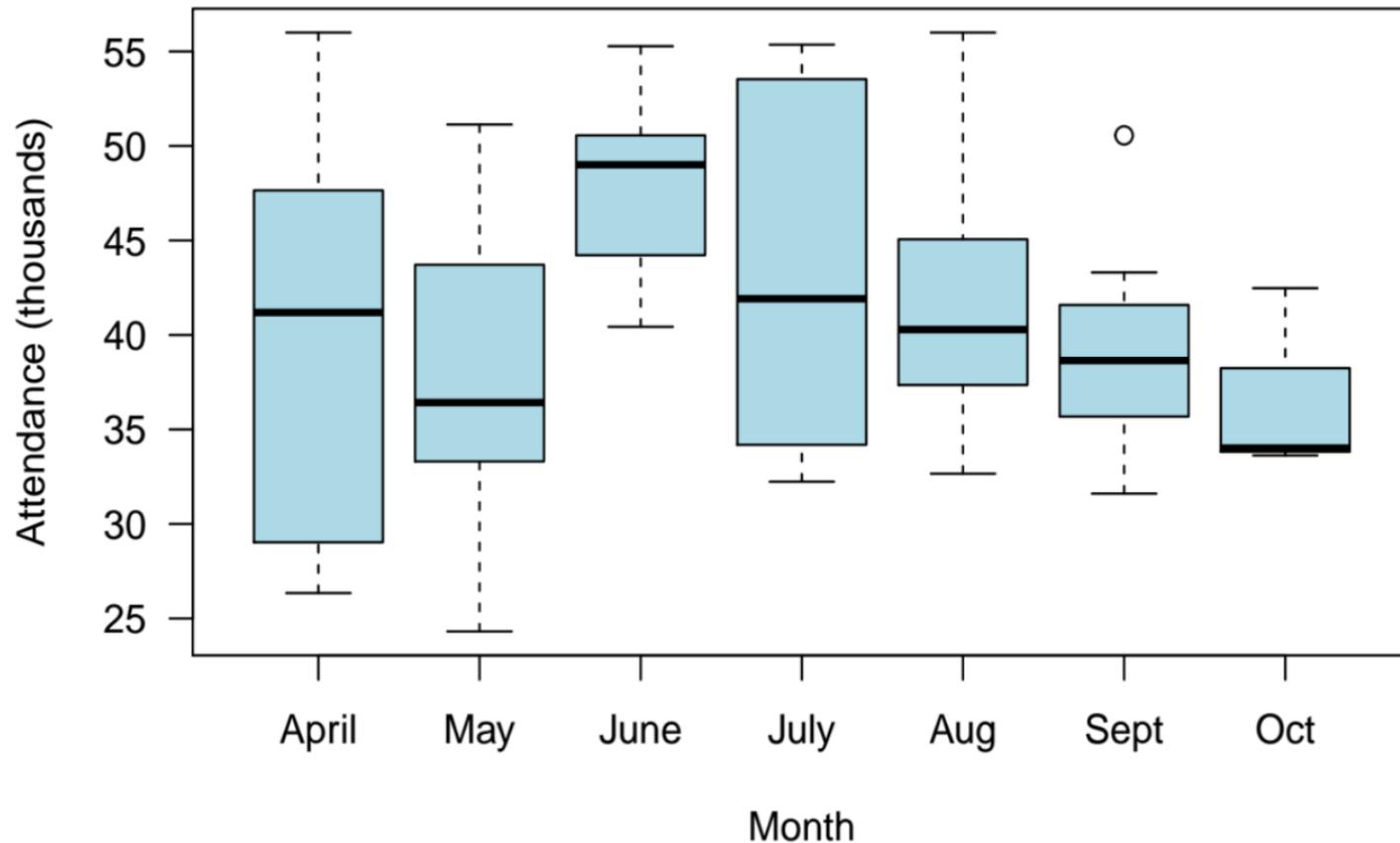


# Data Exploration



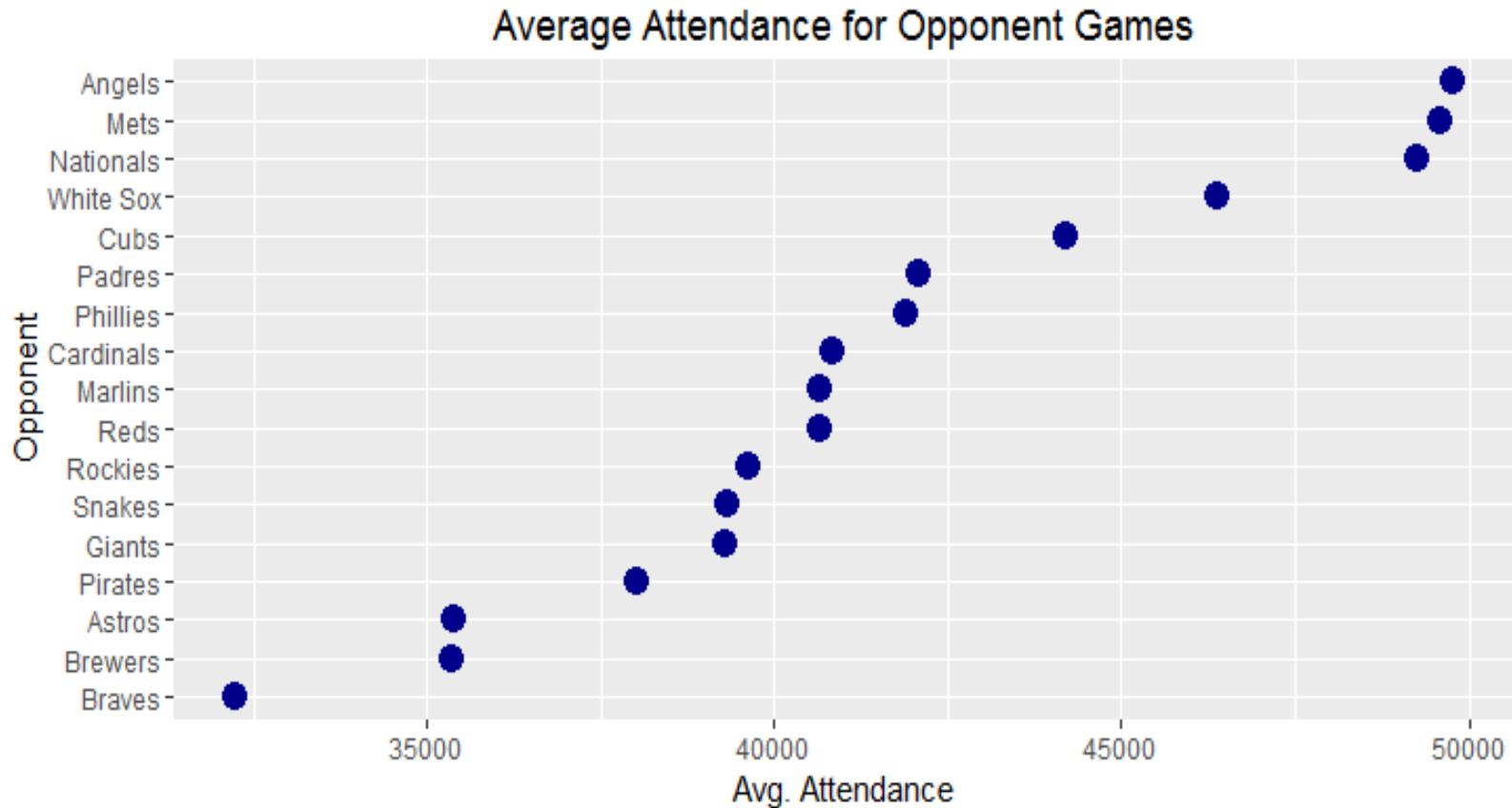


# Data Exploration



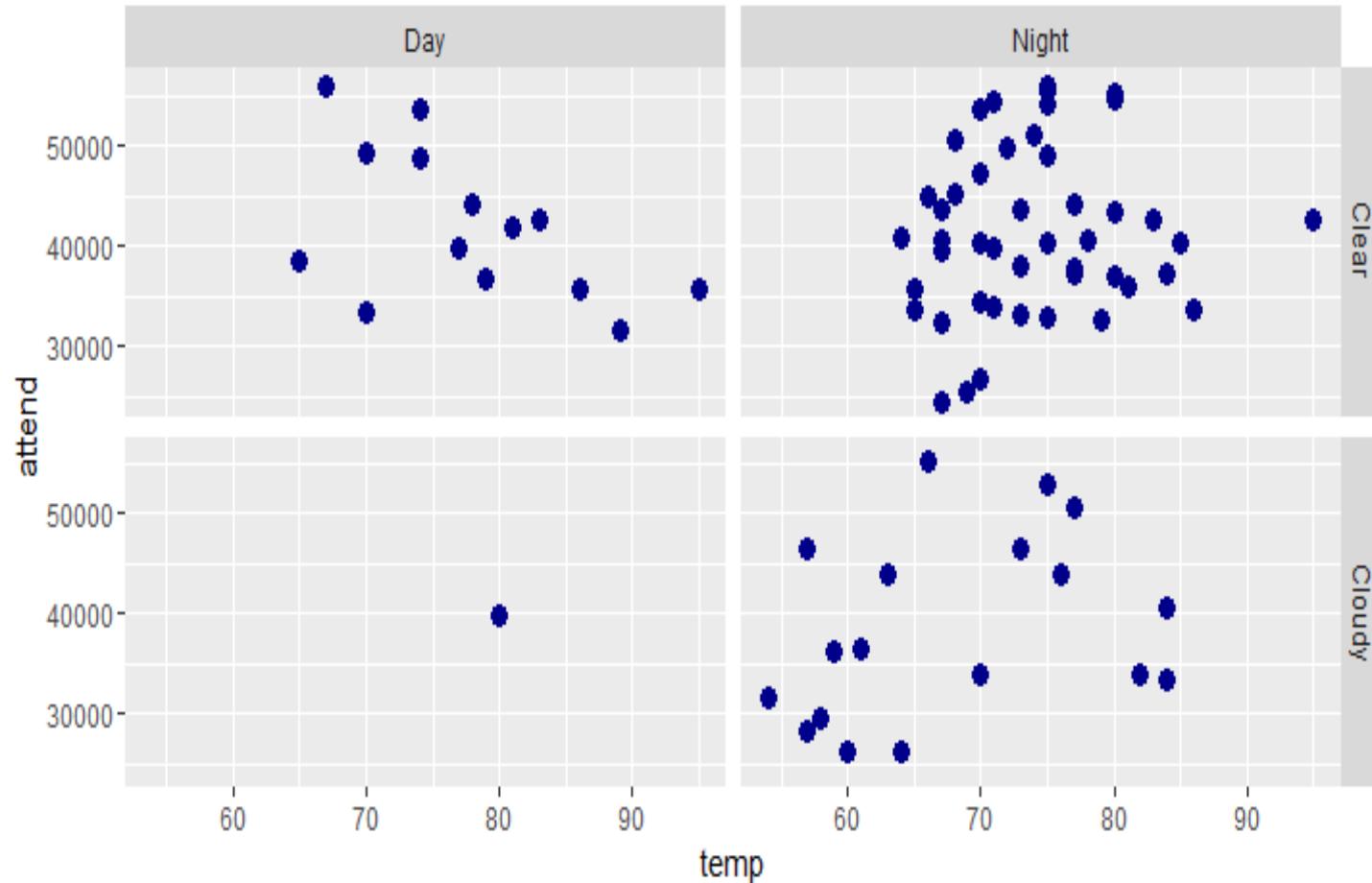


# Trend Analysis



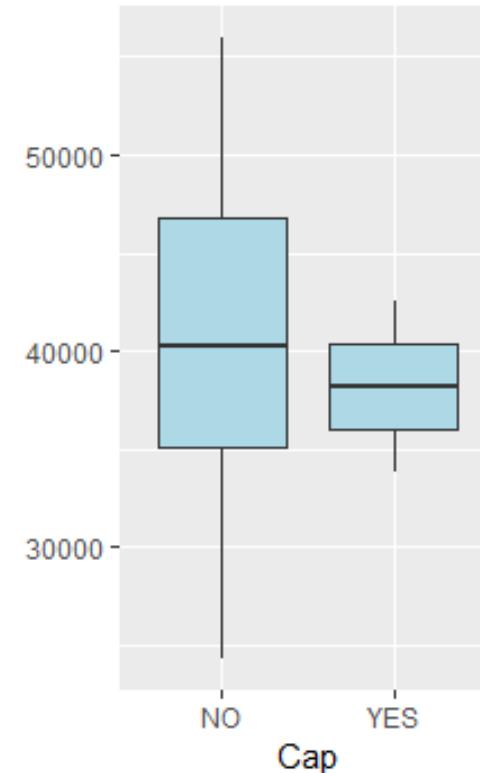
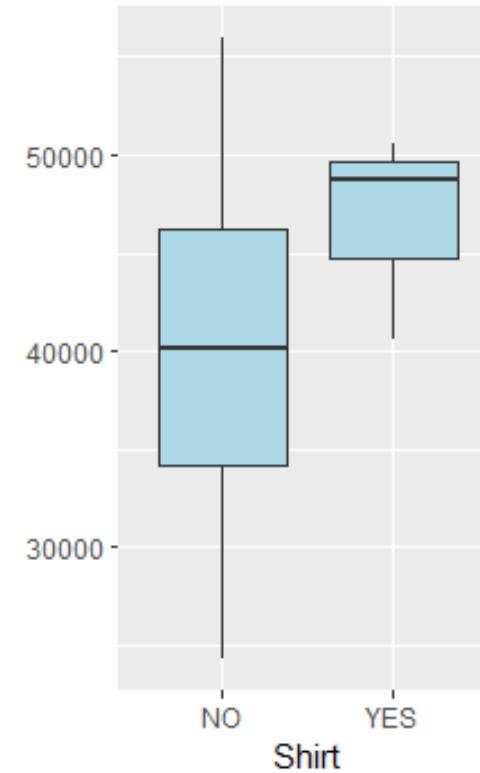
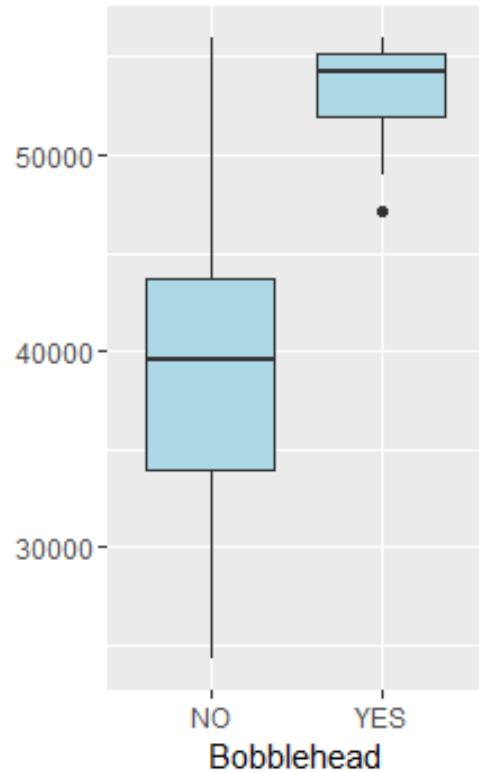


# Trend Analysis





# Trend Analysis





# Model Building

## Modelling Objective

To understand if bobblehead promotions increase attendance

## Model Choice

### Linear Regression

Easy to interpret; can quantify effect of the promotion on attendance



# Variable Selection

**Control  
Variables**

Month  
**Day of the Week**  
Opponents

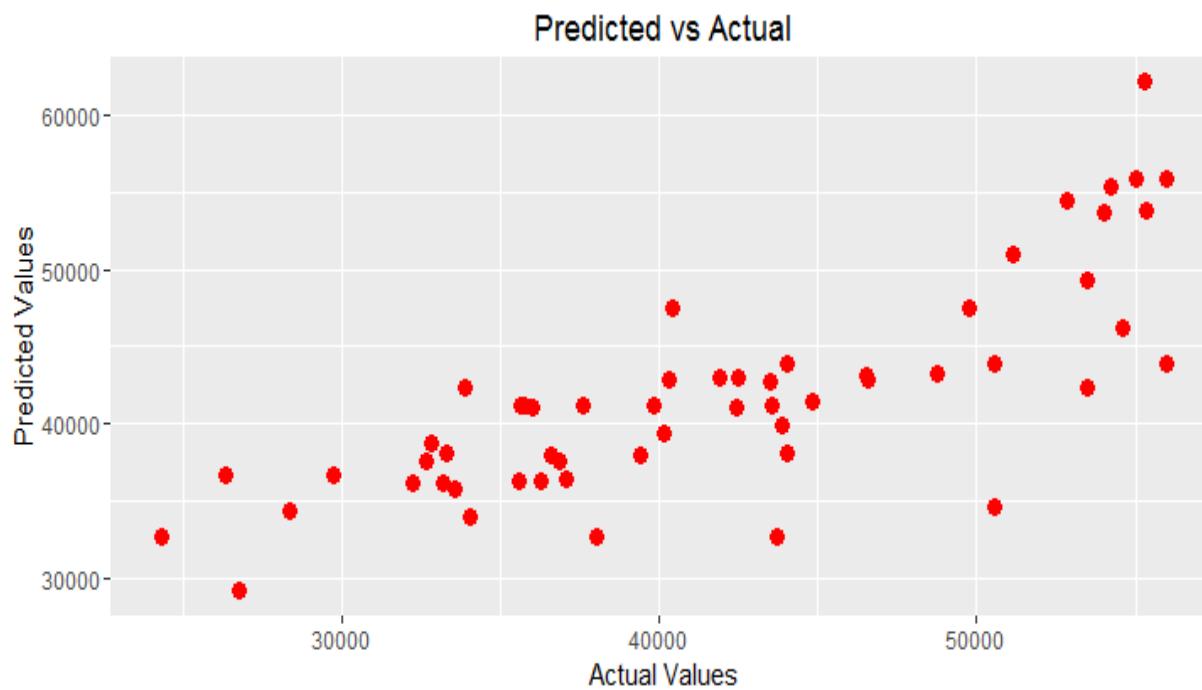
**No Control  
Variables**

Temperature  
**Clear Skies**



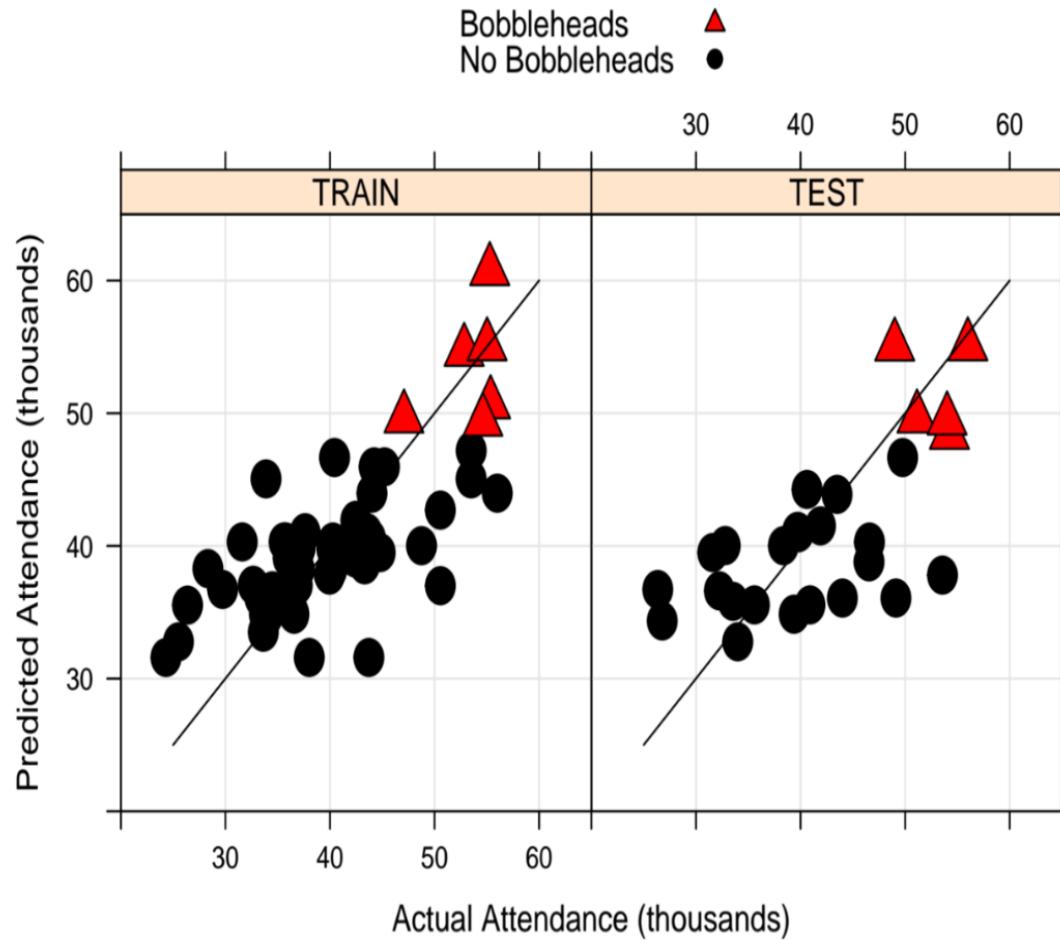
# Model Results and Performance

- Coefficient
  - Training – With Bobblehead : 12223.1, P Value < 0.05
  - Full Data – With Bobblehead : 10715, P Value < 0.05
- Performance
  - Adjusted Rsq: 60.18%, Training RMSE : 5360.79
  - Testing RMSE (LOOCV) : 6709.78,
  - Testing RMSE (5 FOLD CV) : 6766.06





# Model Results and Performance





# Business Insights

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- Predictive Analytics
  - Linear Regression Model Indicates including bobblehead promotions does significantly increase revenue by bringing in an estimated additional 10715 fans per game
  - The model focuses on business requirements and helps us to estimate revenue with and without the promotion
  - Model's interpretability makes understanding and decision making easier



# Strategic Decision-Making

- Application in Business Scenario
  - Profit contribution of bobbleheads
    - ✓ Cost/ Volume/ Profit Analysis
      - ❖ Fixed & Variable costs of bobbleheads
      - ❖ Ticket price
      - ❖ Concession & Additional staff cost

**Whether to use  
bubblehead  
promotion**

**Which games  
most benefit from  
bubblehead**



# Conclusion & Takeaways

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- When evaluating models, they need to make both statistical and business senses
- For multiple promotions, consider the effect one promotion has on another
- Adopting bobbleheads promotion increases both attendance and profitability
- Traditional regression models are especially useful in predicting effectiveness of marketing and promotions
- Formulate standardized process based on data analysis and adjust its business strategies around analysis results

# Questions?