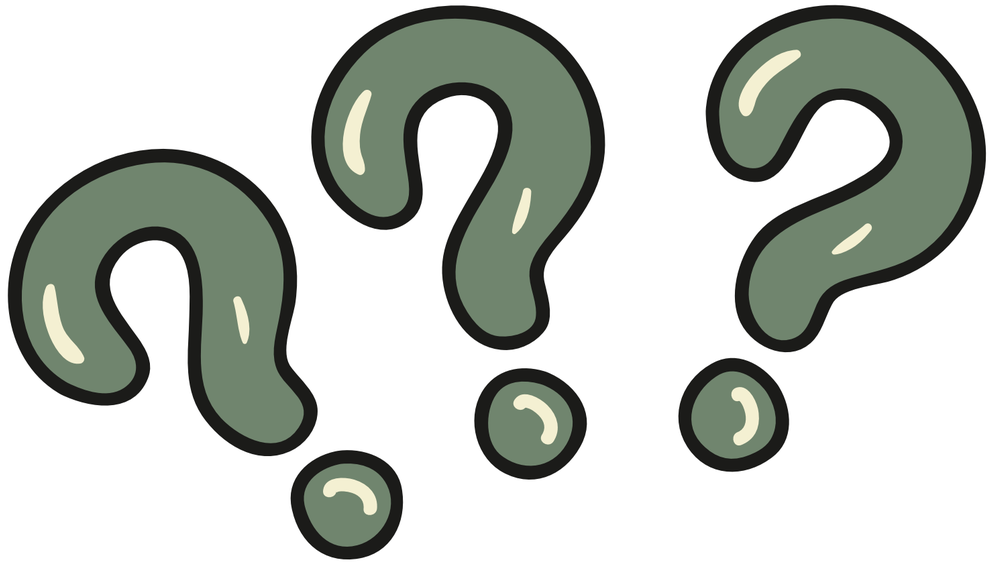
predicting market costs

T.A. Sarah Elmetwally

10/12/2024

Mansoura University

Problem statment



Context:

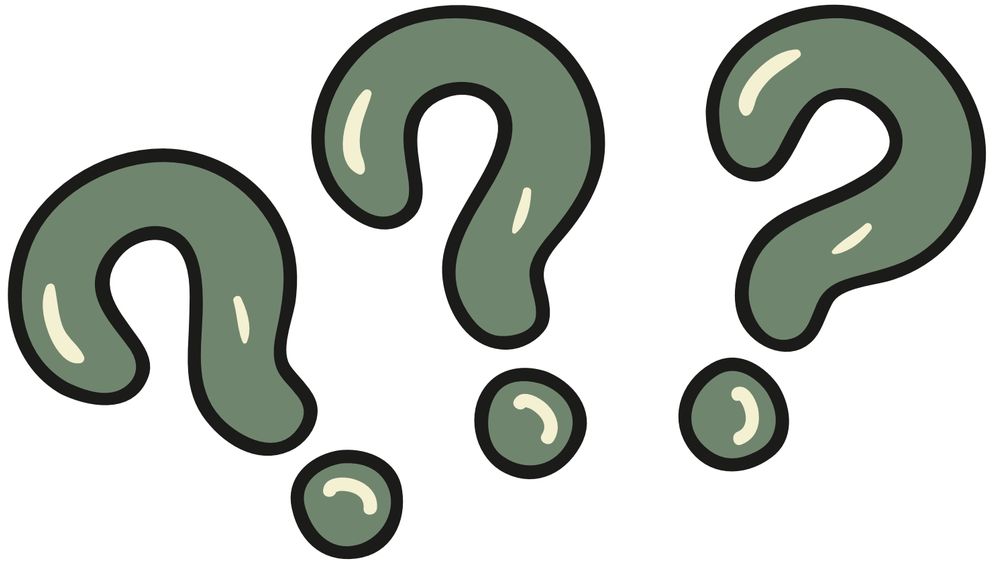
Market costs significantly influence pricing strategies, profitability, and operational efficiency.

Problem statment

Objective:

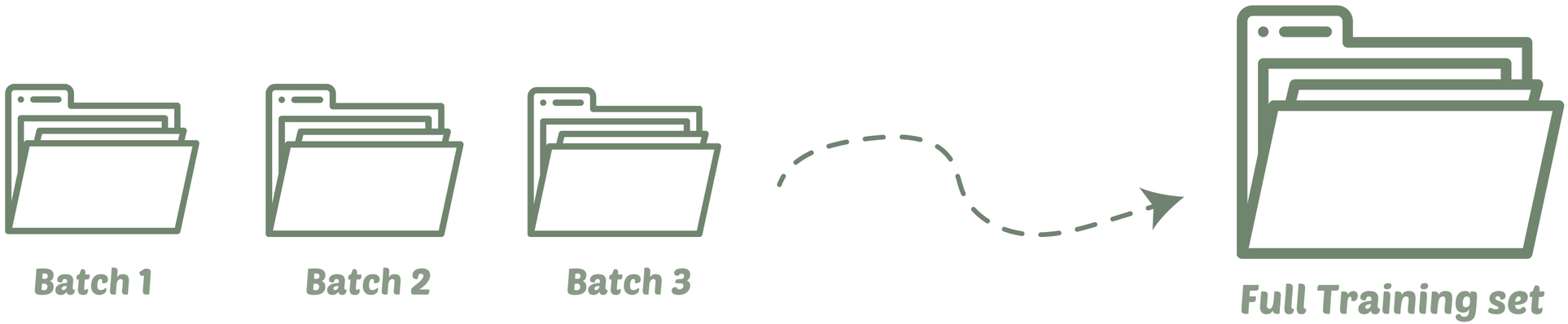
- **Develop a predictive model to forecast market costs, to help:**

- manage budgets
- Predict cost changes
- make smarter choices



Proposed Methodology

1.Dataset



- different columns naming
- different columns content

Proposed Methodology

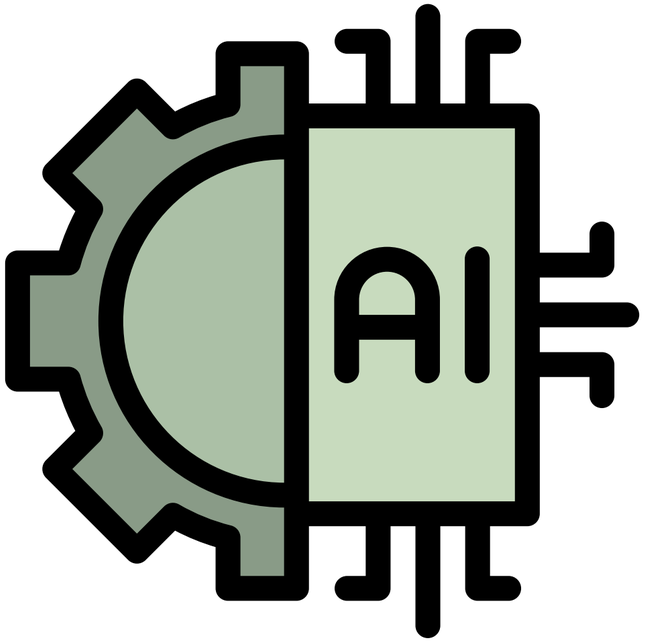
2.Preprocessing & feature engineering

- handling missing values, scaling, and encoding
- Extracting relevant features from text columns
- fixing data types & duplicates

Proposed Methodology

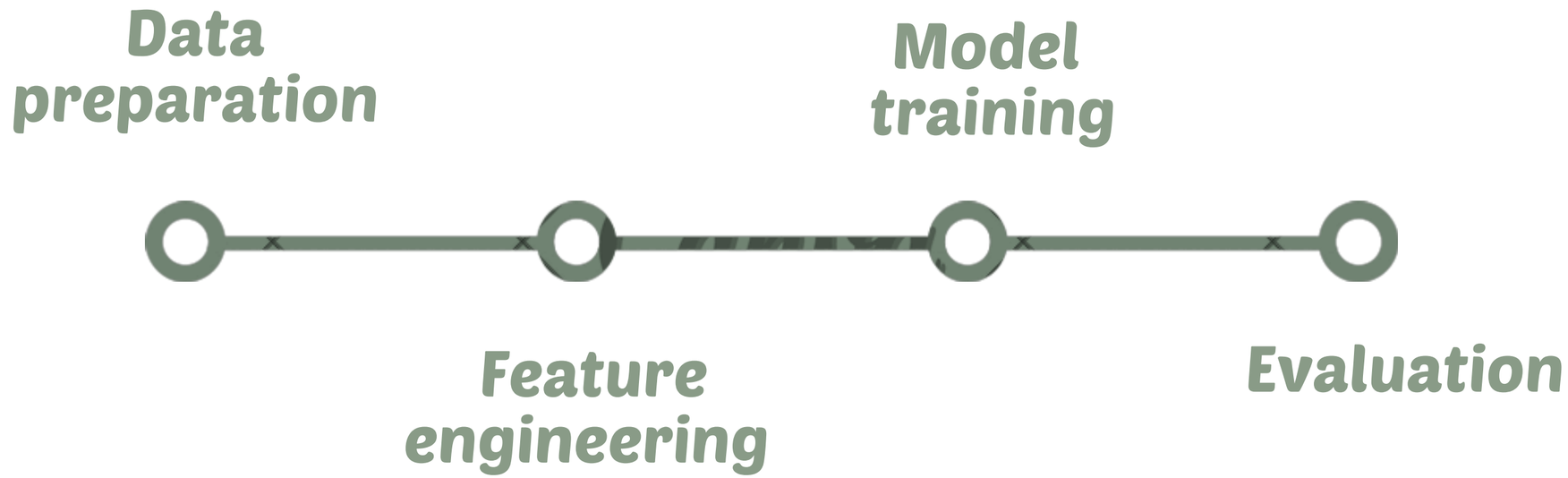
3.Modelling

- Tested models like Linear Regression, Random Forest
- Evaluated using RMSE and R^2 metrics.



Proposed Methodology

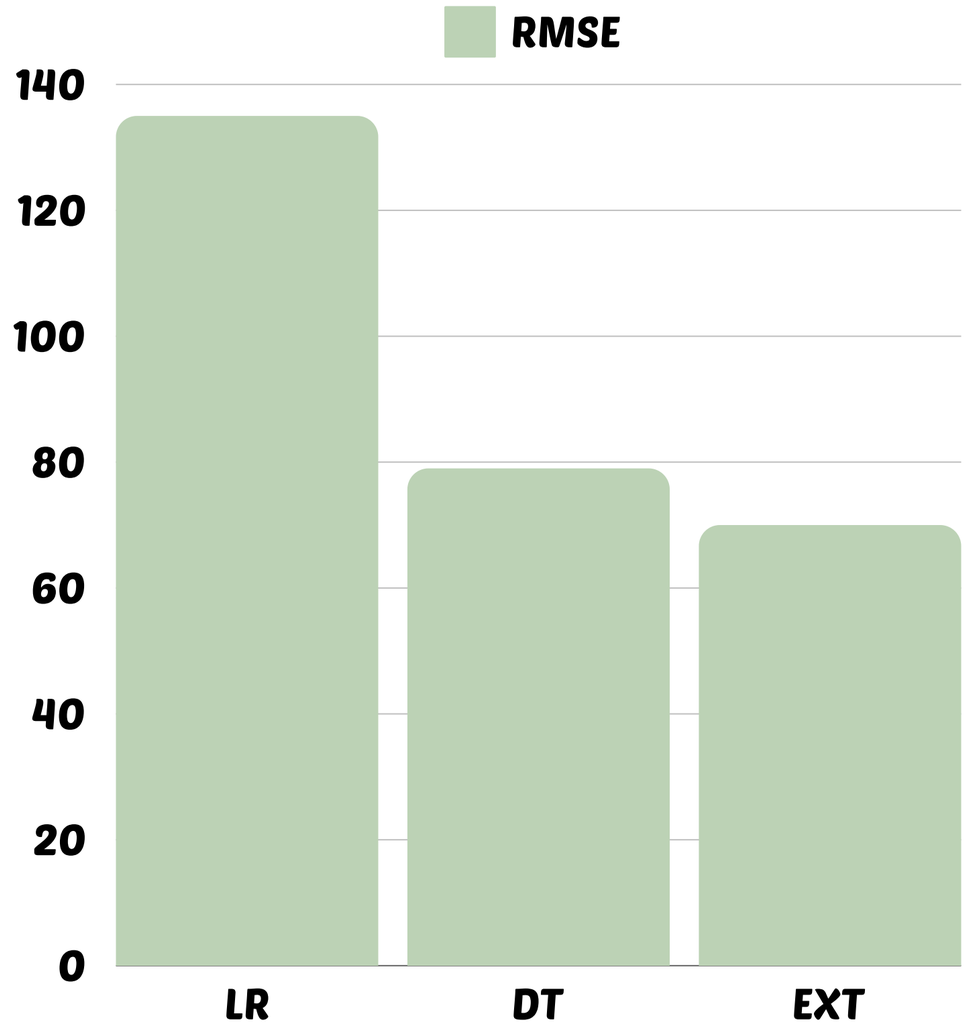
4. Workflow



Results

1.Model Performance:

- Best model: ExtraTrees with RMSE = 77
- Evaluated using RMSE and R^2 metrics.



Results

2.Key Insights:

- Cost predictions strongly influenced by city, promotional strategies
- The most two important features were place_code and promotion_name

Conclusion

- We created a model to predict market costs
- focused on data preparation, feature engineering, and testing models .
- The ExtraTrees model achieved an RMSE of 77
- This helps businesses better plan budgets, reduce costs, and make smarter decisions.

Related Work

- Stock Market Price Prediction Using Machine Learning Techniques
- Machine Learning and Neural Network Models in Short-term Market Prediction
- Stock Price Prediction Using Machine Learning and LSTM-Based Deep Learning Models

Thank you

any question?