Analyzing Trends In Commercial Real Estate

ASA DataFest 2025

The Pirates

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Introduction, Preprocessing & Cleaning, Preliminary Analysis, and Descriptive Statistics

Introduction

- Data Source: Savills Commercial Real Estate
- Research Questions:
 - Which factors influence the Transaction Type (Go vs Stay)?
 - 2) Which classification model is most appropriate for predicting our response variable?

Preprocessing & Cleaning

- 1. Preliminary Analysis Based on Graphing
- 2. Descriptive Statistics
- 3. Model Building
 - I. Data Partition (Training: 70% & Testing: 30%)
 - II. Model fitting

score)

- Logistic Regression
- Regression Tree
- Random Forest for Classification
- III. Model Comparisons (Accuracy, Recall, Precision, F1-



Figure 2: Transaction Type by Region



Figure 3: Office Space Trends



Figure 4: Office Space by Type



Results and Conclusions

Table 2: Predictive Model Performance based on Test Data

Method	Accuracy	Recall	Precision	F1-Score
Logistic Regression	0.6639	0.8723	0.6949	0.7735
Classification Tree	0.6778	0.9361	0.6875	0.7927
Random Forest for Classification	0.6919	0.8511	0.7272	0.7843

Figure 5: Classification Tree



Figure 6: Random Forest

space_type year leasedSF availability_proportion overall_rent region internal_class MeanDecreaseAccuracy

Key Findings

- Year, Region, Internal Class, Space Type, Availability Proportion, and Available Space
- Random Forest for Classification was the superior model

Conclusions

- Space Type, LeasedSF, and year were found to be important predictors of transaction type, based on classification tree and random forest methods.
- In terms of predictive performance, the classification tree method was found to be an effective predictive tool for transaction type.

