

Predicting Customer Subscriptions

Seif H. Kungulio



Predicting Customer Subscriptions

Seif H. Kungulio

December 24, 2025

Contents

Business Understanding	1
Introduction	1
Problem Statement	1
Objectives	1
Success Criteria	1
 Data Understanding	 2
Data Collection	2
Data Description	2
Initial Data Exploration	2
Data Quality Assessment	2
Missing Values Analysis	2
Outlier Detection	2
Correlation Analysis	2
Summary of Findings	2
 Data Preparation	 3
Data Cleaning	3
Feature Engineering	3
Data Transformation	3
Data Splitting	3
Summary of Prepared Data	3
 Modeling	 4
Model Selection	4
Model Training	4
Hyperparameter Tuning	4
Model Comparison	4
Final Model Selection	4
Model Interpretation	4
Feature Importance	4
Model Validation	4
Summary of Modeling Results	4

Evaluation	5
Performance Metrics	5
Business Impact Analysis	5
Limitations and Assumptions	5
Recommendations	5
 Deployment	 6
Deployment Strategy	6
Implementation Plan	6
Monitoring and Maintenance Plan	6
Summary of Deployment Plan	6
Future Work	6
Acknowledgments	6
References	6
Appendices	6
R Session Information	6
Code Repository	6
Contact Information	6
About the Author	6
Glossary	6
 Conclusion	 7

Business Understanding

Introduction

Problem Statement

Objectives

Success Criteria

Data Understanding

Data Collection

Data Description

Initial Data Exploration

Data Quality Assessment

Missing Values Analysis

Outlier Detection

Correlation Analysis

Summary of Findings

Data Preparation

Data Cleaning

Feature Engineering

Data Transformation

Data Splitting

Summary of Prepared Data

Modeling

Model Selection

Model Training

Hyperparameter Tuning

Model Comparison

Final Model Selection

Model Interpretation

Feature Importance

Model Validation

Summary of Modeling Results

Evaluation

Performance Metrics

Business Impact Analysis

Limitations and Assumptions

Recommendations

Deployment

Deployment Strategy

Implementation Plan

Monitoring and Maintenance Plan

Summary of Deployment Plan

Future Work

Acknowledgments

References

Appendices

R Session Information

Code Repository

Contact Information

About the Author

Glossary

Conclusion