

Best Supplier Recommendation

Table of Contents

TABLE OF CONTENTS	2
1. ABSTRACT.....	3
THIS REPORT DISCUSSES THE USE OF MACHINE LEARNING (ML) MODELS IN RECOMMENDING THE BEST SUPPLIERS TO ACME CORPORATION, GIVEN A SET OF TASK FEATURES. THIS PROCESS BEGINS WITH DATA CLEANING AND PREPARATION, EXPLORATORY DATA ANALYSIS (EDA) AND MACHINE LEARNING, WHERE RESULTS FROM PREDICTED DATA CAN BE OBTAINED. CROSS-VALIDATION (LEAVE-ONE-GROUP-OUT) IS USED TO VALIDATE THE ML MODEL SCORE, AND HYPER-PARAMETER OPTIMIZATION IS FURTHER USED TO FIND THE OPTIMAL SET OF HYPER-PARAMETERS FOR IMPROVED PREDICTIONS.....	
2. INTRODUCTION	3
3. DATA CODING & ANALYSIS	3
3.1 DATA PREPARATION.....	3
3.2.1 <i>Distribution of Feature values</i>	4
3.2.2 <i>Distribution of error based on supplier chosen</i>	4
3.2.3 <i>Cost comparison between suppliers</i>	5
3.3 MACHINE LEARNING	8
3.3.1 <i>Selection and training models – Model Fitting</i>	8
3.3.2 <i>ERROR & RMSE Calculation and Comparison (Test Group)</i>	9
3.5.1. <i>First model – Lasso Regression</i>	10
3.5.2. <i>Second model – Ridge Regression</i>	11
3.5.3. <i>Third model – ElasticNet Regression</i>	12
4. CONCLUSION	13