

Project Overview: Predicting E-commerce On-Time Delivery with Machine Learning

Problem: E-commerce businesses struggle to accurately predict on-time delivery for orders, leading to customer dissatisfaction, operational inefficiencies, and potential cost increases.

Solution: This project aims to develop a machine learning model that predicts whether an e-commerce order will reach the customer on time (Yes/No) based on various features.

Data: Historical order data will be utilized, including information on warehouse location, shipping method, customer history, product details, and past delivery performance.

Methodology:

- Data exploration and pre-processing: Analyzing and cleaning the data for quality and completeness.
- Feature selection and engineering: Selecting and creating specific features from existing data to improve model performance.
- Model training and evaluation: Training and evaluating different machine learning models on the prepared data.
- Model selection: Choosing the best performing model based on evaluation metrics.

Expected Benefits:

- Improved Customer Satisfaction: By setting realistic delivery expectations and avoiding delays, we aim to enhance customer satisfaction.
- Optimized Logistics: The model can inform decisions about resource allocation, route planning, and priority handling for time-sensitive orders, leading to more efficient logistics.
- Reduced Operational Costs: Identifying potential delays early allows for corrective actions to minimize costs associated with missed deliveries.
- Data-driven Decision Making: The project will provide valuable insights into factors impacting on-time delivery, empowering evidence-based decision making.

Deliverables:

- A well-performing machine learning model capable of predicting on-time delivery for e-commerce orders.
- A comprehensive report detailing the project methodology, results, and recommendations for future improvements.

This project offers a data-driven approach to address the challenges of on-time delivery prediction in e-commerce. By leveraging machine learning, we aim to create a more efficient and customer-centric delivery experience.