

Project Initialization and Planning Phase

Date	20 July 2024
Team ID	SWTID1720110595
Project Title	Ecommerce Shipping Prediction Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	The primary objective of this project is to develop a machine learning model that accurately predicts ecommerce shipping times based on various factors. The model will leverage historical data and real-time updates to provide precise delivery estimates, improving customer satisfaction and trust in the ecommerce platform.
Scope	The project will encompass: <ul style="list-style-type: none"> • Problem understanding and specification • Business requirements identification • Literature review on similar solutions and their impact • Data collection and preparation • Model building, training, testing, and hyperparameter tuning • Model deployment and integration with a web application • Project demonstration and documentation
Problem Statement	
Description	Ecommerce customers often face uncertainty regarding the delivery times of their purchases, leading to frustration and a diminished shopping experience. The lack of accurate delivery estimates and real-time updates results in inconvenience and loss of trust in the ecommerce platform.
Impact	Solving this problem will: <ul style="list-style-type: none"> • Enhance customer satisfaction by providing reliable delivery

	<p>estimates</p> <ul style="list-style-type: none"> • Improve overall customer experience and trust in the ecommerce platform • Increase customer retention and loyalty
Proposed Solution	
Approach	<p>The solution involves developing a machine learning model to predict shipping times. The project will follow these steps:</p> <ol style="list-style-type: none"> 1. Problem Understanding: Define the business problem and specify requirements. 2. Literature Survey: Review existing solutions and their impact. 3. Data Collection & Preparation: Collect and prepare datasets for analysis. 4. Exploratory Data Analysis: Perform descriptive statistical and visual analysis. 5. Model Building: Train the model using various algorithms and test its performance. 6. Hyperparameter Tuning: Optimize the model using multiple evaluation metrics. 7. Model Deployment: Save the best model and integrate it with a web framework. 8. Project Demonstration & Documentation: Create a comprehensive demonstration and document the development process.
Key Features	<ul style="list-style-type: none"> • Accurate Predictions: Utilize machine learning to provide precise delivery estimates. • Real-Time Updates: Incorporate real-time data from carriers to refine predictions. • User-Friendly Interface: Develop an interactive UI for users to input data and receive predictions. • Comprehensive Documentation: Provide detailed documentation and a project demonstration video for clarity and transparency.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs or equivalent
Memory	RAM specifications	16 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn, tensorflow
Development Environment	IDE, version control	VS Code, Jupyter Notebook, Git
Data		
Data	Source, size, format	Kaggle dataset, 1099 (rows) x 12 (columns) Train.csv (440.46 kB)