SmartBridge- Food demand forecasting for a food delivering company

Milestone1: Project Initialization and Planning Phase

The "Project Initialization and Planning Phase" marks the project's outset, defining goals, scope, and customers. This crucial phase establishes project parameters, identifies key team members, allocates resources, and outlines a realistic timeline. It also involves risk assessment and mitigation planning. Successful initiation sets the foundation for a well-organized and efficiently executed machine learning project, ensuring clarity, alignment, and proactive measures for potential challenges.

Activity1: Define Problem Statement

Problem Statement: A self-employed customer wants to know the food demand and the number of orders from a given region code.

ProblemStatementReport:ClickHere

Activity2:Project Proposal (ProposedSolution)

The proposed project, “food demand forecasting for a food delivery company” aims to leverage machine learning for more accurate price sentiment predictions. Using a comprehensive dataset including news headlines, price and conditions the project seeks to develop a predictive model optimizing Sentiment Analysis of Commodity News (Gold). This initiative aligns with our objective to enhance decision-making, reduce risks ,and streamline lending operations ,ultimately improving customer satisfaction and operational efficiency.

ProjectProposalReport:ClickHere

Activity3: Initial Project Planning

Initial Project Planning involves outlining key objectives, defining scope, and identifying customers for estimating and predicting the estimated demand of food orders in a particular region .It encompasses setting timelines, allocating resources, and determining the overall project strategy. During this phase, the team establishes a clear understanding of the dataset, formulates goals for analysis, and plans the workflow for data processing. Effective initial planning lays the foundation for a systematic and well-executed project, ensuring successful outcomes.

ProjectPlanningReport:ClickHere

Milestone2:Data Collection and Preprocessing Phase

The Data Collection and Preprocessing Phase involves executing a plan to gather relevant loan

Application data from Kaggle , ensuring data quality through verification and addressing missing values. Preprocessing tasks include cleaning, encoding, and organizing the dataset for subsequent exploratory analysis and machine learning model development.

Activity1: Data Collection Plan ,Raw Data Sources Identified, Data Quality Report

The dataset for "food demand forecasting for a food delivery company" is sourced from Kaggle. It includes applicant details and financial metrics. Data quality is ensured thorough verification, addressing missing values ,and maintaining adherence to ethical guidelines, establishing are liable foundation for predictive modeling.

DataCollectionReport:ClickHere

Activity2:Data Quality Report

The dataset for "Food Demand Forecasting For Food Delivery Company" is sourced from Kaggle. It includes applicant details and prediction metrics. Data quality is ensured thorough verification, addressing missing values, and maintaining adherence to ethical guidelines, establishing are liable foundation for predictive modeling.

DataQualityReport:ClickHere

Activity3:Data Exploration and Preprocessing

Data Exploration involves analyzing the prediction dataset to understand patterns,distributions. Preprocessing includes handling missing values ,scaling, and encoding categorical variables. These crucial steps enhance data quality, ensuring the reliability and effectiveness of subsequent analyses in the loan approval project.

Data Exploration and Preprocessing Report:ClickHere

Milestone 3: Model Development Phase

The Model Development Phase entails crafting a predictive model for updating orders. It encompasses strategic feature selection, evaluating and selecting models(Random Forest, Decision Tree, KNN,XGB),initiating training with code, and rigorously validating and assessing model performance for inform decision-making in the lending process.

Activity1:Feature Selection Report

The Feature Selection Report outlines the rationale behind choosing specific features (e.g., region code, cuisine etc.,)for the price prediction model. It valuates relevance, importance ,and impact on predictive accuracy, ensuring the inclusion of key factors influencing the model's ability to discern credible order prediction.

FeatureSelectionReport:ClickHere

Activity2:Model Selection Report

The Model Selection Report details the rational ebehind choosing RandomForest ,Decision Tree, KNN, and XGB models for price prediction. It considers each model's strengths in handling complex relationships, interpretability, adaptability, and overall predictive performance , ensuring an informed choice aligned with project objectives.

ModelSelectionReport:ClickHere

Activity3: Initial Model Training Code, Model Validation and Evaluation Report

The Initial Model Training Code employs selected algorithms on the number of orders prediction dataset, setting the foundation for predictive modeling. The subsequent Model Validation and Evaluation Report rigorously assesses model performance, employing metrics like accuracy and precision to ensure reliability and effectiveness in predicting loan outcomes.
ModelDevelopmentPhaseTemplate:ClickHere

Milestone4:Model Optimization and Tuning Phase

The Model Optimization and Tuning Phase involves refining machine learning models for peak performance .It includes optimized model code, fine-tuning hyper parameters, comparing performance metrics, and justifying thef in all model selection for enhanced predictive accuracy and efficiency.

Activity1:Hyper parameter Tuning Documentation

The gradient boosting model was selected for its superior performance, exhibiting high accuracy during hyper parameter tuning. Its ability to handle complex relationships, minimize over fitting, and optimize predictive accuracy aligns with project objectives, justifying its selection as the final model.

Activity2: Performance Metrics Comparison Report

The Performance Metrics Comparison Report contrasts the baseline and optimized metrics for various models, specifically highlighting the enhanced performance of the gradient boosting model. This assessment provides a clear understanding of the refined predictive capabilities achieved thoroughly per parameter tuning.

Activity3: Final Model Selection Justification

The Final Model Selection Justification articulates the rationale for choosing gradient boosting as the ultimate model. Its exceptional accuracy, ability to handle complexity, and successful hyper parameter tuning align with project objectives, ensuring optimal loan approval predictions.

Model Optimization and Tuning Phase Report :ClickHere

Milestone5: Project Files Submission and Documentation

For project file submission in Github, Kindly click the link and refer to the flow .**ClickHere**

For the documentation, Kindly refer to the link .**ClickHere**

Milestone6: Project Demonstration

In the upcoming module called Project Demonstration, individuals will be required to record a video by sharing their screens. They will need to explain their project and demonstrate its execution during the presentation.