Project Charter Document

Project Name: Customer Satisfaction Prediction

Department: **Airlines**

Focus Area: Customer Satisfaction

Product/Process: Data Analysis

Prepared By

Document Owner(s)	Project/Organization Role
Namrata Panwar	Project Lead

Project Charter Version Control

Version	Date	Author	Change Description
1.0	24/06/2023	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	• Document created • Edited the document deemed necessary • Edited the contributions of the work as deemed necessary
2.0	25/06/2023	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	• Dataset Analysis and Cleansing • Performed EDA, Modeling • Deployment and Modelling

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• PROJECT CHARTER PURPOSE

The purpose of this project charter is to provide a clear and concise description of the objectives, scope, deliverables, and stakeholders of the Airline Customer Satisfaction Prediction Project. The project aims to develop a predictive model that can accurately forecast customer satisfaction levels for a specific airline based on various factors such as flight experience, service quality, and customer feedback..

• PROJECT EXECUTIVE SUMMARY

- Project goals
  - prediction of customer satisfaction.

- Objectives

  The main objectives of the project are as follows:
  - Develop a predictive model to forecast customer satisfaction levels for the airline.
  - Identify key factors influencing customer satisfaction and their relative importance.
  - Provide actionable insights and recommendations to the airline based on the predictive model's findings.
  - Enhance customer satisfaction and loyalty by addressing areas of improvement within the airline's operations.
- Scope

  The project scope includes the following key components:
  - Data Collection: Gather relevant data from multiple sources, including customer surveys, flight records, customer feedback, and other relevant data points.
  - Data Preparation and Analysis: Clean, preprocess, and analyze the collected data to identify patterns, correlations, and factors affecting customer satisfaction.
  - Model Development: Develop a predictive model using advanced analytics techniques, machine learning algorithms, and statistical modeling to predict customer satisfaction levels.
  - Model Validation and Fine-tuning: Validate the predictive model using appropriate validation techniques and refine it to improve its accuracy and reliability.
  - Insights and Recommendations: Generate actionable insights and recommendations based on the predictive model's findings to enhance customer satisfaction and improve overall airline performance.

- Constraints and Assumptions:
  - Data availability: Availability of sufficient historical data for accurate model development.
  - Data privacy and security: Ensure compliance with data protection regulations and maintain the confidentiality of customer information.
  - Stakeholder collaboration: Active involvement and cooperation from various departments to implement recommendations.
  - Technological infrastructure: Availability of appropriate hardware, software, and IT support for data processing and model implementation.
  - Project timeline and resources: Adherence to project schedule and allocation of necessary resources

- Risks
- Data Quality and Availability: Insufficient or low-quality historical data may impact the accuracy and reliability of the predictive model. Incomplete or inconsistent data could lead to biased or inaccurate predictions.
- Model Performance: The predictive model may not achieve the desired level of accuracy in predicting customer satisfaction. Factors such as complex customer preferences, changing market dynamics, or unforeseen variables may affect the model's performance.

PROJECT OVERVIEW

The Airline Customer Satisfaction Prediction Project aims to develop a predictive model that accurately forecasts customer satisfaction levels for an airline company. By leveraging historical data, customer feedback, and other relevant factors, the project seeks to provide actionable insights to enhance the overall customer experience and improve operational efficiency.

PROJECT SCOPE

The project scope includes the following key components:

- Data Collection: Gather relevant data from multiple sources, including customer surveys, flight records, customer feedback, and other relevant data points.
- Data Preparation and Analysis: Clean, preprocess, and analyze the collected data to identify patterns, correlations, and factors affecting customer satisfaction.
- Model Development: Develop a predictive model using advanced analytics techniques, machine learning algorithms, and statistical modeling to predict customer satisfaction levels.
- Model Validation and Fine-tuning: Validate the predictive model using appropriate validation techniques and refine it to improve its accuracy and reliability.
- Insights and Recommendations: Generate actionable insights and recommendations based on the predictive model's findings to enhance customer satisfaction and improve overall airline performance.

- **Goals and Objectives**

Goals	Objectives
• Enhance Customer Satisfaction • Explore factors influencing account dormancy • Explore technology • Collating as well as simulating Data • Feature Engineering to derive each of the influence factors • Performing the Descriptive and Predictive analysis	• Research all aspects of Relevant Business • Research all relevant aspects of Data Science and AI Technologies • Research (Understand the various segments, sources, factors affecting dormancy and directly proportional to cause the effects • Improve Customer Experience • Provide Actionable Insights • Perform Exploratory data analysis on the data and derive insights. Documentation of all the findings. • Deploy the model using any framework like Flask and Python programming tool

● Applying the accurate models for the appropriate accuracy ● Deployment	

○ **Project Deliverables**

Milestone	Deliverable
1. Explore Business	● Research all the aspect of Customer satisfaction ● Deliverable 1.2 – ML/DL/AI System and Scope
2. Explore and simulate the sample data	● Clear documentation on Data and data preprocessing / Cleaning ● Deliverable 2.2 – Apply the data Simulation technical and get minimum __ records
3. Data Cleansing	● Data Cleansing using Exploratory data analysis ● Perform Feature engineering, Hypothesis testing based on that feature selected for analysis purpose
4. Exploratory Data Analysis	● Complete documentation on the data with all stats and graphs using Python programming tool along with automated Python code ● Deliverable 4.2— Feature extraction and interesting insights
● Apply Classification models and Ensemble model(catboost) and come up with best accurate model Deployment	● Deploy the model using framework like Flask, HTML and Python programming tool

○ **Deliverables Out of Scope**

- designs
- mobile app

- **Project Duration (Start date: 5/3/2021 - End date: 5/4/2021)**

Project Milestone	Date Estimate	Deliverable(s) Included	Confidence Level
Understanding the Problem Statement	24.06.2023	• Prepare various docs on the Business problem understanding and share it with the team	High
Prepare Project charter	24.06.2023	• 1.Goals and Objectives • 2.Project Deliverables • 3.Deliverables Out of Scope • 4.Project Duration	High
Data Understanding and Preparation	24.06.2023	• Analyze and understand the data • Cleaning the data • Preparing it for necessities	High

Exploratory Data Analysis	25/06/2023	• Performed EDA on the data	High
Modeling	25/06/2023	• Apply ML modeling techniques such Logistic Regression, KNN, SVM, Decision Tree, Ensemble learning, Bagging. • Model Selection and Fitment	Medium
Evaluation and Deployment	25.06.2023	• Evaluate Results and test it with Real data from the Client. • Deployed using flask	Medium

- # PROJECT CONDITIONS

  - **Project Assumptions**

    - Can create a web API using flask
    - Data is collected based on the assumption and survey, we will use that data set for our project to get the accurate results.
    - Model is prepared based on data provided.

- **Project Issues**

Priority Criteria

1 – High-priority/critical-path issue; requires immediate follow-up and resolution.

2 – Medium-priority issue; requires follow-up before completion of next project milestone.

3 – Low-priority issue; to be resolved prior to project completion.

4 – Closed issue.

- **Project Risks**

#	Risk Area	Likelihood	Risk Owner	Project Impact-Mitigation Plan
1	Performed Exploratory Data Analysis on imbalanced dataset	Medium	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	Need to collect more number of records
2	Built the model by applying different modeling techniques with finalized models using Bagging Classifier.	Medium	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	no need to collect more number of records

- **Project Constraints**

*** maximize the dormant account customer**

- ## Project Structure Approach

The project implementation to be done using CRISP-DM process

- **Project Team Organization Plans**

Project Team Role	Project Team Member(s)	Responsibilities
Project Management	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	• Project Charter • Code Review • Document Review
Data Handling	All Team	• Data Research • Data Collection

Data Preparation/ EDA/Web scrapping	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	● Data Cleansing ● Data Visualization ● Exploratory Data Analysis. ● Web Scraping.
Model Building	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	● Model Research ● Model Building ● Model Improvement ● Model Integration with Web page ● Code Video Deliverable
Model Deployment	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	● Model Research ● Model Testing ● Code Video

Documentation	Divyanshu Kewat, Jalaj Sharma, Namrata Panwar, Shashank Jain	• Project Document • Error Document • Technical Document • User Manual

- **PROJECT REFERENCES**

Milestone	Deliverable
Dataset Used	
Final Code	
Deployment Code	
Project Presentation	
Code Deployment video	

- # APPROVALS

Prepared by _____
Project Manager

Approved by Sharat Chandra M_____
Project Sponsor

_____
Executive Sponsor

_____
Client Sponsor

APPENDICES

Document Guidelines

Project Charter Document Sections Omitted