Project Design Phase-I
Proposed Solution

Date	19 November 2023
Team ID	591834
Project Name	Project- Walmart Store Sales Forecasting
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	The problem is to accurately forecast sales for Walmart stores, taking into account various factors such as store information, promotional markdown events, and the impact of holidays (Christmas, Thanksgiving, Super Bowl, Labour Day). The goal is to enable informed business decisions and improve overall performance based on reliable sales predictions.
2.	Idea / Solution description	The solution involves utilizing machine learning algorithms, including ARIMA, Random Forest, and XG Boost, to analyse historical sales data and predict future sales for Walmart stores. The integration of Flask will allow users to interactively explore and visualize the sales forecasts through a user-friendly web application. The project aims to provide a robust and accurate sales forecasting tool for better decision-making.
3.	Novelty / Uniqueness	The uniqueness lies in the combination of time series analysis using ARIMA and machine learning models like Random Forest and XG Boost. The incorporation of Flask for creating a web application adds an interactive element, allowing users to gain insights into sales forecasts dynamically. The emphasis on holiday impact analysis, with a five times weighting factor during holiday weeks, is a distinctive feature.

4.	Social Impact / Customer Satisfaction	Accurate sales forecasting can have a positive impact on both Walmart and its customers. For Walmart, it means optimizing inventory, staffing, and marketing strategies. For customers, it can lead to a more seamless shopping experience with better product availability and potentially more targeted promotions, contributing to overall satisfaction.
5.	Business Model (Revenue Model)	The revenue model could involve licensing the sales forecasting tool to other retail businesses or offering it as a subscription service. Additionally, Walmart itself could benefit from improved sales strategies and increased customer satisfaction, indirectly leading to revenue growth.
6.	Scalability of the Solution	The solution is designed to be scalable. The machine learning models can handle data from additional stores, and the Flask web application can accommodate an increasing number of users. The deployment on IBM cloud adds scalability in terms of handling increased computational requirements as the user base or data volume grows.