Project Design Phase – II

Technology Stack (Architecture & Stack)

Date	5-11-2023
Team ID	Team-591779
Project Name	Walmart Sales Analysis for Retail Industry with Machine Learning
Maximum Marks	4 Marks

Technical Architecture:

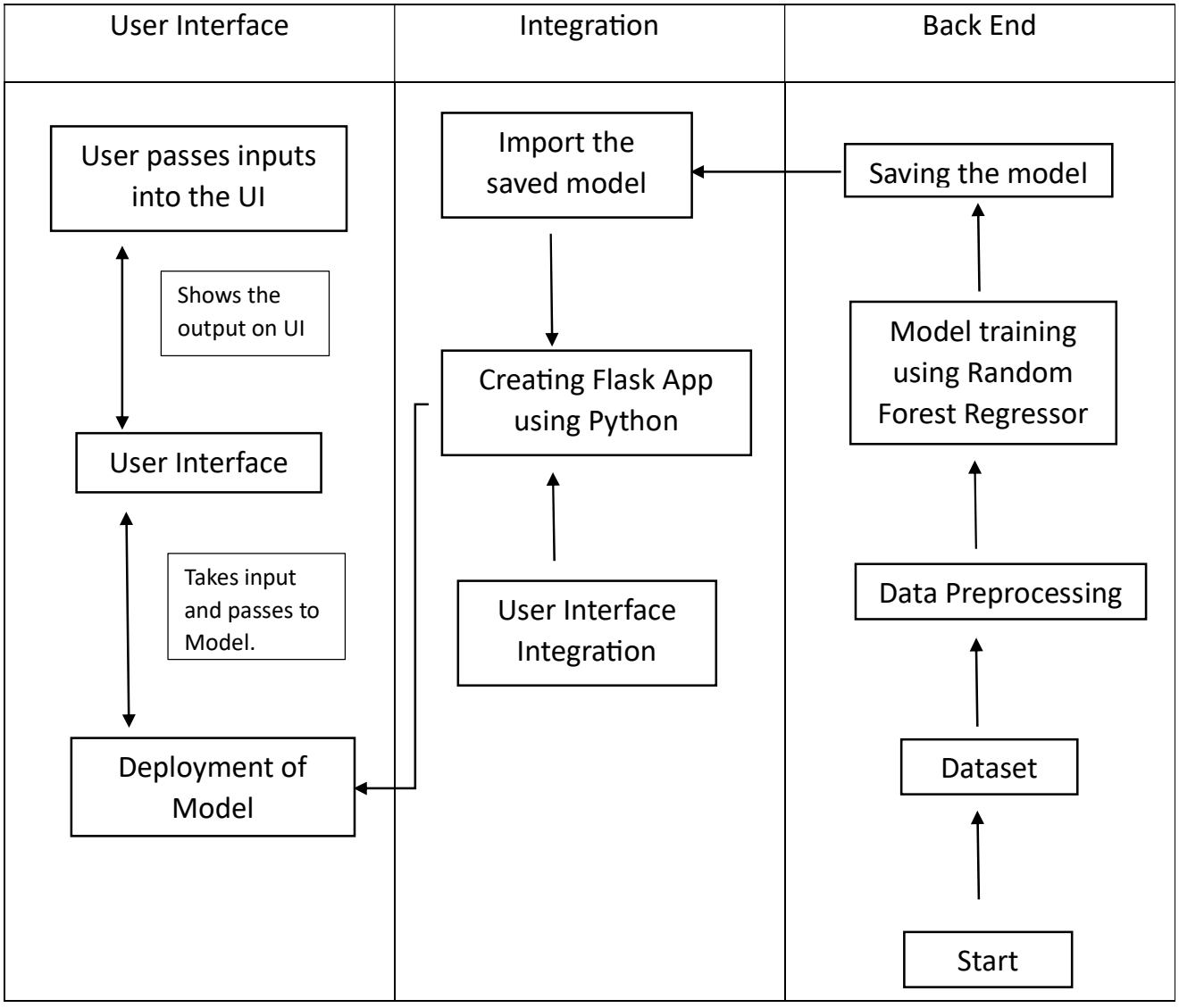

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	User interacts with web UI by giving the inputs in respective fields.	HTML, CSS
2	Application Logic -1	Perform data preprocessing by handling missing values and extracting the relevant features to enhance the predictive capabilities of the models.	Python
3	Application Logic -2	Splitting the data into training and testing sets. Choosing the appropriate machine learning models & then training the selected models using training dataset.	Python
4	Application Logic -3	• Retrieving the user-input data and then validating it to ensure it aligns with the expected format and range. • Preparing the input data by applying the same preprocessing steps used during model training. • Using the trained models to make predictions based on the user's input. • Present the predicted sales figure prominently on the user interface.	Flask
5	Machine Learning Models	Train the dataset on 5 different ML models and check the evaluation metrics to find the best model that gives the accurate prediction. • Random Forest Regression • Extra Trees Regressor • ARIMA • Multiple Linear Regression • XGBoost Regressor	Sales Prediction model
6	Infrastructure	Deploying the application on Local Server	Local host

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1	Open-Source Frameworks	• NumPy • Pandas • Scikit-learn • XGBoost • Flask	Python