Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	23 Nov. 23
Team ID	PNT2023TMID591834
Project Name	Project -Walmart Store Sales Forecasting
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

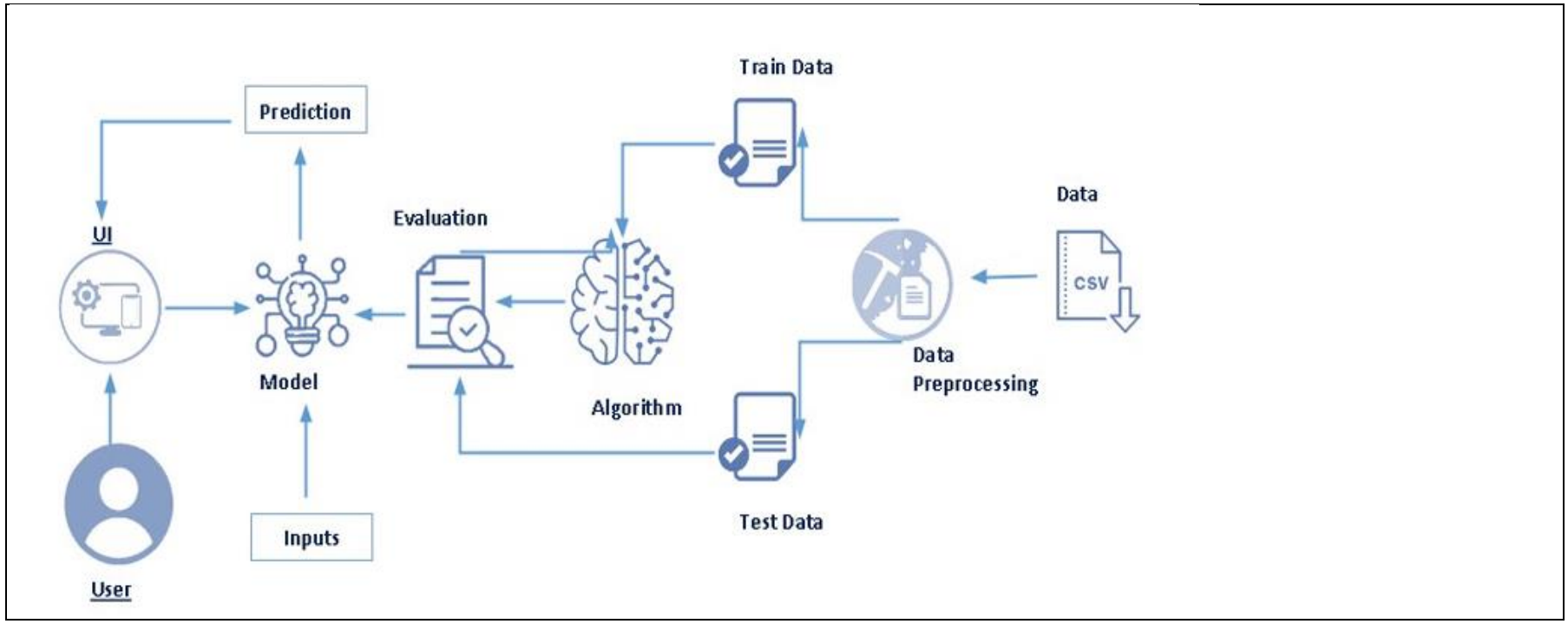

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Data Ingestion	Collection and import of historical sales data	ETL (Extract, Transform, Load) tools
2.	Time Series Analysis	Analysing historical sales patterns over time	Python (Pandas, NumPy, Time Series analysis libraries)
3.	Feature Engineering	Creating relevant features for forecasting	Python (Scikit-learn, Pandas)
4.	Forecasting Models	Building time series forecasting models	Python (Prophet, ARIMA, LSTM)
5.	Model Training	Training time series forecasting models	Cloud-based ML platforms (e.g., AWS Sagemaker)
6.	Model Deployment	Deploying trained models for sales forecasting	Flask/Django for API, Cloud Services.
7.	User Interface	Providing an interface for users to view forecasts	Web UI (HTML, CSS, JavaScript)
8.	External Data Integration	Integration of external factors affecting sales	APIs for external data sources (e.g., financial APIs)
9.	Cloud Infrastructure	Hosting and scaling the application	Cloud Services (AWS, Azure, Google Cloud)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Utilizing open-source frameworks for development	Scikit-learn, TensorFlow, Flask, Django
2.	Security Implementations	Implementing security measures for data protection.	SSL, Encryption, Access Controls
3.	Scalable Architecture	Ensuring scalability for handling varying workloads	Microservices Architecture, Kubernetes

S.No	Characteristics	Description	Technology
4.	Availability	Ensuring high availability of the forecasting service	Load Balancers, Redundant Servers
5.	Performance	Optimizing application performance	Caching strategies, Content Delivery Networks (CDN)