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

Date	20 nov 2023
Team ID	592013
Project Name	Online Payments Fraud Detection Using ML
Maximum Marks	4 Marks

Technical Architecture:

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

Example: Order processing during pandemics for offline mode

Reference: https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/

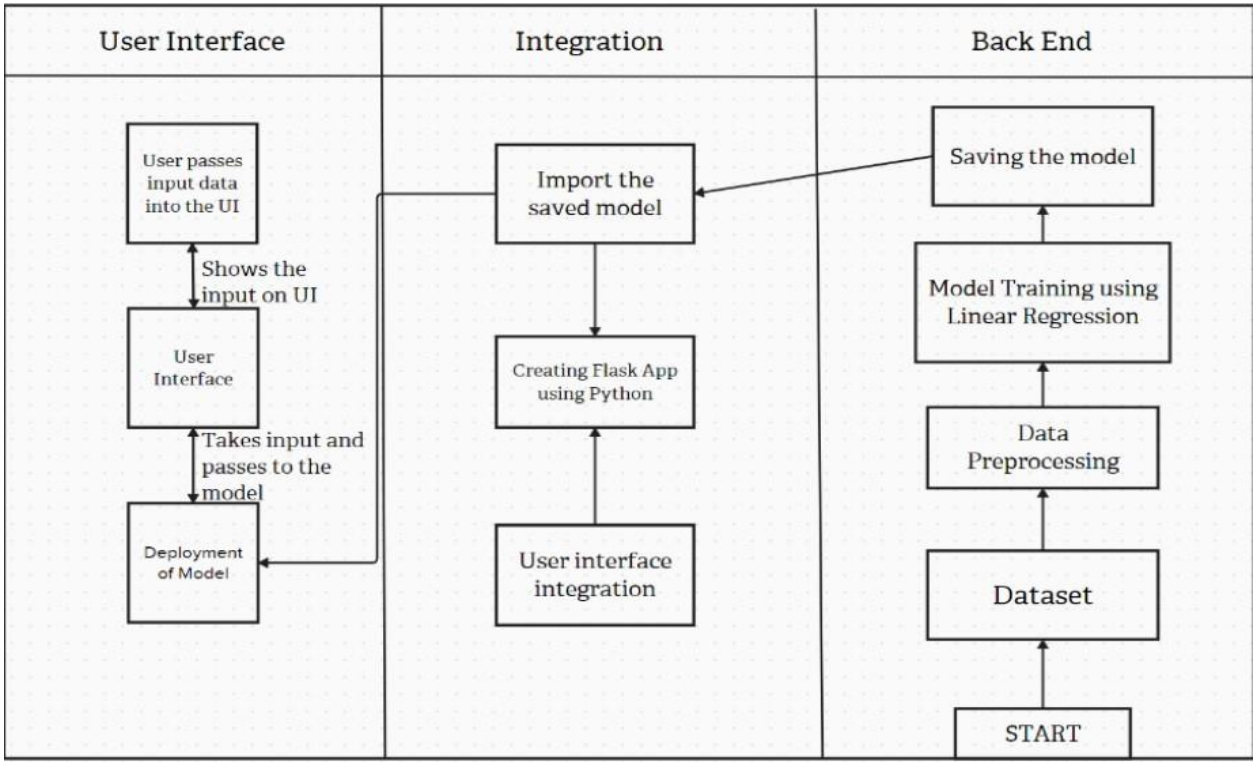
User Interface
Integration
Back End
User passes input data into the UI
Shows the input on UI
User Interface
Takes input and passes to the model
Deployment of Model
Import the saved model
Creating Flask App using Python
User interface integration
Saving the model
Model Training using Linear Regression
Data Preprocessing
Dataset
START

Table-1 :

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Java / Python
3.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
4.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
5.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
6.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
7.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Components & Technologies:

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The open source frameworks used are scikitlearn,tensor flow,keras,pytorch,pandas,sea born and mathplotlib and jupyter notebook.	Python's Flask
2.	Security Implementations	Security implementations used are Data Encryption, Secure APIs,Authentication and Authorization,Input Validation,Regular Security Audits and Penetration Testing..	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc
3.	Scalable Architecture	Scalable Architectures used are microservicesarchitecture, Containerization and Orchestration	Technology used

4.	Availability	Load balancers are essential for distributed systems, as they help to improve performance, reliability, and scalability. Distributed systems can scale to meet high demand by adding additional servers to the pool. This can lead to significant performance improvements, especially for applications that can be parallelized.	Technology used
5.	Performance	Designing a Online Payments Fraud Detection project that can handle a high volume of requests per second (RPS) efficiently requires careful consideration of various factors, including optimizing performance, implementing caching mechanisms, utilizing Content Delivery Networks (CDNs).	Technology used

References:

https://c4model.com/ https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture https://aws.amazon.com/architecture https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d