PHASE – III:

Technology Stack (Architecture & Stack)

Date	12 November 2023
Team ID	Team-591849
Project Name	Project – Understanding Audience
Maximum Marks	4 Marks

Technical Architecture:

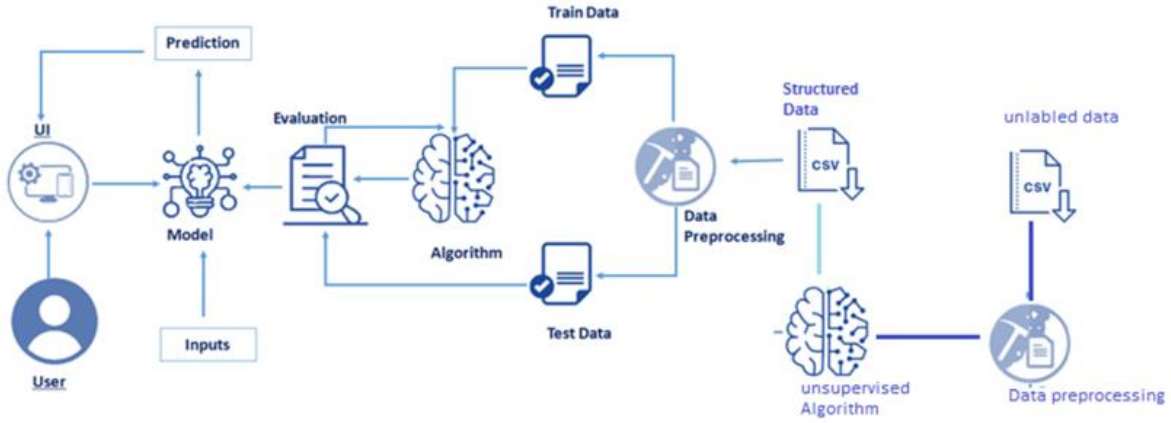

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	How users interact with the application (Web UI, Mobile App, Chatbot, etc.)	HTML, CSS, JavaScript / React Js
2	Application Logic-1	It serves as the primary logic layer responsible for processing and analysing user input, managing data, and facilitating communication between the user interface and backend functionalities. It plays a crucial role in handling core application processes, such as data preprocessing, feature scaling, and interfacing with the machine learning model for customer segmentation.	Python
3	Application Logic-2	Integration of IBM Watson Speech to Text (STT) service. This component is responsible for converting speech input from users into text, enabling seamless interaction through spoken commands or queries. It enhances the user experience by providing a speech-to-text capability, which can be further processed by other components for analysis and decision-making.	IBM Watson Speech to Text (STT) service
4	Application Logic-3	Integration of IBM Watson Assistant. This component focuses on handling conversational interactions with users, providing a chatbot-like	IBM Watson Assistant

		experience. It interprets user queries, responds with relevant information, and assists in guiding users through the application's functionalities. IBM Watson Assistant enhances user engagement and streamlines the communication process.	
5	Database	Data Type, Configurations, etc.	MySQL
6	Cloud Database	Database Service on Cloud	IBM Cloudant
7	File Storage	File storage requirements	IBM Block Storage
8	External API-1	Purpose of External API used in the application	IBM Weather API
9	External API-2	Purpose of External API used in the application	Aadhar API
10	Machine Learning Model	Purpose of Machine Learning Model	Customer Segmentation Model using scikit-learn or TensorFlow
11	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local Server Configuration: Not applicable Cloud Server Configuration: IBM Cloud, Kubernete

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Utilization of open-source frameworks	Flask for web application, scikit-learn, and TensorFlow for machine learning
2	Security Implementations	Implementation of security measures	SSL/TLS encryption, SHA-256 hashing, Access Control (IAM), adherence to OWASP best practices
3	Scalable Architecture	Implementation of a scalable architecture	Microservices architecture using Kubernetes for efficient scaling
4	Availability	Ensuring high availability of the application	Load balancers, distributed server architecture to handle high traffic
5	Performance	Design considerations for optimal performance	Caching mechanisms, Content Delivery Network (CDN) for faster content delivery, optimization techniques for handling a large number of requests per second