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

Date	22 october 2023
Team ID	NM2023TMID07263
Project Name	Project – Indian Food EDA
Maximum Marks	4 Marks

Technical Architecture:

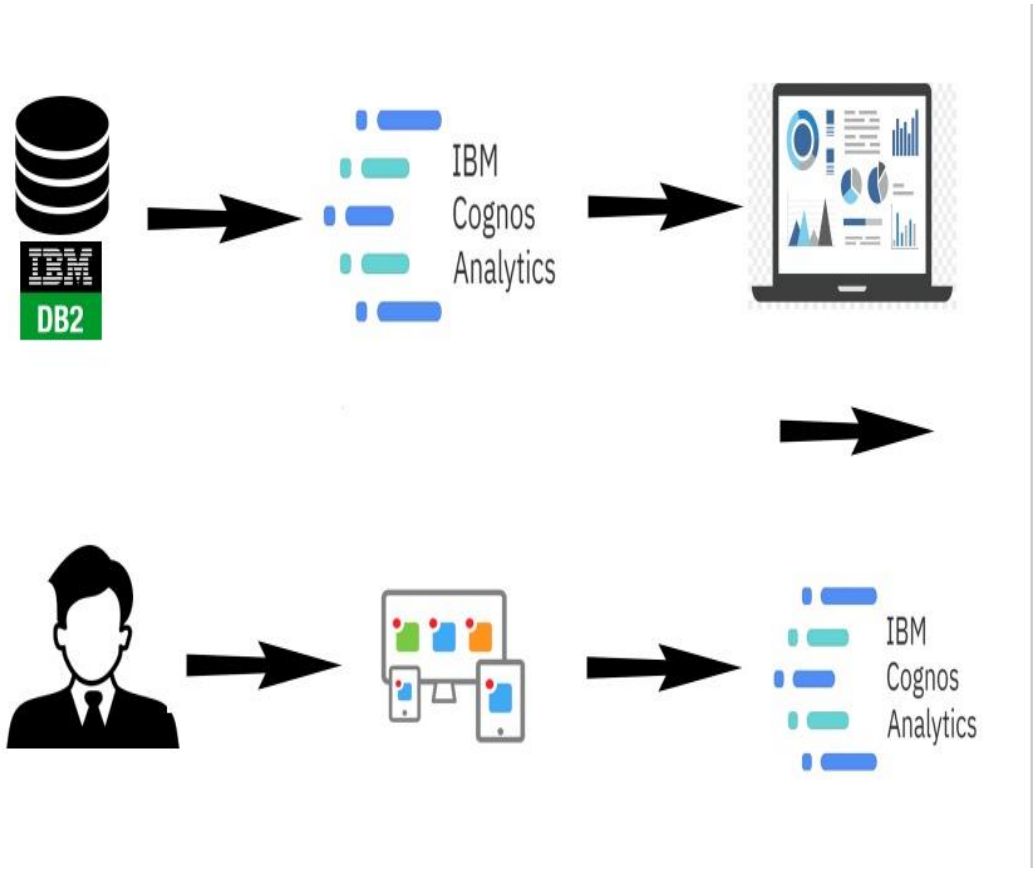

Table-1 : Components & Technologies:

Component	Description	Technology
User Interface	Provides an interactive platform for users to explore and visualize data	Web Framework (e.g., React, Flask)
Application Logic-1	Handles data ingestion and cleaning, ensuring data quality and consistency	Python, Pandas, NumPy
Application Logic-2	Implements exploratory data analysis algorithms and generates insights	Python, Matplotlib, Seaborn
Application Logic-3	Manages search and filtering functionality for quick recipe lookup	Python, Flask, ElasticSearch

Database	Stores structured data related to recipes, ingredients, and user interactions	Relational Database (e.g., PostgreSQL)
Cloud Database	Facilitates scalability and accessibility of the database in the cloud	Amazon RDS, Google Cloud SQL
File Storage	Stores and manages files such as images and documents related to recipes	Cloud Storage (e.g., Amazon S3)
External API-1	Integrates with external sources for additional recipe or nutritional data	Spoonacular API, USDA API
External API-2	Retrieves real-time data or updates from external platforms	Social Media APIs, e.g., Twitter API

Machine Learning Model	Predicts trends or suggests personalized recommendations based on data	Scikit-learn, TensorFlow, PyTorch
Infrastructure (Server/Cloud)	Provides the underlying infrastructure for hosting and deploying the application	AWS, Google Cloud Platform (GCP), Docker

Table-2: Application Characteristics:

Characteristic	Description	Technology
Open Source Framework	Utilizes open-source frameworks to enhance flexibility, community support, and cost-effectiveness	Django (for Python-based web applications)
Security	Implements security measures to	SSL/TLS for secure communication, OAuth for

Characteristic	Description	Technology
Implementations	protect user data, prevent unauthorized access, and ensure privacy	authentication
Scalable Architecture	Designed with scalability in mind, allowing the application to handle increased data and user load	Microservices architecture, containerization (Docker), cloud infrastructure (AWS, GCP)
Availability	Ensures high availability to minimize downtime and provide a reliable user experience	Load balancing, redundant servers, fault-tolerant design
Performance	Optimizes performance for quick data analysis and response times	Caching mechanisms, query optimization, serverless computing (AWS Lambda)