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

Date	24 October 2023
Team ID	592691
Project Name	Project – Restaurant Recommendation System
Maximum Marks	4 Marks

Technical Architecture:

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

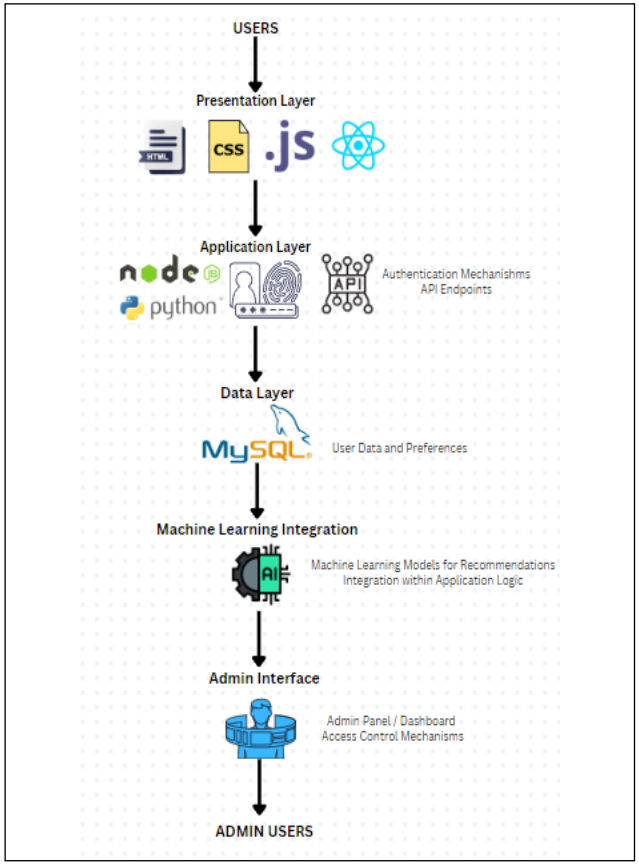

Table-1 : Components & Technologies:

S. No	Component	Description	Technology
1.	Data Collection	Gathering restaurant data from various sources	Web Scraping (BeautifulSoup, Scrapy)
2.	Data Preprocessing	Cleaning and preparing data for modelling	Pandas, Numpy
3.	Data Storage	Storing restaurant information	SQL or NoSQL Databases (MySQL, MongoDB)
4.	Feature Engineering	Extracting and engineering relevant features	Pandas, Scikit-learn
5.	Modelling	Building recommendation models	Scikit-learn, TensorFlow, PyTorch
6.	API Development	Creating backend APIs for model interaction	Flask.
7.	Serialization	Handling data interchange between frontend and backend	JSON
8.	Frontend Development	Designing user interfaces	HTML, CSS, Javascript
9.	Frontend Frameworks	Building interactive UIs	React, Vue.js, Angular
10.	Mapping and Geolocation	Incorporating mapping and location-based services	Google Maps API
11.	Cloud Services and Deployment	Hosting and deploying the application	AWS, Google Cloud Platform, Azure, Docker, Kubernetes.
12.	Recommendation Algorithms	Implementing recommendation strategies	Collaborative Filtering, Content-based Filtering
13.	User Feedback Mechanisms	Collecting and utilizing user ratings and reviews	Ratings, Reviews, Implicit Feedback
14.	Version Control	Collaborative development and version control	Git

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Utilized open-source frameworks for component development	React, Python, Java, Node.js, MySQL, Google Cloud Storage, Flask, Skicit-learn
2.	Security Implementations	Implemented security measures and access controls	SHA-256, TLS/SSL, Encryption, IAM (Identity and Access Management), OWASP (Open Web Application Security Project)
3.	Scalable Architecture	Three-tier architecture provides scalability by allowing independent scaling of presentation, application, and data layers. Its simplicity, modular scalability, and flexibility to scale individual components make it a suitable choice.	HTML, CSS, JavaScript, React, Python, Java, Node.js, Flask, MySQL, Web Servers, ORMs (Object-Relational Mapping), API Protocols
4.	Availability	Ensuring application availability through load balancers	Load Balancers, Distributed Servers
5.	Performance	Caching Mechanisms, Content Delivery Networks (CDNs), Optimized Request Handling	HTTP/3, Optimized Routing Algorithms, HTTP Cache-Control Headers, Web Accelerators etc.

References:

https://www.canva.com/design/DAF0hXhXTp0/lMAEthodcXNRRTi-zttV0Q/view?utm_content=DAF0hXhXTp0&utm_campaign=designshare&utm_medium=link&utm_source=editor