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

Team ID	NM2023TMID02568
Project Name	Project - Competitive Analysis of Leading Travel Aggregators.
Maximum Marks	4 Marks

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts with analysis model through website to analyse the ratings & reviews, prices, offers, etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Search and Filter the travel packages by using python.	Java / Python
3.	Application Logic-2	Customer sentiments based on ratings and reviews was identified by IBM Watson STT service.	IBM Watson STT service
4.	Application Logic-3	Customer can clarify the doubts by customer support.	IBM Watson Assistant
5.	Cloud Database	The model is provided with data from IBM cloud database.	IBM DB2, IBM Cloudant etc.
6.	File Storage	Used to store the customer details.	IBM Block Storage or Other Storage Service or Local Filesystem
7.	External API	Used to extend the service to other applications.	IBM Weather API, Aadhar API, Flight API, Hotel API, Mapping API, etc.
8.	Machine Learning Model	Used to fraud detection, price prediction, image recognition, sentiment analysis, etc.	Object Recognition Model, etc.
9.	Infrastructure (Server / Cloud)	Application Deployment on IBM cloud and cloud server configuration.	Local, Cloud Foundry, Kubernetes, etc.
10.	Data Processing	Data is processed for analysis the results and then displayed to the user through our website.	Pandas, Numpy, IBM cognos.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Backend Framework, CSS Styling framework, Relational Database.	PyJWT, Flask, HTML, CSS, JavaScript, React JS, IBM Cloud DB.
2.	Security Implementations	Session Handling, Request authentication using JWT Tokens, Traffic Encryption.	SHA-256, Encryptions, IAM Controls, SSL Certs.
3.	Scalable Architecture	Support for multiple sample analysis using Excel file.	Pandas, Numpy, IBM cognos.
4.	Availability	Availability is increased by Load Balancers in Cloud VPS.	IBM Cloud Hosting.
5.	Performance	The website is expected to analyse up to 10000 customer ratings and reviews per second.	Load Balancers, Caching, Distributed Servers.

Technical Architecture:

Kubernetes Cluster

Presentation Layer

RESTful API

ReactJS HTML

CSS JavaScript

Security Layer

PyJWT

Google IAM API

Middle Level Layer

Data Processing

Outliers Encoding

Scaling

Modelling & Prediction

IBM Cognos

Regression Analysis

Open Source Frameworks

numpy pandas

Matplotlib

Data Layer

IBMdb2

IBM Database

Flask Website