

Project Design Phase-II

Technology Stack (Architecture & Stack)

Table1:Components and Technologies

S.NO.	Component	Description	Technologies used
1	User Interface	How user interacts with the application	HTML, CSS, JavaScript / Angular Js / React Js, etc
2	Text Data Collection	Gathering airline reviews data	Web Scraping, API (e.g., social media platforms)
3	Data preprocessing	Cleaning and preprocessing of raw data	Natural Language Processing (NLP) tools (e.g., NLTK, SpaCy)
4	Feature Extraction	Extracting features from text data	Word Embeddings (e.g., Word2Vec, GloVe)
5	Machine Learning Model	Classification algorithm for reviews	Scikit-learn, TensorFlow, PyTorch
6	Model Evaluation	Assessing model performance using metrics	Scikit-learn
7	Web Application	Interface for users to interact with the model	Flask, Django
8	Containerisation	Packaging application and dependencies into containers	Docker
9	Cloud Platform	Deployment on a cloud platform for scalability	AWS, Azure, Google Cloud
10	Monitoring and Logging	Monitoring application behavior and logging	Prometheus, Grafana
11	CI/CD Pipeline	Automating testing and deployment processes	Git, Jenkins, GitLab CI
12	Security	Implementing authentication and data encryption	SSL/TLS, Secure APIs

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	List the open-source frameworks used	Scikit-learn, TensorFlow, PyTorch, NLTK, SpaCy
2	Security Implementations	List all the security/access controls implemented, use of firewalls, etc.	Encryption(e.g.,SSL/TLS),IAM Controls,OWASP,SHA-256, Secure APIs
3	Scalable Architecture	Justify the scalability of architecture (3-tier, Micro-services)	Microservices architecture, Docker, Kubernetes
4	Availability	ustify the availability of the application (e.g., use of load balancers, distributed servers	LoadBalancers, Redundancy, Failover Mechanisms
5	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's	Caching Strategies, Content Delivery Networks (CDN), LoadTesting, Performance Monitoring