Project Design Phase-II

Technology Stack (Architecture & Stack)

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Project Name: Online Payment Fraud Detection

Maximum Marks:4

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	How user interacts with application	HTML, CSS, Bootstrap, JavaScript
2	Application Logic-1	Main application logic for fraud detection	Python, Flask
3	Machine Learning	Fraud detection model	BalancedRandomForestClassifier, scikit-learn
4	Data Processing	Data preprocessing and feature engineering	pandas, numpy, imbalanced-learn
5	Database	Data storage and retrieval	Local CSV file (used in the example)
6	Model Persistence	Saving and loading trained models	joblib
7	Deployment Platform	Platform for deploying the web application	Render
8	Logging	Logging application activities and errors	Python logging module

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	List the open-source frameworks used	Flask, scikit-learn, imbalanced-learn
2	Security Implementations	List all the security/access controls implemented, use of firewalls etc.	HTTPS via Render, form validation
3	Scalable Architecture	Justify the scalability of architecture (3-tier, Micro-services)	Flask can be scaled with WSGI servers like Gunicorn
4	Availability	Justify the availability of application (e.g., use of load balancers, distributed servers)	Render provides scalable cloud infrastructure
5	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Render's cloud platform, caching layers like Redis if needed