PROJECT PLANNING PHASE DOCUMENT

Project Title: Online Fraud Payment Detection System

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1. Introduction

The Project Planning Phase outlines how the Online Fraud Payment Detection System will be executed from start to finish. It defines timelines, milestones, resource allocation, deliverables, and risk management to ensure the project is completed successfully.

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2. Project Objectives

- Analyze and understand the problem of online payment fraud
- Collect and preprocess transaction datasets
- Train a machine learning model for fraud detection
- Deploy the model as a web application
- Provide real-time predictions for online transactions
- Maintain high accuracy and reliability of the system

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3. Project Scope

- **In Scope:**
    - ML model training and evaluation
    - Web application development
    - Cloud deployment
    - User interface for predictions
- **Out of Scope:**
    - Real banking system integration
    - Financial transactions processing
    - Legal enforcement actions

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4. Project Milestones & Timeline

Phase	Duration (Weeks)	Description
Ideation & Requirement Analysis	1–2	Problem identification, feasibility study

Phase	Duration (Weeks)	Description
Design Phase	3–4	System architecture, module design, UML diagrams
Dataset Collection & Preprocessing	5–6	Collect dataset, clean, normalize, handle imbalance
Model Training & Evaluation	7–8	Train ML models, evaluate performance
Web Application Development	9–10	Flask-based UI, prediction integration
Deployment & Testing	11–12	Deploy on Render/AWS, test functionality
Documentation & Report Writing	13–14	Prepare final report, PDF, presentation
Final Submission & Presentation	15	Submit report and present project

5. Resource Allocation

Resource	Description
Hardware	Laptop/PC, Internet access
Software	Python, Scikit-learn, Flask, VS Code/Jupyter
Data	Historical transaction datasets
Human Resources	Student (Project developer), Project Guide
Cloud Platform	Render / Heroku / AWS

6. Project Methodology

The project will follow a **Waterfall + Agile hybrid approach**:

1. **Planning & Analysis:** Understand problem and define requirements
2. **Design:** Create system architecture, UML diagrams, module specifications
3. **Implementation:** Develop ML model, web interface, and integration
4. **Testing:** Unit testing, integration testing, and validation
5. **Deployment:** Deploy web application on cloud platform
6. **Documentation & Presentation:** Prepare final report and PPT

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7. Risk Management

Risk	Impact	Mitigation Strategy
Poor quality dataset	High	Data cleaning, augmentation, feature engineering
Model underfitting/overfitting	Medium	Hyperparameter tuning, cross-validation
Deployment failure	Medium	Use cloud platform best practices, backups
Time management issues	High	Strict adherence to project timeline, weekly reviews
Security vulnerabilities	High	Input validation, HTTPS, secure coding practices

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8. Deliverables

- Ideation Document
- Requirement Analysis Document
- Design Phase Document (with UML diagrams)
- ML model files (.pkl)
- Web application source code
- Final B.Tech Project Report (PDF)
- Presentation / PPT

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9. Tools & Technologies

- **Programming Language:** Python

- **ML Libraries:** Scikit-learn, Pandas, NumPy

- **Web Framework:** Flask

- **Database (optional):** SQLite/MySQL

- **Deployment:** Render / Heroku / AWS

- **Documentation:** MS Word / Google Docs / LaTeX

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10. Summary

This Project Planning Phase Document provides a detailed roadmap for completing the Online Fraud Payment Detection System. It outlines timelines, milestones, resources, risk management strategies, and expected deliverables, ensuring smooth execution and timely completion of the B.Tech project.