② Credit Card Processing System

1. Introduction

1.1. Purpose of this document

The purpose of this document is to outline the requirements and specifications for the development of a credit card processing system. It provides an understanding of the project objectives, scope and deliverables.

1.2: Scope of this Document

The document outlines the design and working of a credit card processing system which allows secure transaction handling, payment validation, fraud detection and reporting. This also includes the estimated time and budget for development.

1.3: Overview

- The credit card processing system ensures smooth and secure credit card transactions, supporting multiple currencies, payment-gateways and integration with merchant systems.

2. General Description

- The system will provide a secure platform for handling credit card transaction. It will cater to customers, merchants and financial institutions, by enabling features such as transaction validation, fraud detection, payment authorization and reporting.

3. Functional Requirements

3.1 Transaction Processing

- Process credit card payments securely
- validate card details and transaction amount
- Provide real-time authorization.

3.2 Fraud detection

- monitor suspicious transactions using machine learning
- Alert users & block high risk activities.

3.3. Merchant Management

- Allow merchants to register and integrate with the system
- Provide transaction history and settlement Reports

3.4 Customer Management

- maintain customer profiles
- provide transaction receipts
- Dispute management.

4. Interface Requirement

4.1 User interface

- Intuitive dashboards for merchants and admins
- secure payment interface for customers

4.2 Integration Interface

- Integration with bank APIs for authorization
- compatibility with payment gateways & POS terminals

5. Performance Requirements

5.1 Response Time

- The system should process transactions within 2 seconds

5.2 Scalability : handle minimum of 10,000 concurrent transaction

5.3 Data Integrity : ensure accuracy & consistency of transaction data.

6. Design Constraints

6.1 Hardware : The system should be deployable on cloud servers and support merchant POS devices.

6.2 Software dependencies :

- use secure RDBMS (eg: PostgreSQL, mysql)
- secure frameworks (java, springboot)

7. Non Functional Attributes

7.1 Security

- use industry standard encryption (AES/ SSL/TLS)
- multifactor auth for merchants and admins.

7.2 Reliability

- ensure 99.99 % uptime

7.3 Scalability : support growing numbers of merchants and transaction

7.4 Portability : compatible with mobile, web and POS

7.5 Usability : easy navigation for customers / merchants.

7.6 Reusability : modular System to enable integration with new banking system.

7.7 Compatibility : support major browsers & OSs

8. Preliminary Schedule and Budget

- The development of this credit card processing system is estimated to take 8 months.

  - A budget of $250,000 is proposed

  - includes development, testing, deployment