②   **Credit card Processing system.**
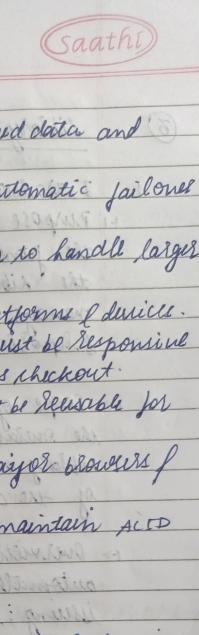
1. Introduction

1.1 Purpose : The purpose of this SRS document is to define the Requirements for the credit card Processing System. This system will securely handle credit card transactions including authorization, settlement, refunds and fraud detection.

1.2 Scope of this document : The credit card Processing System document shall include and define the overall working and operations of the system.

1.3 Overview : The credit card Processing System is a software solution that will function as an intermediary between merchants and financial institutions. It will validate card details, process payments securely and provide fraud prevention mechanisms.

2. General Description : The credit card Processing System will cater to the needs of customers, merchants and administrators providing a middleware solution connecting merchants to banks.

3. Functional requirements

3.1 Transaction Management
- validate credit card details (number, cvv, expiry date)
- Authorize or decline transactions within 2 seconds.

3.2 settlement & Refund Management.
- Batch settlements with banks at configurable intervals and generate reports of the same.
- Allow full and partial refunds.

3.3 Fraud detection & Alerts
- Flag suspicious transactions using fraud detection
- Generate real time alerts for users.
- Support integration with external fraud detection service.

4. Interface Requirements

4.1 User Interface
- Merchants: dashboard to view transactions, initiate refunds and generate receipts.
- Administrator: System monitoring, fraud alerts & audit logs.
- Customers: Secure hosted payment form

4.2 Integration Interfaces
- Integration with bank & payment gateway.
- Integration with fraud detection API.

5. Performance Requirements

5.1 Response time: transaction authorization must complete within 2 seconds under normal load.

5.2 Scalability: The system must support atleast 10000 concurrent transactions.

5.3 Data Integrity: All financial transactions must be recorded atomically to prevent duplication/loss

6. Design constraint

6.1 Hardware limitations: Must operate on cloud hosted infrastructure with auto-scaling & require redundant servers for high availability.

6.2 Software limitations: Must support secure API integration and adequate frameworks which prohibit storage of CVV after transaction.

7. **Non Functional attributes**

7.1 Security : AES encryption for stored data and tokenization of card numbers.

7.2 Reliability : System must possess automatic failover and disaster recovery.

7.3 Scalability : Support future expansion to handle larger number of transactions.

7.4 Portability : Support multiple platforms & devices.

7.5 Usability : Merchant dashboard must be responsive and user friendly & ensure seamless checkout.

7.6 Reusability : API components must be reusable for different merchants.

7.7 Compatibility : Compatible with major browsers & devices.

7.8 Data Integrity : Transactions must maintain ACID properties in database.

8. **Preliminary schedule & Budget :**
The development of credit card processing system is estimated to take 20 weeks with a budget of $180,000 which includes project planning, development & testing & deployment phases.