CREDIT CARD PROCESSING

PROBLEM STATEMENT :

In today's digital world, credit card transactions have become a widely accepted form of payment. However, processing credit card transactions can be complex and time-consuming, especially for businesses that handle a large volume of transactions. As a result, there is a need for a credit card processing system that can handle transactions in a secure and efficient manner. The system should be able to validate credit cards, authorize transactions, and transfer funds between accounts seamlessly. It should also be able to provide detailed reports and analytics to help businesses monitor their financial performance. It is necessary to design and build a credit card processing system that meets these requirements and provides a seamless payment experience for both businesses and their customers.

Credit card processing is an essential part of any business that accepts credit card payments. When a customer uses their credit card to make a purchase, the credit card processing system is responsible for verifying that the card is valid, authorizing the transaction, and transferring funds from the customer's account to the business's account. The system also needs to ensure that the transaction is secure and protected from potential fraud.

The process of credit card processing can be complex, involving multiple steps and various parties, including the credit card issuer, the merchant acquiring bank, and the payment gateway. As a result, businesses often rely on third-party credit card processing services to handle these transactions on their behalf.However, these services can be expensive, and businesses may have limited control over the process. Additionally, third-party services may not always be able to provide the detailed reports and analytics that businesses need to monitor their financial performance and make data-driven decisions.

To address these issues, businesses may choose to develop their own credit card processing system that can handle transactions in a secure and efficient manner while providing detailed reporting and analytics.

Software Requirement Specification(SRS)

1. Introduction :

1.1 **Purpose of this Document :** The credit card processing system is a software system designed to process credit card transactions. It is designed to facilitate secure, reliable and efficient credit card transactions for businesses and consumers. This document outlines the requirements for the system, including its functional and non-functional requirements.

1.2 **Scope of this document :** The credit card processing system is a software system designed to process credit card transactions. It is designed to facilitate secure, reliable and efficient credit card transactions for businesses and consumers. This document outlines the requirements for the system, including its functional and non-functional requirements.

1.3 **Overview :** The credit card processing system is a software system designed to process credit card transactions securely and efficiently for businesses and consumers. The system supports multiple payment methods, including online, in-store, and mobile payments, and is scalable to handle high transaction volumes. The functional requirements include payment processing, authorization, confirmation, refunds, and payment reports. The non-functional requirements include security, reliability, scalability, performance, and usability. The system is deployed on servers with minimum hardware specifications, developed using Java programming language, and integrates with third-party payment gateways. The SRS document provides a comprehensive guide for the development and implementation of the system to ensure it meets the needs and expectations of its users.

2. General description :

A credit card processing system is a software system that enables businesses to process credit card transactions. The system supports multiple payment methods, including online payments, in-store payments, and mobile payments. The system provides payment authorization and confirmation to both customers and merchants, as well as the ability to process refunds for authorized transactions. The system is designed to be secure, reliable, and scalable to handle high volumes of transactions. It integrates with third-party payment gateways, including PayPal, Stripe, and Authorize.net, and is developed using Java programming language and deployed on Tomcat application server. The system is compliant with the Payment Card Industry Data Security Standard (PCI DSS) and assumes that merchants using the system will also be PCI compliant. The SRS document outlines the system's requirements, including its functional and non-functional requirements, constraints, assumptions, and dependencies, and provides a comprehensive guide for the development and implementation of the system to ensure it meets the needs and expectations of its users.

3. Functional Requirements :

- **Payment Processing**

  The system shall be able to process credit card payments from multiple payment gateways and support multiple payment methods, including Visa, MasterCard, American Express, Discover, and PayPal.

- **Payment Authorization**

  The system shall be able to authorize credit card payments and perform real-time authorization checks with the payment gateway.

- **Payment Confirmation**

  The system shall provide payment confirmation to customers and merchants after payment has been processed.

- **Refunds**

  The system shall be able to process refunds for transactions that have been authorized but not settled.

- **Payment Reports**

  The system shall be able to generate payment reports for merchants that show transaction details, including transaction date, amount, payment type, and status

4. Interface Requirements :

- Merchant Interface:
  - Login screen for merchants to access the system with their credentials
  - Dashboard to display transaction history, payment reports, and other relevant information
  - Ability for merchants to initiate transactions, process refunds, and perform administrative tasks
  - Search functionality to search for transactions and filter transaction history by date range, payment method, and other criteria
- Customer Interface:
  - Payment page for customers to enter their payment information
  - Payment confirmation page to confirm successful payments
  - Ability for customers to view transaction history and download receipts if needed
  - User-friendly interface to make it easy for customers to enter payment information and complete transactions
- General Interface Requirements:
  - Interfaces should be easy to use and navigate for both merchants and customers

- Interfaces should be responsive and work across different devices and screen sizes
- Interfaces should be secure and protect sensitive information, such as credit card details, from unauthorized access or theft
- Interfaces should comply with accessibility standards to ensure accessibility for users with disabilities

5. Performance Requirements :

Response Time: The credit card processing system must respond to payment requests within 2 seconds or less to ensure a smooth and efficient user experience.

Transaction Processing Time: The system must process transactions quickly and accurately, with a maximum processing time of 5 seconds per transaction. This ensures that transactions are completed in a timely manner, reducing the likelihood of customers abandoning their transactions.

Transaction Volume: The system must be able to handle a high volume of transactions without any degradation in performance. The system should be able to handle up to 1000 transactions per minute during peak periods.

Availability: The system must be available 24/7 with a maximum downtime of 30 minutes per month. This ensures that customers can access the system and make transactions at any time without any disruption.

Security: The system must be secure to prevent fraudulent activities and protect customer data. The system should use encryption and tokenization to protect sensitive information such as credit card details, and implement multi-factor authentication to prevent unauthorized access.

Scalability: The system must be scalable to handle increasing transaction volumes as the business grows. The system should be able to scale up or down quickly to meet the changing needs of the business without affecting performance.

Compliance: The system must comply with the Payment Card Industry Data Security Standard (PCI DSS) to ensure that it meets the highest security standards.

6. Design Constraints :

User Interface Constraints: The system must have user interfaces that are user-friendly, intuitive, and easy to navigate. The interfaces should be accessible across different devices, including desktops, laptops, tablets, and smartphones. The system should also comply with accessibility standards to ensure accessibility for users with disabilities.

Hardware Constraints: The system must be deployed on servers with a minimum of 8GB RAM, 4 CPU cores, and 500GB of storage. The hardware should be scalable to handle increasing transaction volumes as the business grows.

7. Non-Functional Attributes :

- **Security**

  The system shall be designed to be secure and comply with the Payment Card Industry Data Security Standard (PCI DSS).

- **Reliability**

  The system shall be designed to be reliable and available 24/7 with a guaranteed uptime of 99.99%.

- **Scalability**

  The system shall be designed to be scalable to handle high volumes of transactions.

- **Performance**

  The system shall be designed to process payments quickly and efficiently, with an average transaction processing time of 2 seconds or less.

- **Usability**

  The system shall be designed to be user-friendly and intuitive for both customers and merchants

8. Preliminary Schedule and Budget :

Preliminary Schedule:

- Requirements Gathering: 2 weeks
- System Design: 4 weeks
- Development: 12 weeks
- Testing and Quality Assurance: 4 weeks
- Deployment: 2 weeks
- User Training and Documentation: 1 week
- Total Time: 25 weeks

Preliminary Budget:

- Salaries and Wages: ₹5,00,000
- Hardware and Software: ₹50,000
- Testing and Quality Assurance: ₹25,000
- User Training and Documentation: ₹10,000
- Contingency (10% of total budget): ₹58,500
- Total Budget: ₹6,43,500