VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“JnanaSangama”, Belgaum -590014, Karnataka.

LAB REPORT
on

OBJECT ORIENTED MODELING

Submitted by

Sarvesh Rastogi
(1BM22CS247)

in partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

B.M.S. COLLEGE OF ENGINEERING
(Autonomous Institution under VTU)
BENGALURU-560019
September-2024 to January-2025

B. M. S. College of Engineering,
Bull Temple Road, Bangalore 560019
(Affiliated To Visvesvaraya Technological University, Belgaum)
Department of Computer Science and Engineering

CERTIFICATE

This is to certify that the Lab work entitled "**OBJECT ORIENTED MODELING**" was carried out by **Sarvesh Rastogi (1BM22CS247),** who is a bonafide student of **B. M. S. College of Engineering.** It is in partial fulfillment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum during the year 2024-2025. The Lab report has been approved as it satisfies the academic requirements in respect of **Object-Oriented Modeling-(23CS5PCOOM)** work prescribed for the said degree.

M Lakshmi Neelima	**Dr. Kavitha Sooda**
Assistant Professor	Professor and Head
Department of CSE	Department of CSE
BMSCE, Bengaluru	BMSCE, Bengaluru

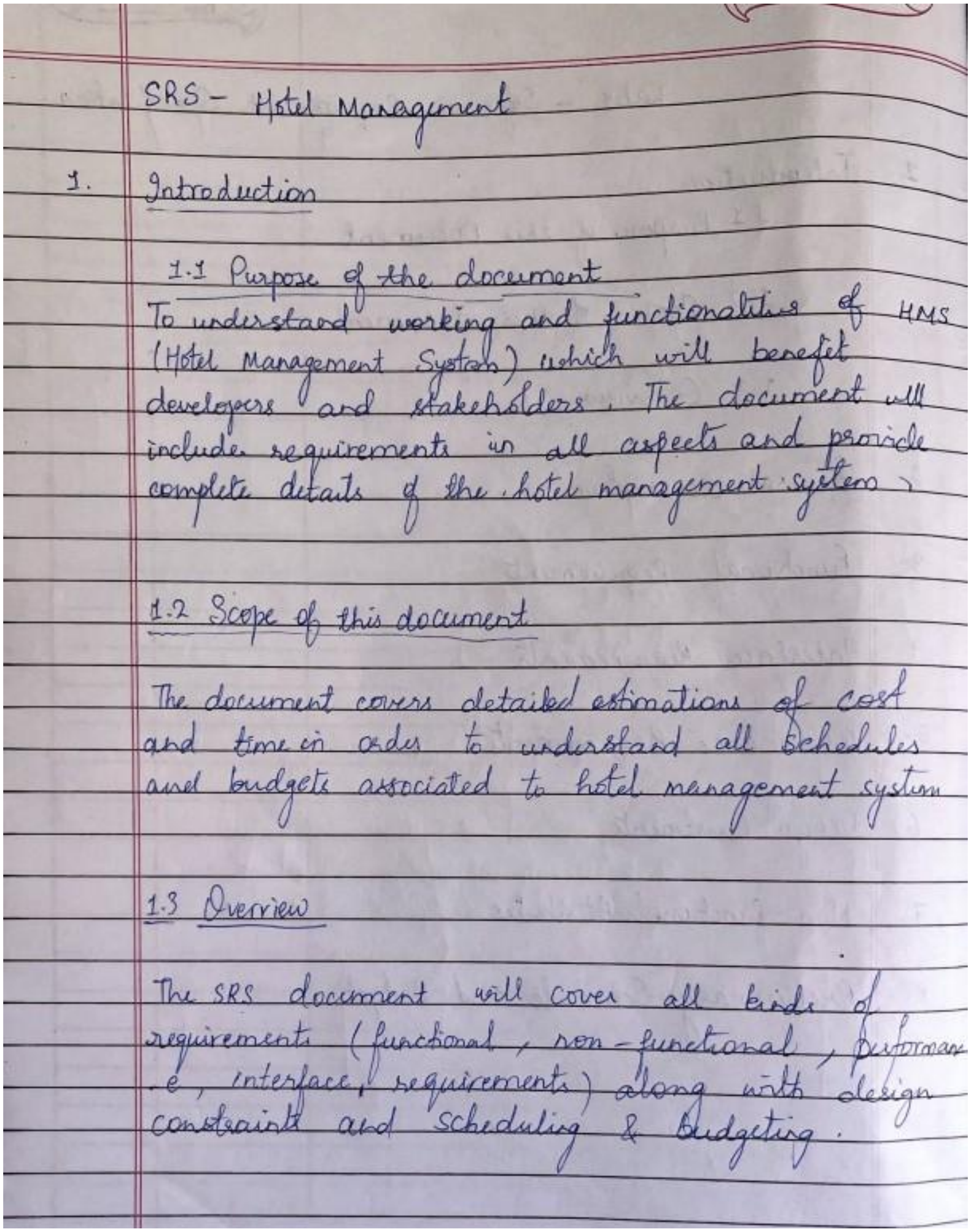
Table of Content

Sl. No.	Experiment Title	Page No.
1	Hotel Management System	1-9
2	Credit Card Processing	10-17
3	Library Management System	18-24
4	Stock Maintenance System	25-31
5	Passport Automation System	32-38

https://github.com/sarveshrastogi1/oomd_1BM22CS247

Hotel Management System

Software Requirements Specification (SRS)



SRS – Hotel Management

1. Introduction

1.1 Purpose of the document

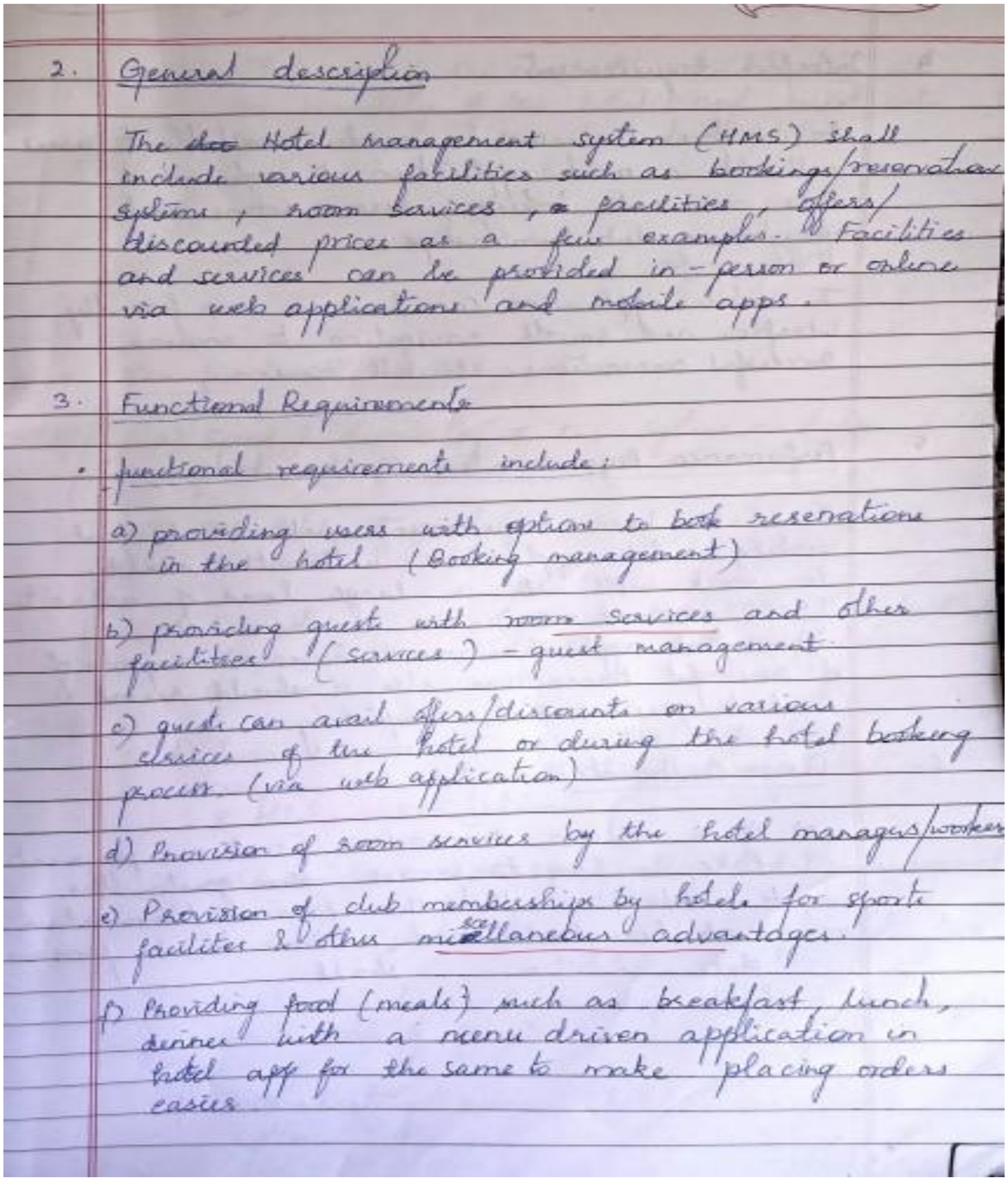
To understand working and functionalities of HMS (Hotel Management System) which will benefit developers and stakeholders. The document will include requirements in all aspects and provide complete details of the hotel management system.

1.2 Scope of this document

The document covers detailed estimations of cost and time in order to understand all schedules and budgets associated to hotel management system

1.3 Overview

The SRS document will cover all kinds of requirements (functional, non-functional, performance, interface, requirements) along with design constraints and scheduling & budgeting.



2. General description

The ~~doo~~ Hotel management system (HMS) shall include various facilities such as bookings/reservation system, room services, ~~a~~ facilities, offers/discounted prices as a few examples. Facilities and services can be provided in-person or online via web applications and mobile apps.

3. Functional Requirements

- functional requirements include:

a) providing users with option to book reservations in the hotel (Booking management)

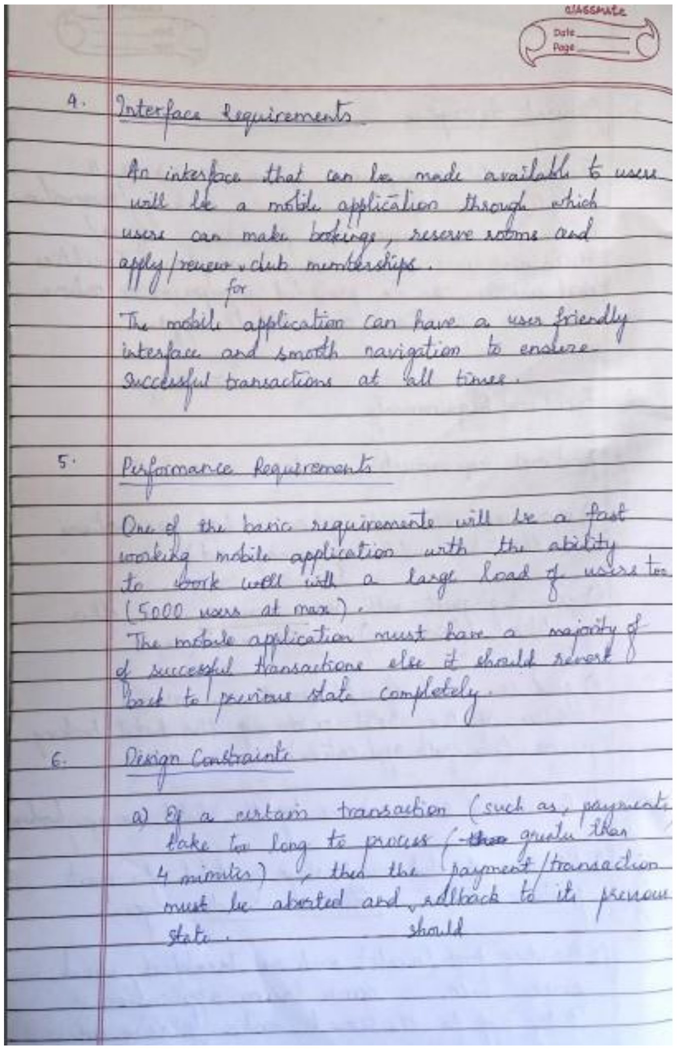
b) providing guests with room services and other facilities (services) - guest management

c) guests can avail offers/discounts on various services of the hotel or during the hotel booking process. (via web application)

d) Provision of room services by the hotel managers/workers

e) Provision of club memberships by hotels for sports facilities & other miscellaneous advantages.

f) Providing food (meals) such as breakfast, lunch, dinner with a menu driven application in hotel app for the same to make placing orders easier



Date
Page

4. Interface Requirements

An interface that can be made available to users will be a mobile application through which users can make bookings, reserve rooms and apply/renew for club memberships.

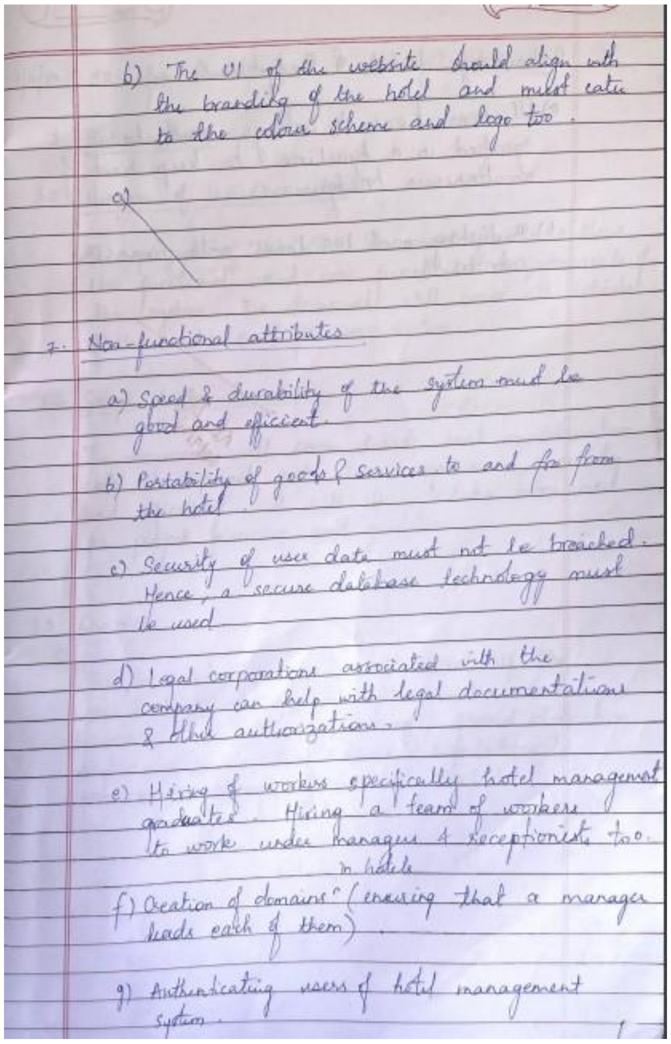
The mobile application can have a user friendly interface and smooth navigation to ensure successful transactions at all times.

5. Performance Requirements

One of the basic requirements will be a fast working mobile application with the ability to work well with a large load of users too (5000 users at max).
The mobile application must have a majority of of successful transactions else it should revert back to previous state completely.

6. Design Constraints

a) If a certain transaction (such as, payments take too long to process (~~than~~ greater than 4 minutes), then the payment/transaction must be aborted and should rollback to its previous state.



b) The UI of the website should align with the branding of the hotel and must cater to the colour scheme and logo too.

c)

7. Non-functional attributes

a) Speed & durability of the system must be good and efficient.

b) Portability of goods & services to and fro from the hotel.

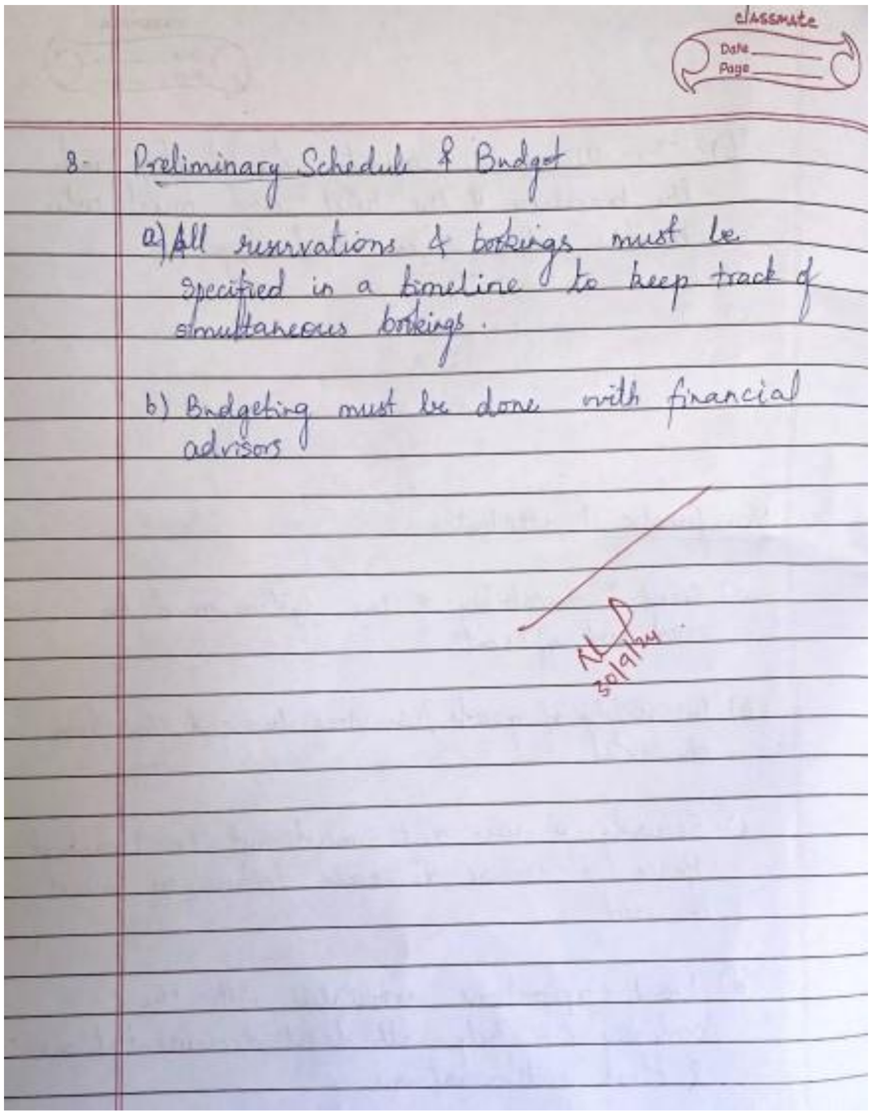
c) Security of user data must not be breached. Hence, a secure database technology must be used.

d) Legal corporations associated with the company can help with legal documentations & other authorizations.

e) Hiring of workers specifically hotel management graduates. Hiring a team of workers to work under managers & receptionists too. in hotels

f) Creation of domains (ensuring that a manager leads each of them).

g) Authenticating users of hotel management system.



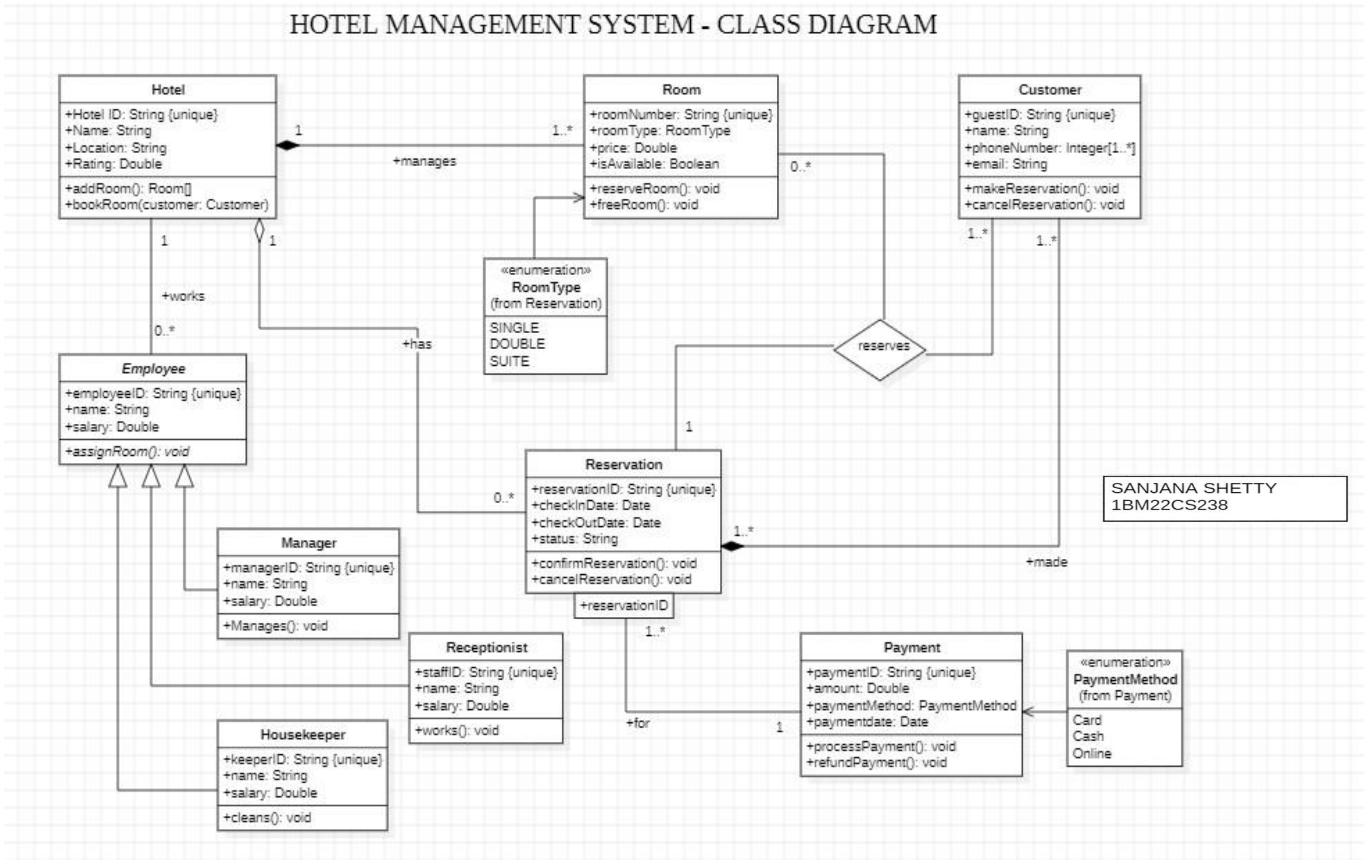
8- Preliminary Schedule & Budget

a) All reservations & bookings must be specified in a timeline to keep track of simultaneous bookings.

b) Budgeting must be done with financial advisors

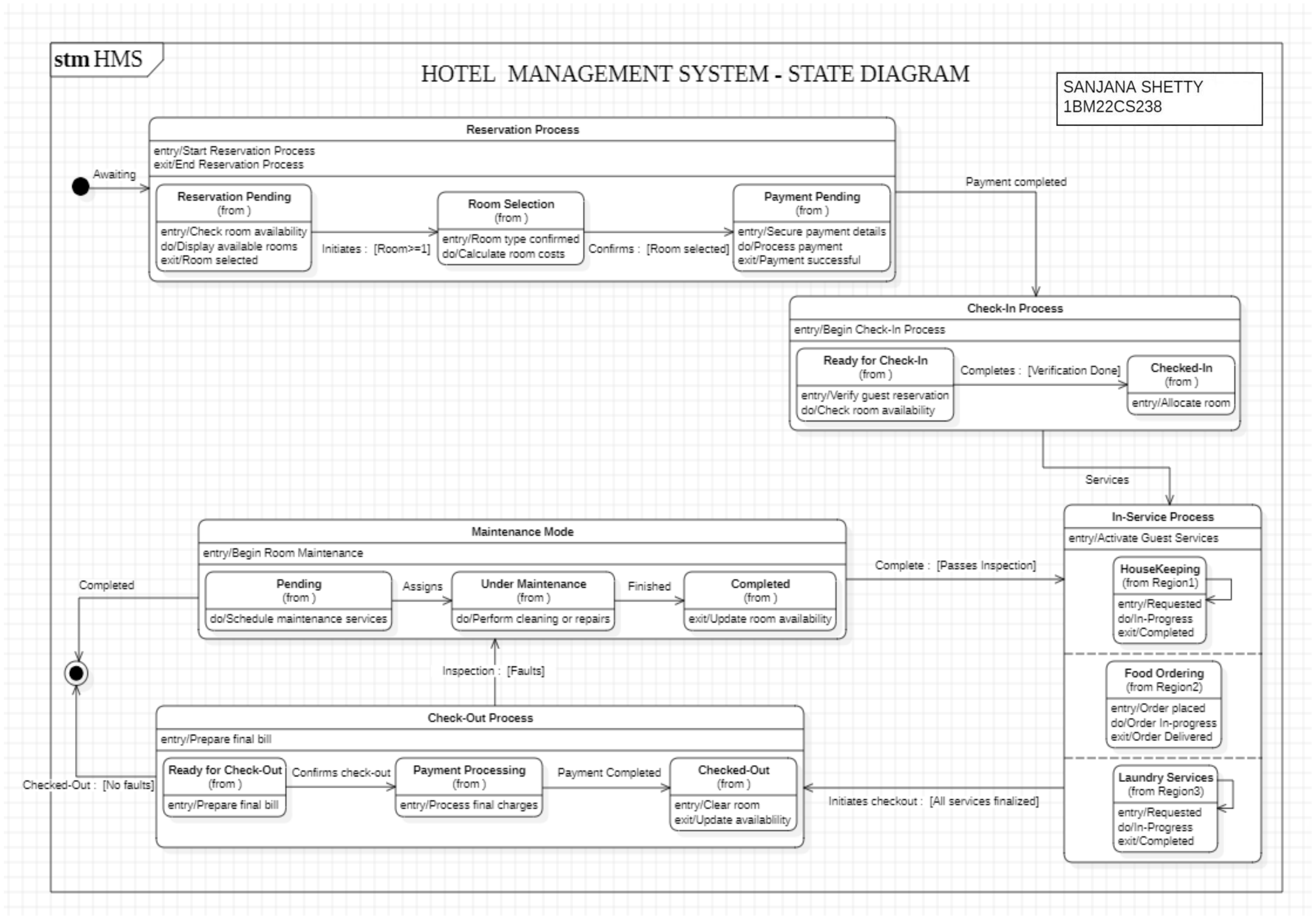
[illegible] 30/9/24

CLASS DIAGRAM



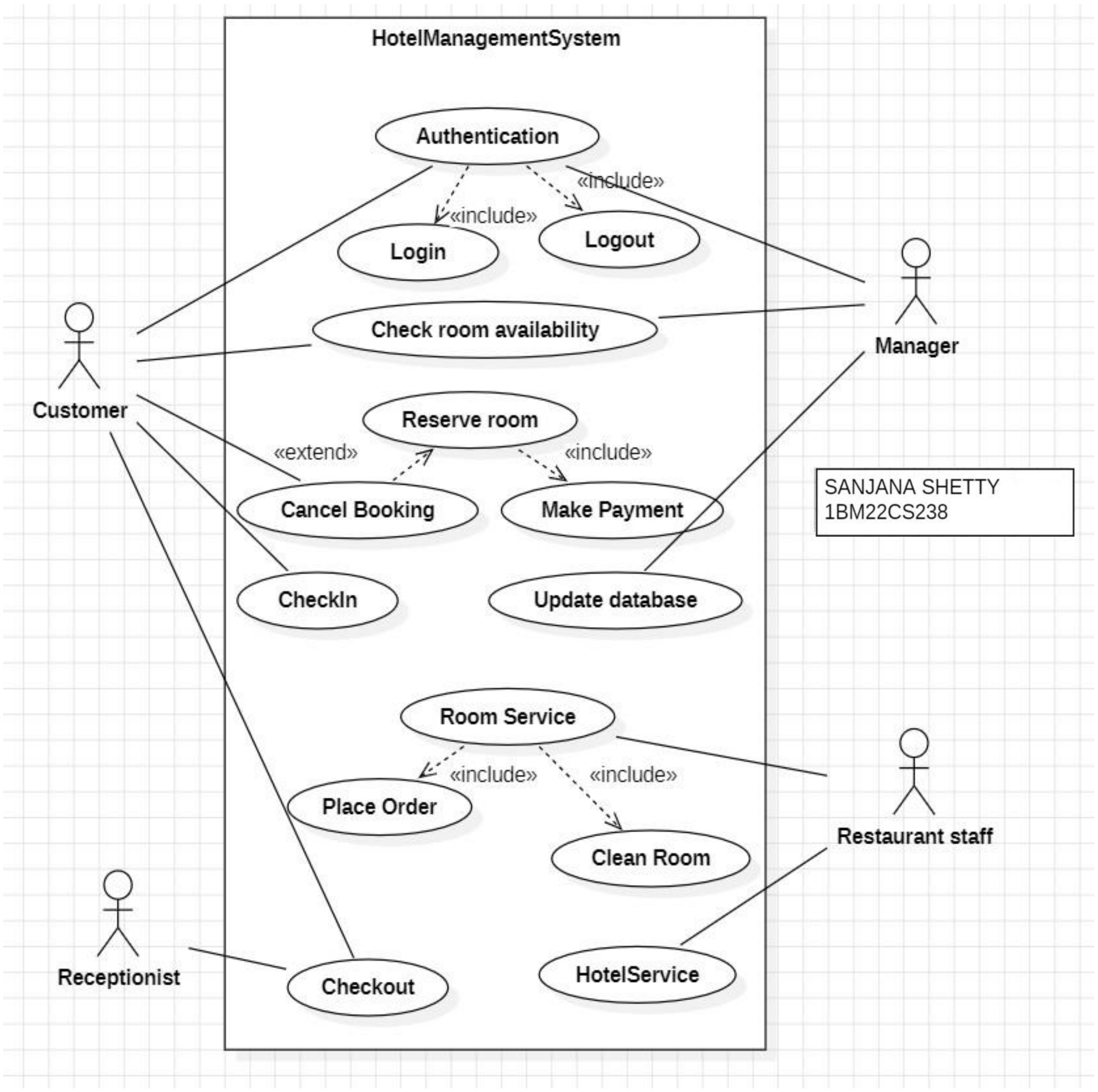
The class diagram illustrates a Hotel Management System comprising various entities and their relationships. The central class, Hotel, manages multiple Rooms, each identified by attributes like roomNumber, roomType, price, and availability. Customers can reserve rooms through the Reservation class, which records details like checkInDate, checkOutDate, and status, and is associated with Payment, handling methods such as processPayment() and refundPayment(). The system includes Employees, categorized as Managers, Receptionists, and Housekeepers, each with specific responsibilities such as managing operations, handling reservations, or maintaining cleanliness. The Customer class allows users to make or cancel reservations. Enumerations for RoomType (e.g., SINGLE, DOUBLE) and PaymentMethod (e.g., Card, Cash) add structured classifications. Overall, the diagram captures the relationships and functionalities necessary for a comprehensive hotel management system.

STATE DIAGRAM



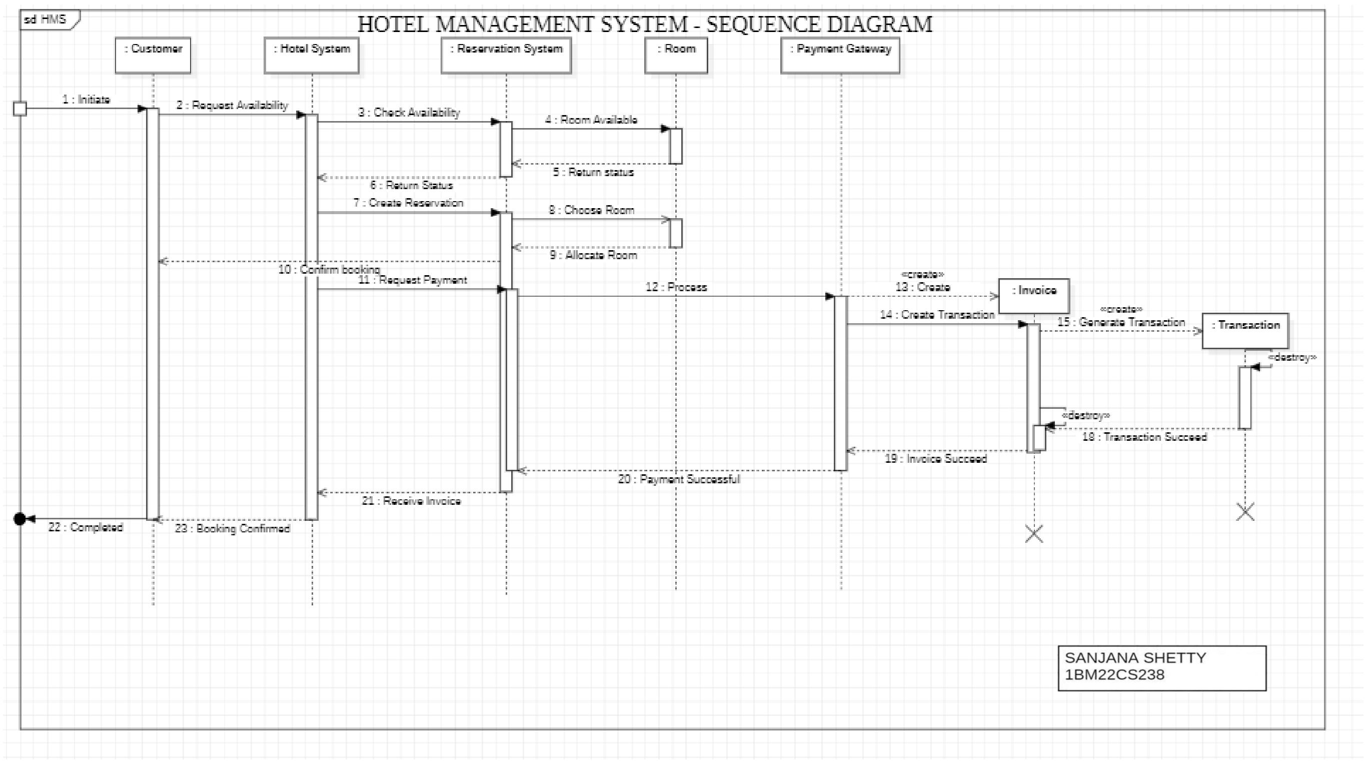
The state diagram depicts the Hotel Management System processes, starting with the Reservation Process (from Reservation Pending to payment completion), followed by the Check-in Process (Ready for Check-In to Checked-In). During the stay, the In-Service Process manages tasks like Housekeeping, Food Ordering, and Laundry Services. Simultaneously, Maintenance Mode ensures room upkeep (Pending to Completed). The system concludes with the Check-Out Process, including billing, payment, and clearing rooms. The diagram effectively outlines the workflow and transitions between states.

USE CASE DIAGRAM



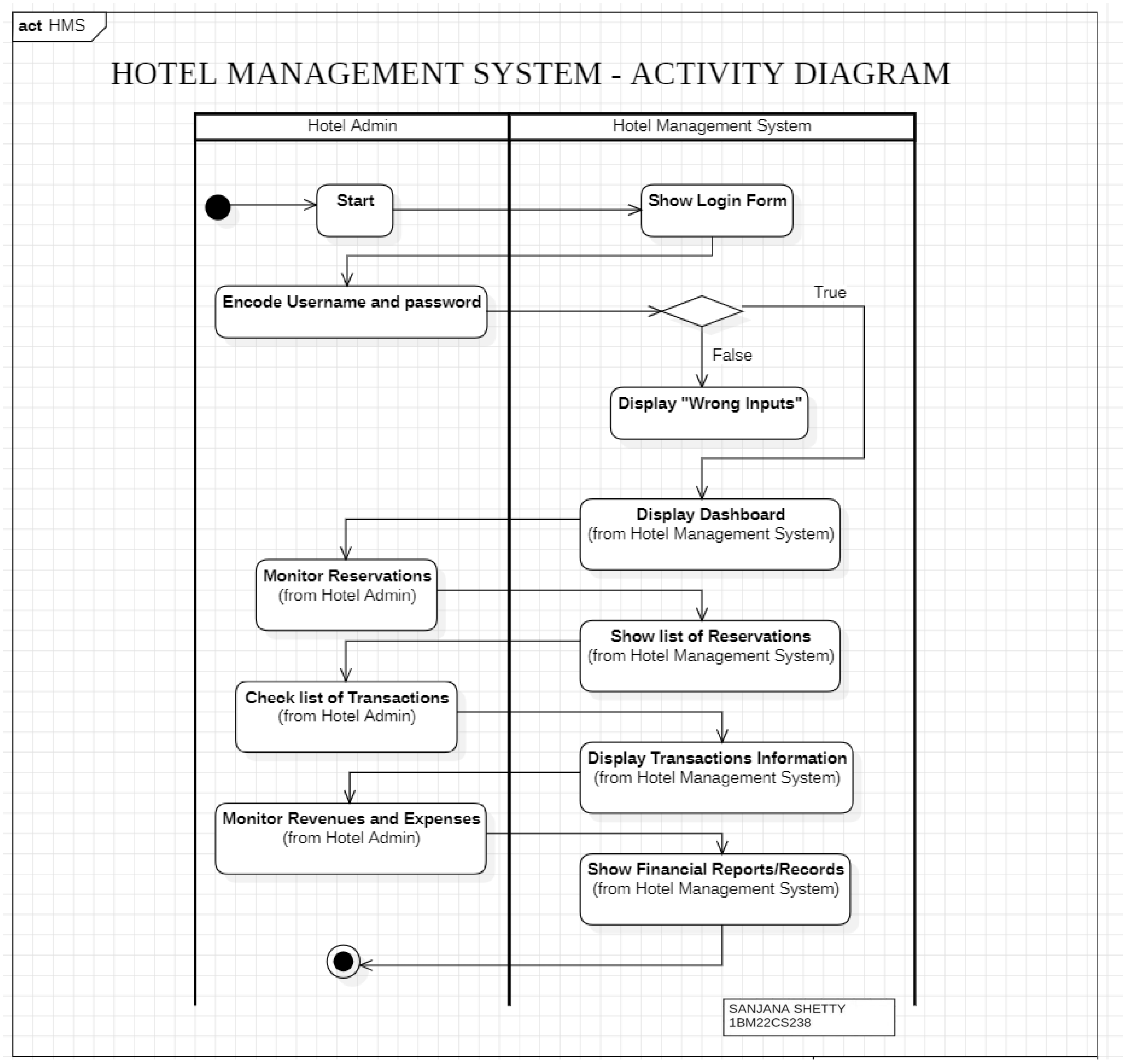
The use case diagram depicts the Hotel Management System, highlighting interactions between Customer, Manager, Receptionist, and Restaurant Staff. Key actions include Authentication, Room Reservation, Payment, Check-in, Room Service, and Checkout. It shows relationships like include and extend to represent interconnected functionalities within the system.

SEQUENCE DIAGRAM



The diagram illustrates the sequence of interactions involved in a hotel booking process. It starts with a customer initiating the request, followed by the hotel system checking availability and returning the status to the customer. Upon confirmation, the reservation system creates a reservation and allocates a room. The customer then proceeds to request payment, which is processed by the payment gateway. Once the payment is successful, an invoice is created and a transaction is generated. Finally, the customer receives the invoice and the booking is confirmed.

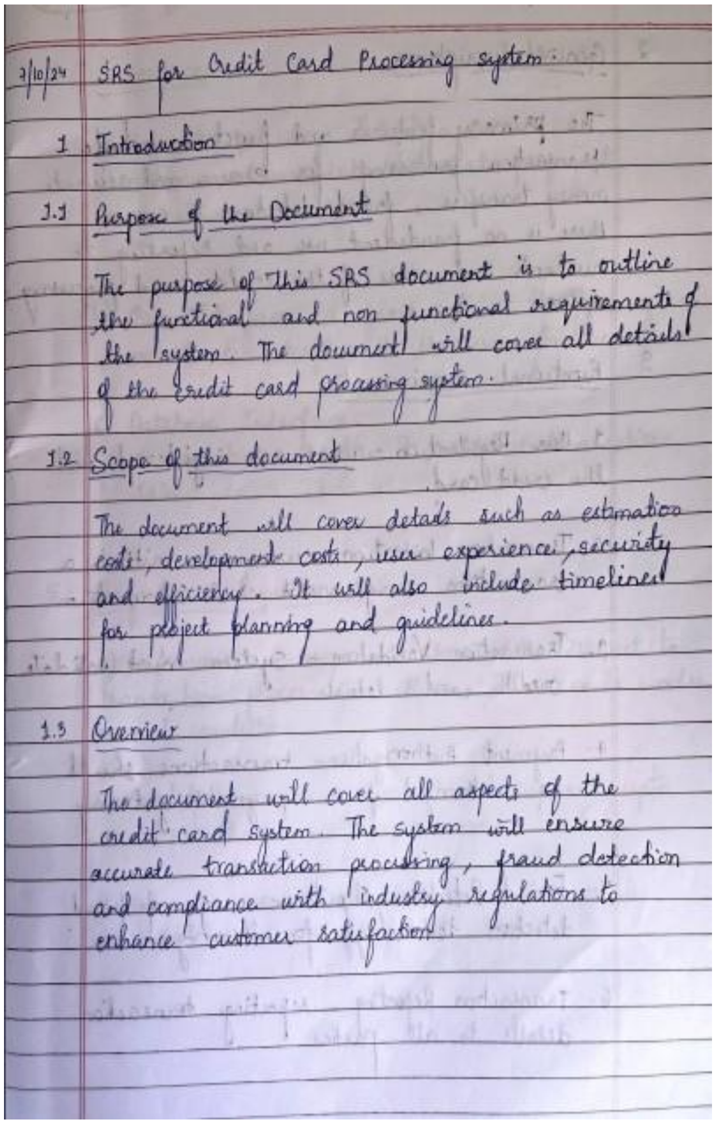
ACTIVITY DIAGRAM


act HMS
HOTEL MANAGEMENT SYSTEM - ACTIVITY DIAGRAM
Hotel Admin
Hotel Management System
Start
Show Login Form
Encode Username and password
True
False
Display "Wrong Inputs"
Display Dashboard (from Hotel Management System)
Monitor Reservations (from Hotel Admin)
Show list of Reservations (from Hotel Management System)
Check list of Transactions (from Hotel Admin)
Display Transactions Information (from Hotel Management System)
Monitor Revenues and Expenses (from Hotel Admin)
Show Financial Reports/Records (from Hotel Management System)
SANJANA SHETTY
1BM22CS238

The diagram illustrates the activity flow of a hotel management system. It begins with the hotel admin starting the system and being presented with a login form. After successfully entering their credentials, the admin is granted access to the dashboard. From there, the admin can perform various tasks, such as monitoring reservations, checking transactions, and viewing financial reports. The system provides the admin with the necessary information and tools to manage these aspects of the hotel.

CREDIT CARD PROCESSING

SOFTWARE REQUIREMENTS SPECIFICATION (SRS)



7/10/24 SRS for Credit Card Processing system.

1 Introduction

1.1 Purpose of the Document

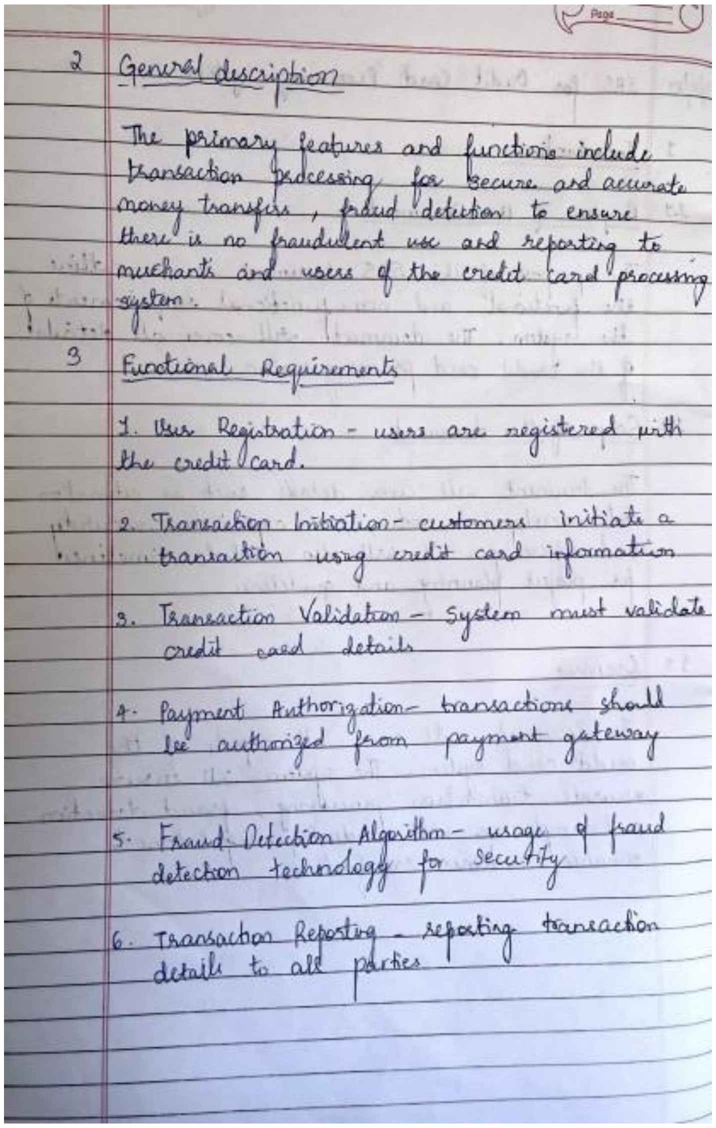
The purpose of this SRS document is to outline the functional and non functional requirements of the system. The document will cover all details of the credit card processing system.

1.2 Scope of this document

The document will cover details such as estimation costs, development costs, user experience, security and efficiency. It will also include timelines for project planning and guidelines.

1.3 Overview

The document will cover all aspects of the credit card system. The system will ensure accurate transaction processing, fraud detection and compliance with industry regulations to enhance customer satisfaction.



2 General description

The primary features and functions include transaction processing for secure and accurate money transfers, fraud detection to ensure there is no fraudulent use and reporting to merchants and users of the credit card processing system.

3 Functional Requirements

1. User Registration - users are registered with the credit card.

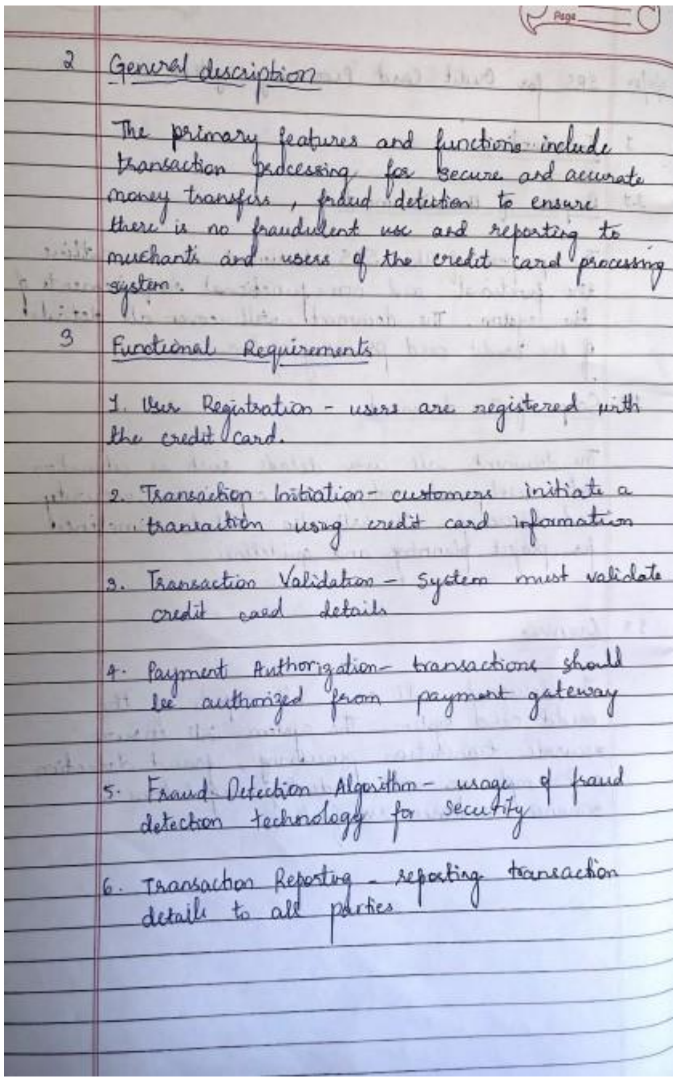
2. Transaction Initiation - customers initiate a transaction using credit card information

3. Transaction Validation - System must validate credit card details

4. Payment Authorization - transactions should be authorized from payment gateway

5. Fraud Detection Algorithm - usage of fraud detection technology for security

6. Transaction Reporting - reporting transaction details to all parties



2 General description

The primary features and functions include transaction processing for secure and accurate money transfers, fraud detection to ensure there is no fraudulent use and reporting to merchants and users of the credit card processing system.

3 Functional Requirements

1. User Registration - users are registered with the credit card.

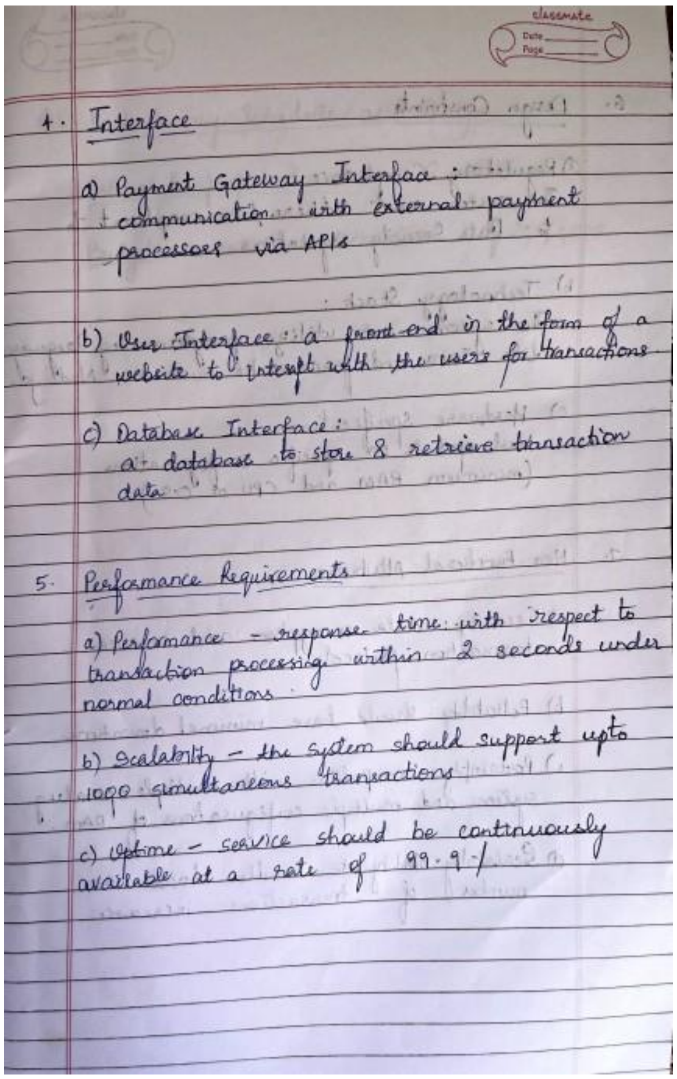
2. Transaction Initiation - customers initiate a transaction using credit card information

3. Transaction Validation - System must validate credit card details

4. Payment Authorization - transactions should be authorized from payment gateway

5. Fraud Detection Algorithm - usage of fraud detection technology for security

6. Transaction Reporting - reporting transaction details to all parties



4. Interface

a) Payment Gateway Interface : communication with external payment processors via APIs

b) User Interface : a front-end in the form of a website to interact with the users for transactions

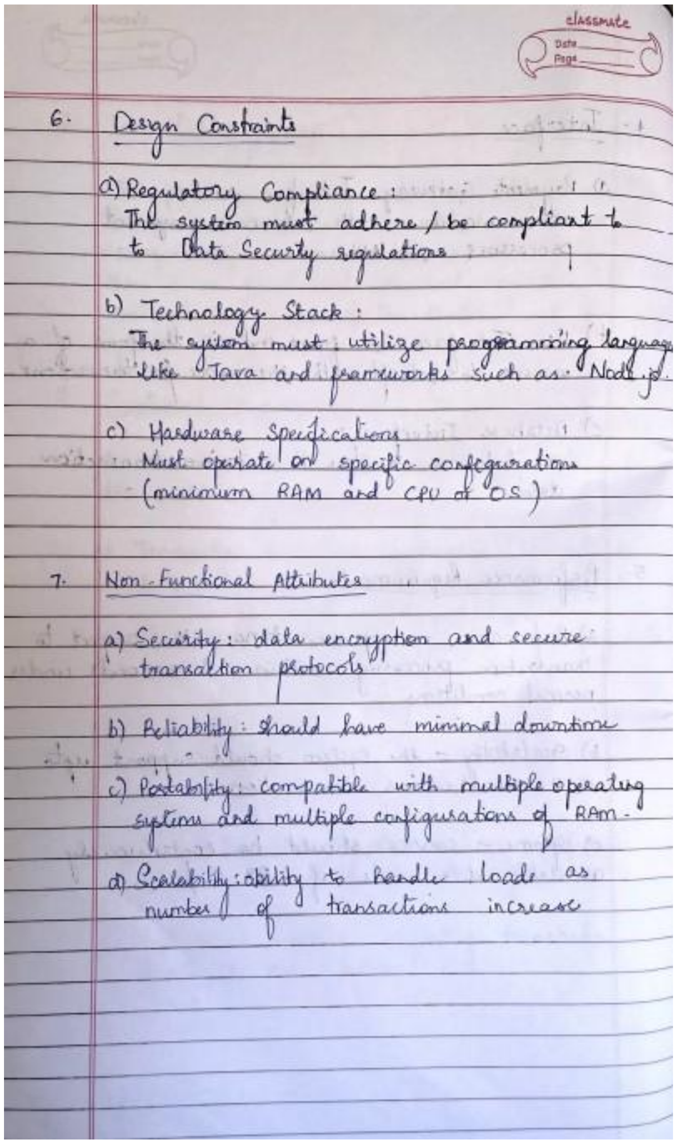
c) Database Interface : a database to store & retrieve transaction data

5. Performance Requirements

a) Performance - response time with respect to transaction processing within 2 seconds under normal conditions

b) Scalability - the system should support upto 1000 simultaneous transactions

c) Uptime - service should be continuously available at a rate of 99.9%



6. Design Constraints

a) Regulatory Compliance:
The system must adhere / be compliant to to Data Security regulations

b) Technology Stack:
The system must utilize programming language like Java and frameworks such as Node.js.

c) Hardware Specifications
Must operate on specific configuration (minimum RAM and CPU of OS)

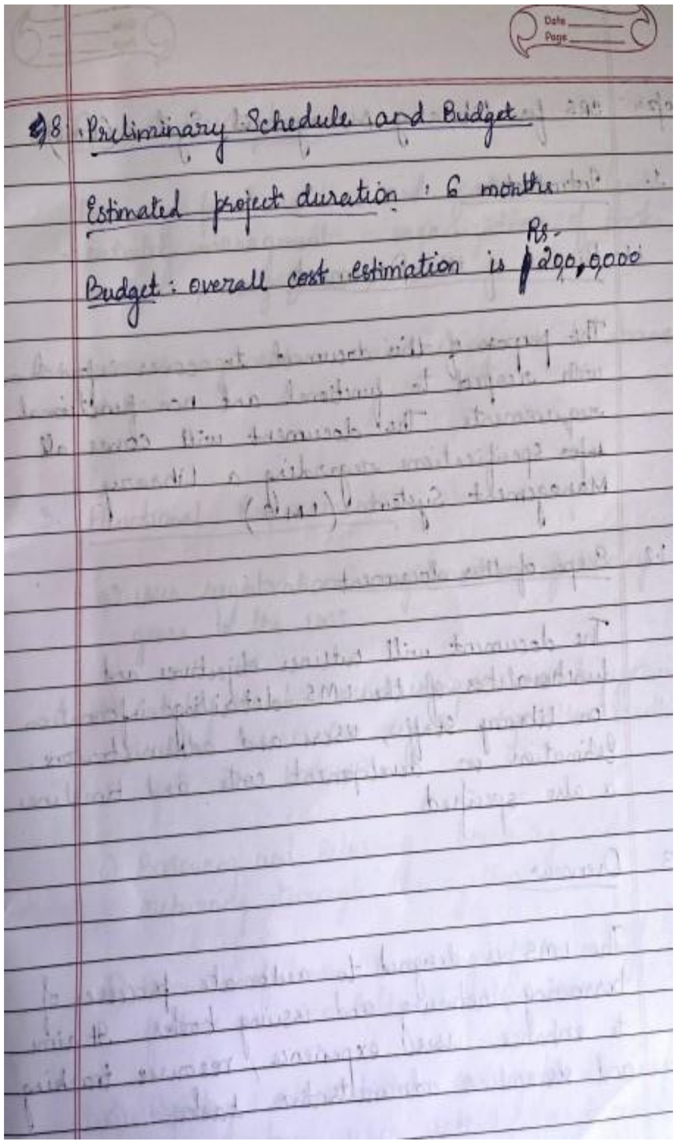
7. Non-Functional Attributes

a) Security: data encryption and secure transaltion protocols

b) Reliability: should have minimal downtime

c) Portability: compatible with multiple operating systems and multiple configurations of RAM.

d) Scalability: ability to handle loads as number of transactions increase

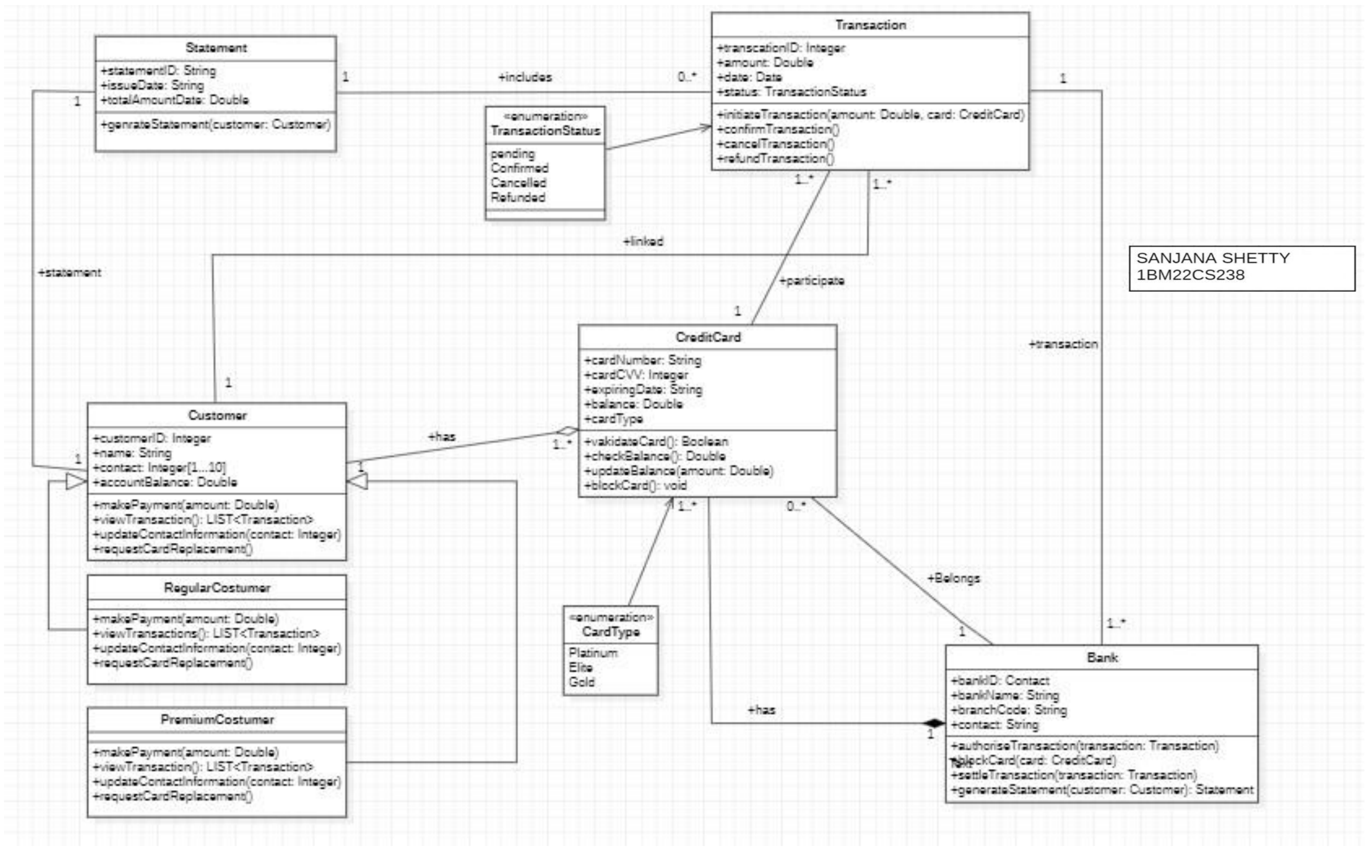


8. Preliminary Schedule and Budget

Estimated project duration: 6 months

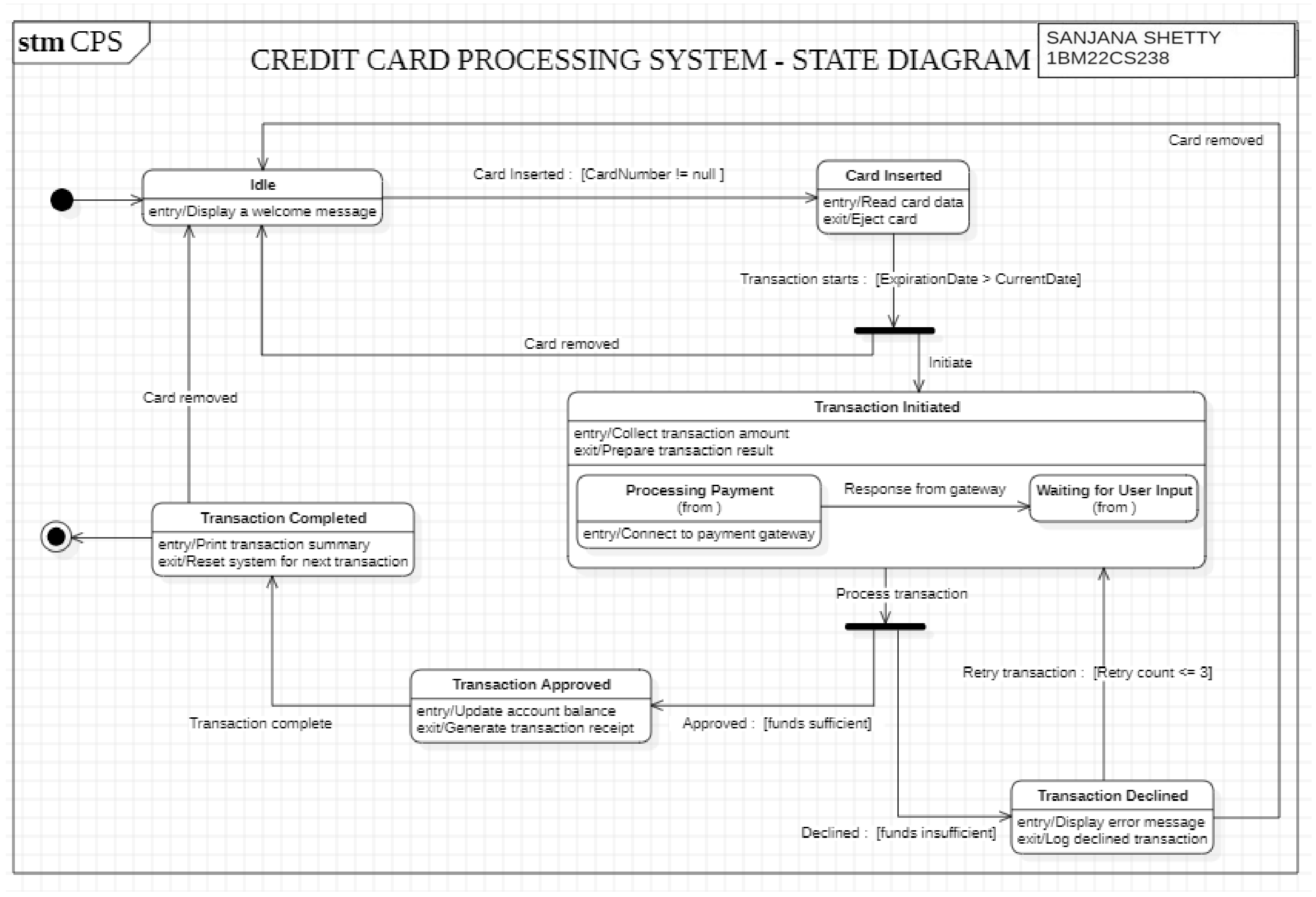
Budget: overall cost estimation is Rs. 200,000

CLASS DIAGRAM



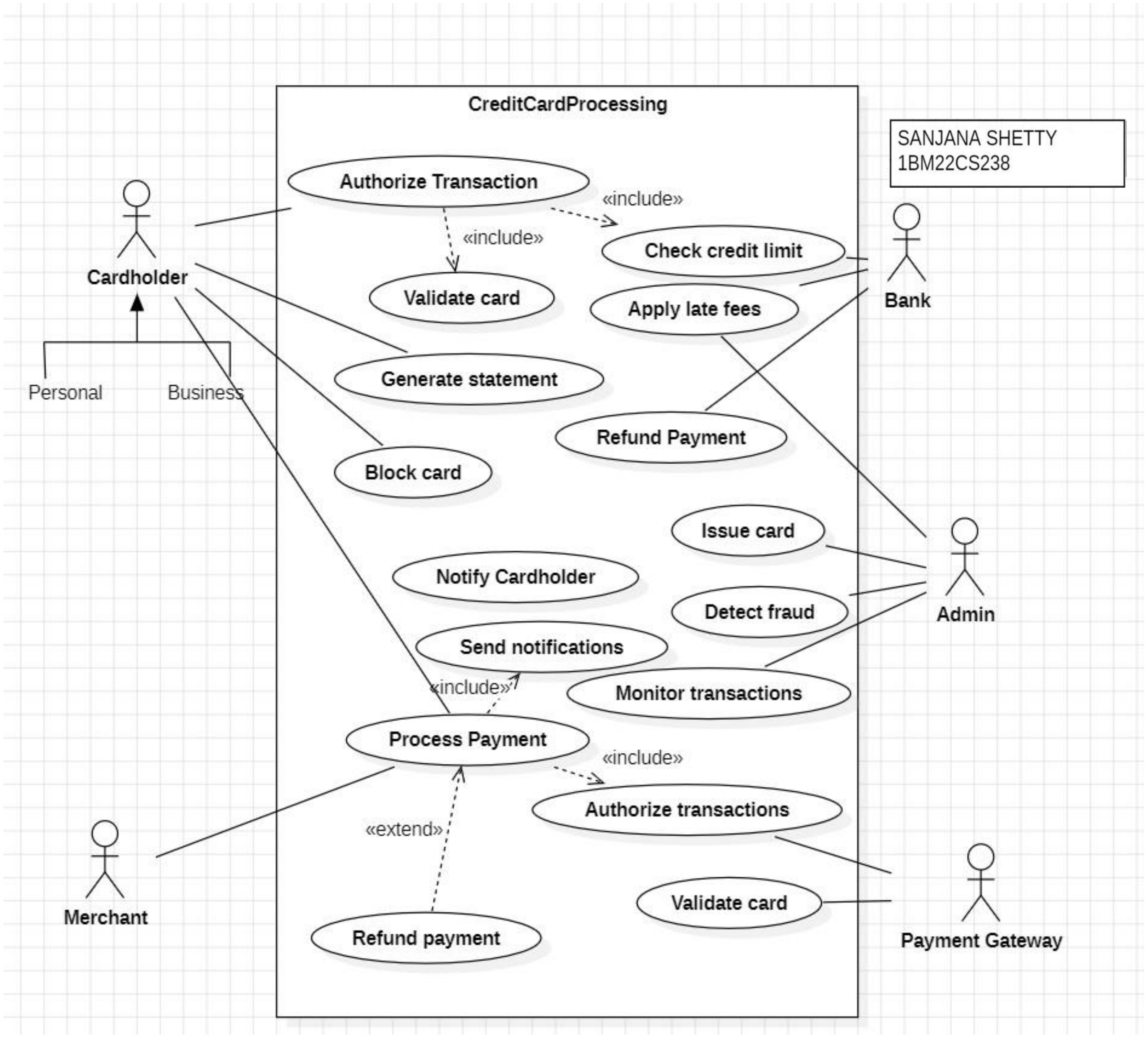
This UML class diagram illustrates the core components of a financial system. It depicts entities such as Customer, CreditCard, Transaction, Statement, and Bank, along with their attributes and relationships. Key features include transaction management, statement generation, and customer categorization based on their spending habits. The diagram also includes enumerations for transaction status, card type, and customer rank.

STATE DIAGRAM


stm CPS
CREDIT CARD PROCESSING SYSTEM - STATE DIAGRAM
SANJANA SHETTY
1BM22CS238
Idle
entry/Display a welcome message
Card Inserted : [CardNumber != null]
Card Inserted
entry/Read card data
exit/Eject card
Card removed
Transaction starts : [ExpirationDate > CurrentDate]
Card removed
Initiate
Card removed
Transaction Initiated
entry/Collect transaction amount
exit/Prepare transaction result
Processing Payment
(from)
entry/Connect to payment gateway
Response from gateway
Waiting for User Input
(from)
Transaction Completed
entry/Print transaction summary
exit/Reset system for next transaction
Process transaction
Retry transaction : [Retry count <= 3]
Transaction Approved
entry/Update account balance
exit/Generate transaction receipt
Transaction complete
Approved : [funds sufficient]
Transaction Declined
entry/Display error message
exit/Log declined transaction
Declined : [funds insufficient]

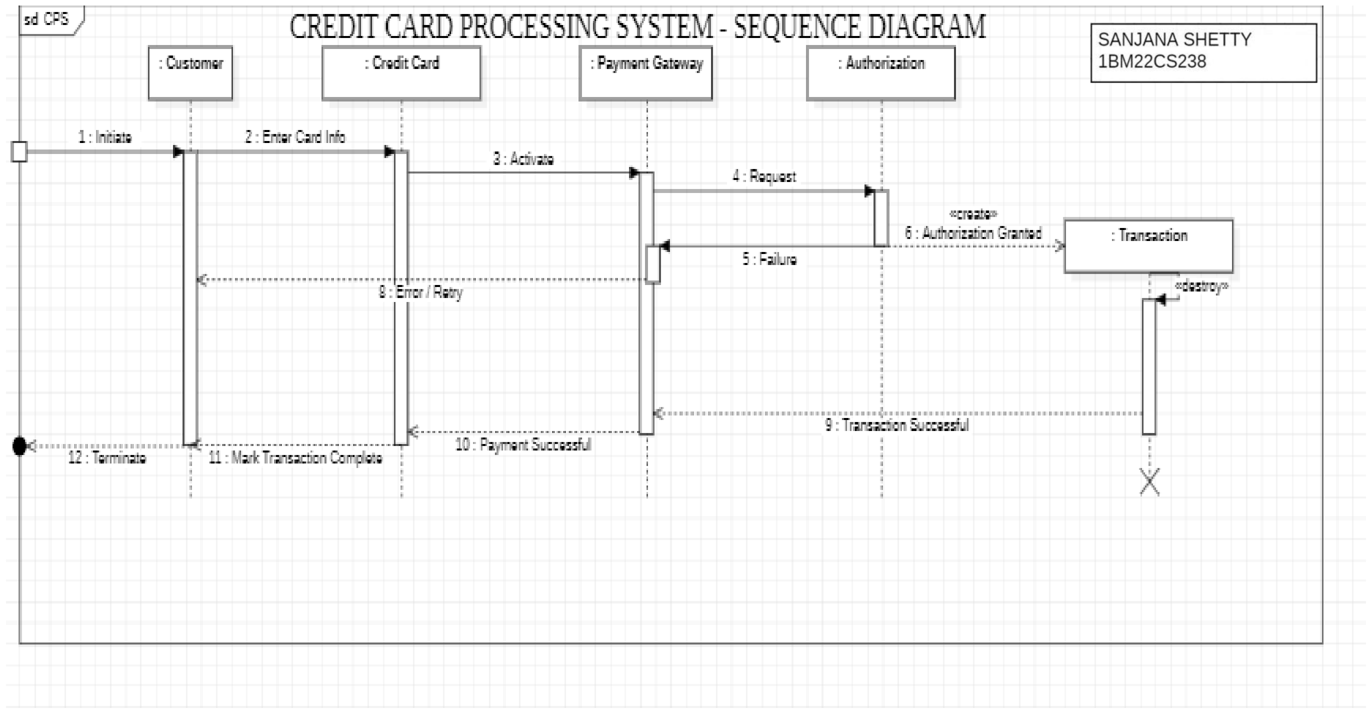
This state diagram models a credit card processing system. It shows the system transitioning through states like Idle, Transaction Initiated, Transaction Processing, and either Approved or Declined. The system processes card data, verifies transactions, and updates account balances accordingly.

USE CASE DIAGRAM



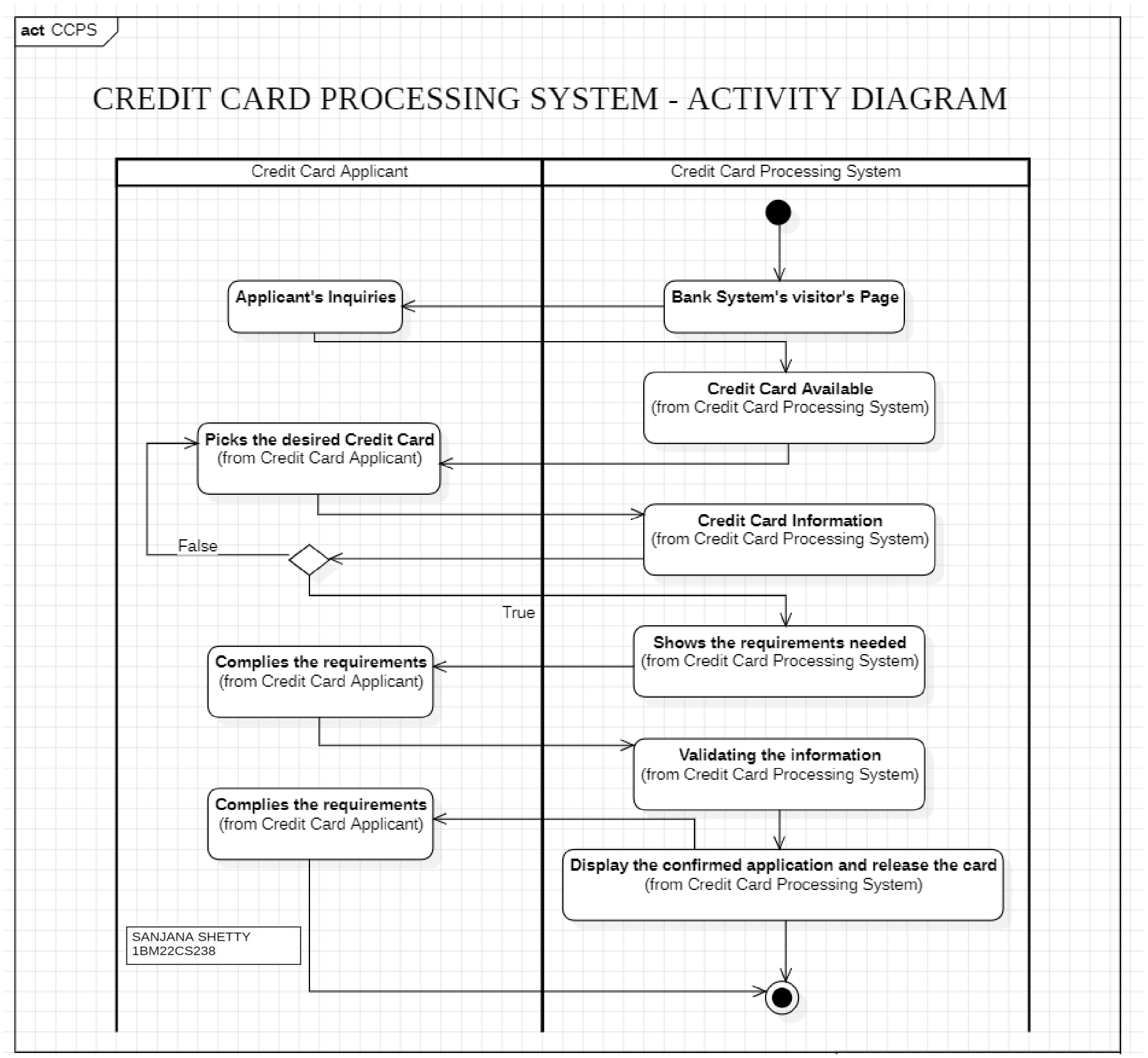
This UML use case diagram outlines the functionalities of a CreditCardProcessing system. It shows various actors like Cardholder (Personal and Business), Bank, Admin, Merchant, and Payment Gateway interacting with the system through different use cases. Key features include authorizing transactions, validating cards, processing payments, issuing cards, detecting fraud, generating statements, and managing refunds. The diagram also utilizes relationships like <<include>> and <<extend>> to represent dependencies between use cases.

SEQUENCE DIAGRAM



This UML use case diagram models the functionalities of a credit card processing system. It shows how various actors, including cardholders, banks, merchants, and administrators, interact with the system. Key use cases include authorizing transactions, validating cards, processing payments, issuing cards, detecting fraud, generating statements, and managing refunds. The diagram also incorporates relationships like <<include>> and <<extend>> to represent dependencies between use cases, providing a more comprehensive view of the system's behavior.

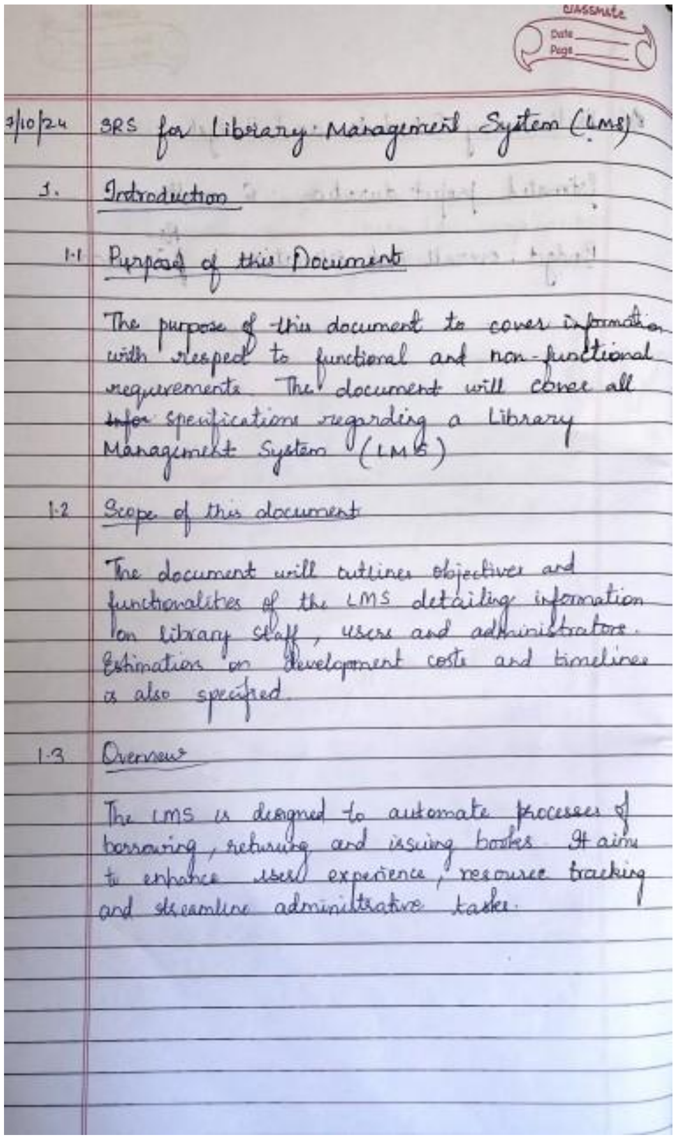
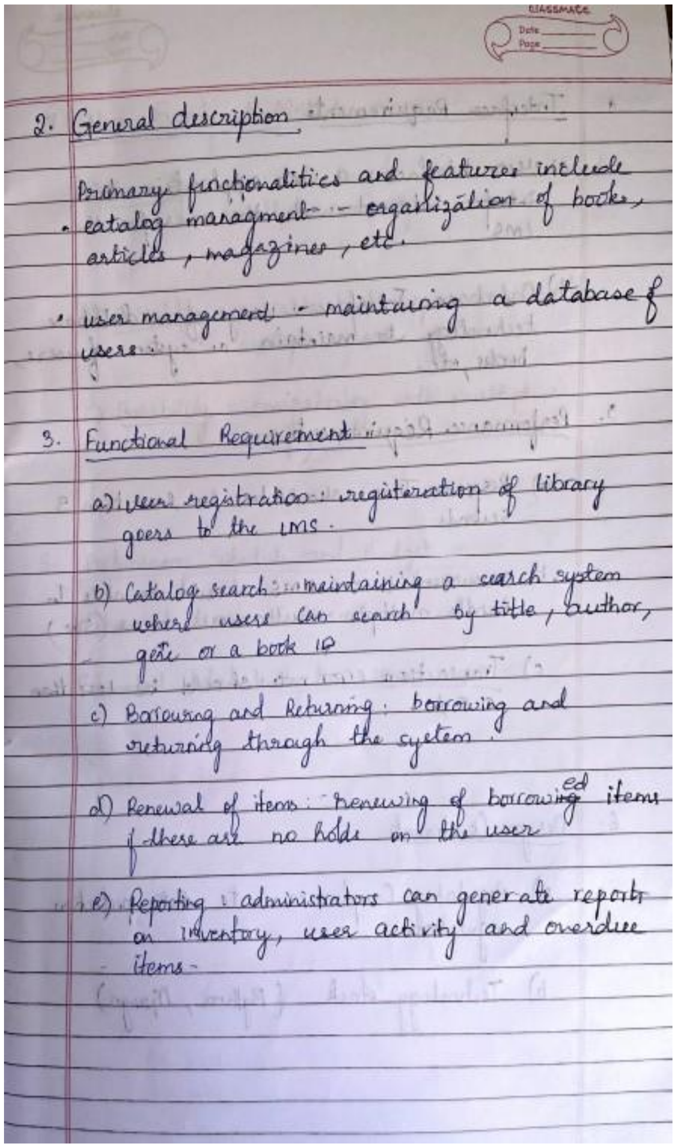
ACTIVITY DIAGRAM


act CCPS
CREDIT CARD PROCESSING SYSTEM - ACTIVITY DIAGRAM
Credit Card Applicant
Credit Card Processing System
Applicant's Inquiries
Bank System's visitor's Page
Credit Card Available (from Credit Card Processing System)
Picks the desired Credit Card (from Credit Card Applicant)
Credit Card Information (from Credit Card Processing System)
False
True
Shows the requirements needed (from Credit Card Processing System)
Complies the requirements (from Credit Card Applicant)
Validating the information (from Credit Card Processing System)
Complies the requirements (from Credit Card Applicant)
Display the confirmed application and release the card (from Credit Card Processing System)
SANJANA SHETTY
1BM22CS238

This activity diagram models the process of a credit card application. It starts with the applicant making inquiries, followed by the system displaying available credit card options. The applicant then selects a desired card. The system checks if the applicant meets the requirements for the selected card. If they do, the system validates the information provided by the applicant. Finally, if the validation is successful, the system confirms the application and releases the credit card. If the applicant fails to meet the requirements at any stage, the system displays the missing requirements.

LIBRARY MANAGEMENT SYSTEM

SOFTWARE REQUIREMENTS SPECIFICATION (SRS)

classmate
Date
Page

3/10/24 SRS for Library Management System (LMS)

1. Introduction

1.1 Purpose of this Document

The purpose of this document to cover information with respect to functional and non-functional requirements. The document will cover all ~~infor~~ specifications regarding a Library Management System (LMS)

1.2 Scope of this document

The document will outlines objectives and functionalites of the LMS detailing information on library staff, users and administrators. Estimation on development costs and timelines is also specified.

1.3 Overview

The LMS is designed to automate processes of borrowing, returning and issuing books. It aims to enhance user experience, resource tracking and streamline administrative tasks.

classmate
Date
Page

2. General description

Primary functionalities and features include
- catalog managment - organization of books, articles, magazines, etc.
- user management - maintaining a database of users.

3. Functional Requirement

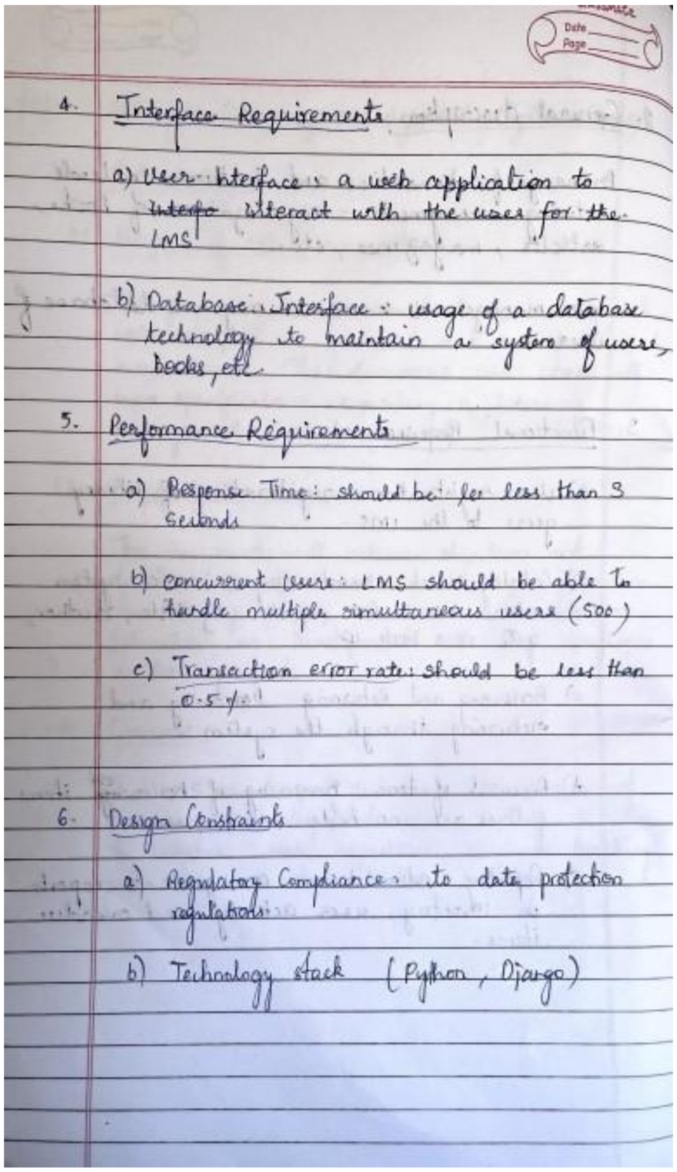
a) user registration: registeration of library goers to the LMS.

b) Catalog search: maintaining a search system where users can search by title, author, genre or a book ID

c) Borrowing and Returning: borrowing and returning through the system.

d) Renewal of items: renewing of borrow~~ing~~ed items if there are no holds on the user

e) Reporting: administrators can generate reports on inventory, user activity and overdue items.



4. Interface Requirements

a) User Interface : a web application to ~~Interfo~~ interact with the uses for the LMS

b) Database Interface : usage of a database technology to maintain a system of users, books, etc.

5. Performance Requirements

a) Response Time : should be ~~fe~~ less than 3 seconds

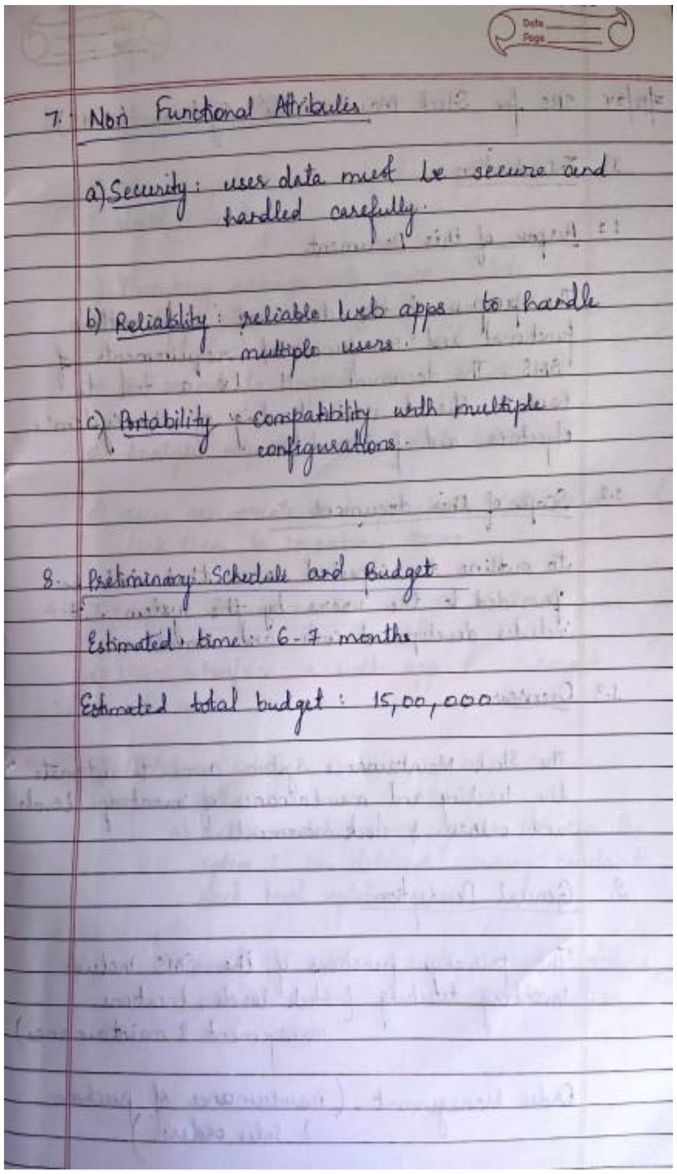
b) concurrent users : LMS should be able to handle multiple simultaneous users (500)

c) Transaction error rate : should be less than 0.5 %

6. Design Constraints

a) Regulatory Compliance : to data protection regulations

b) Technology stack (Python, Django)



7. Non Functional Attributes

a) Security : users data must be secure and handled carefully.

b) Reliability : reliable web apps to handle multiple users.

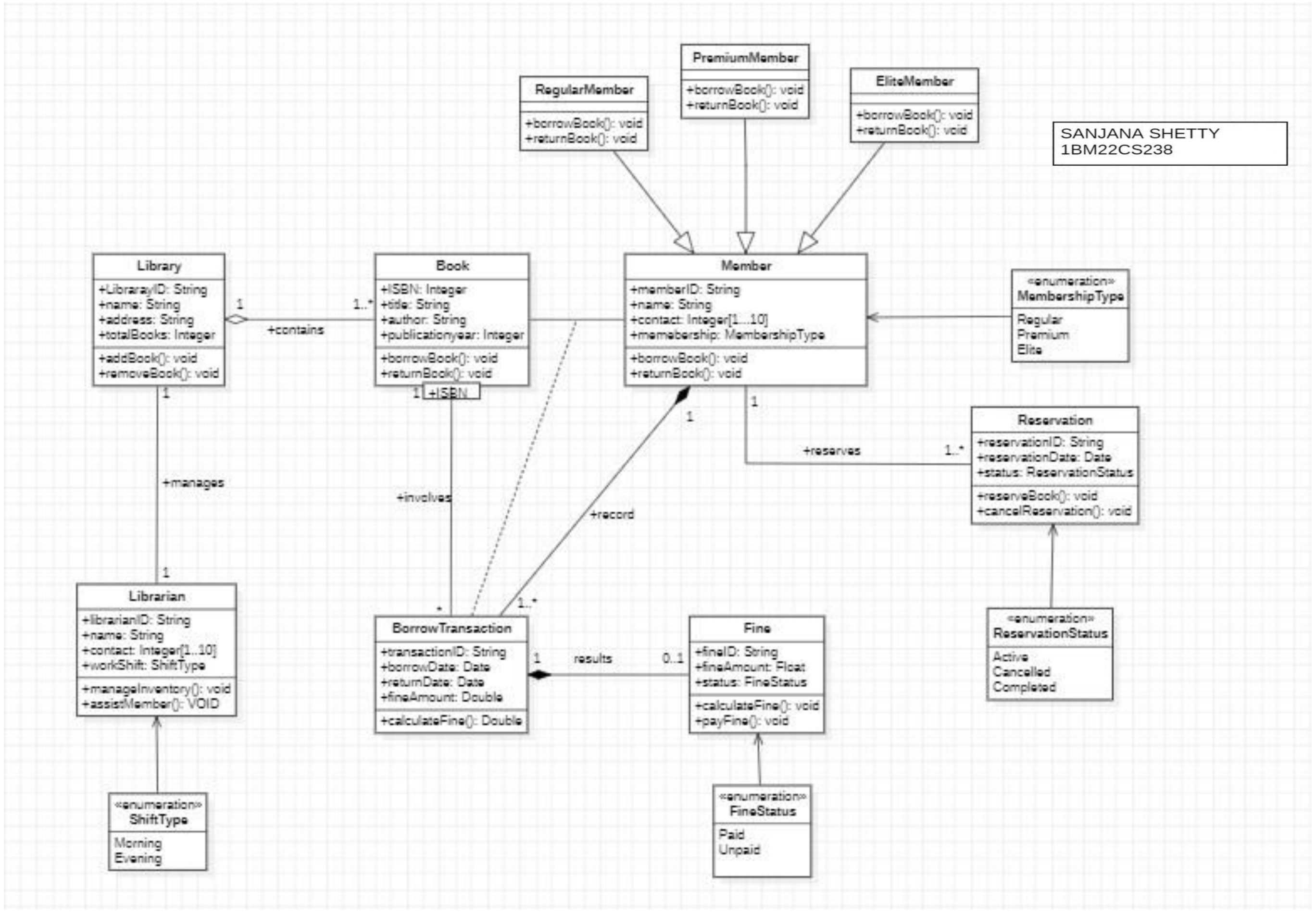
c) Portability : compatibility with multiple configurations.

8. Preliminary Schedule and Budget

Estimated time : 6-7 months

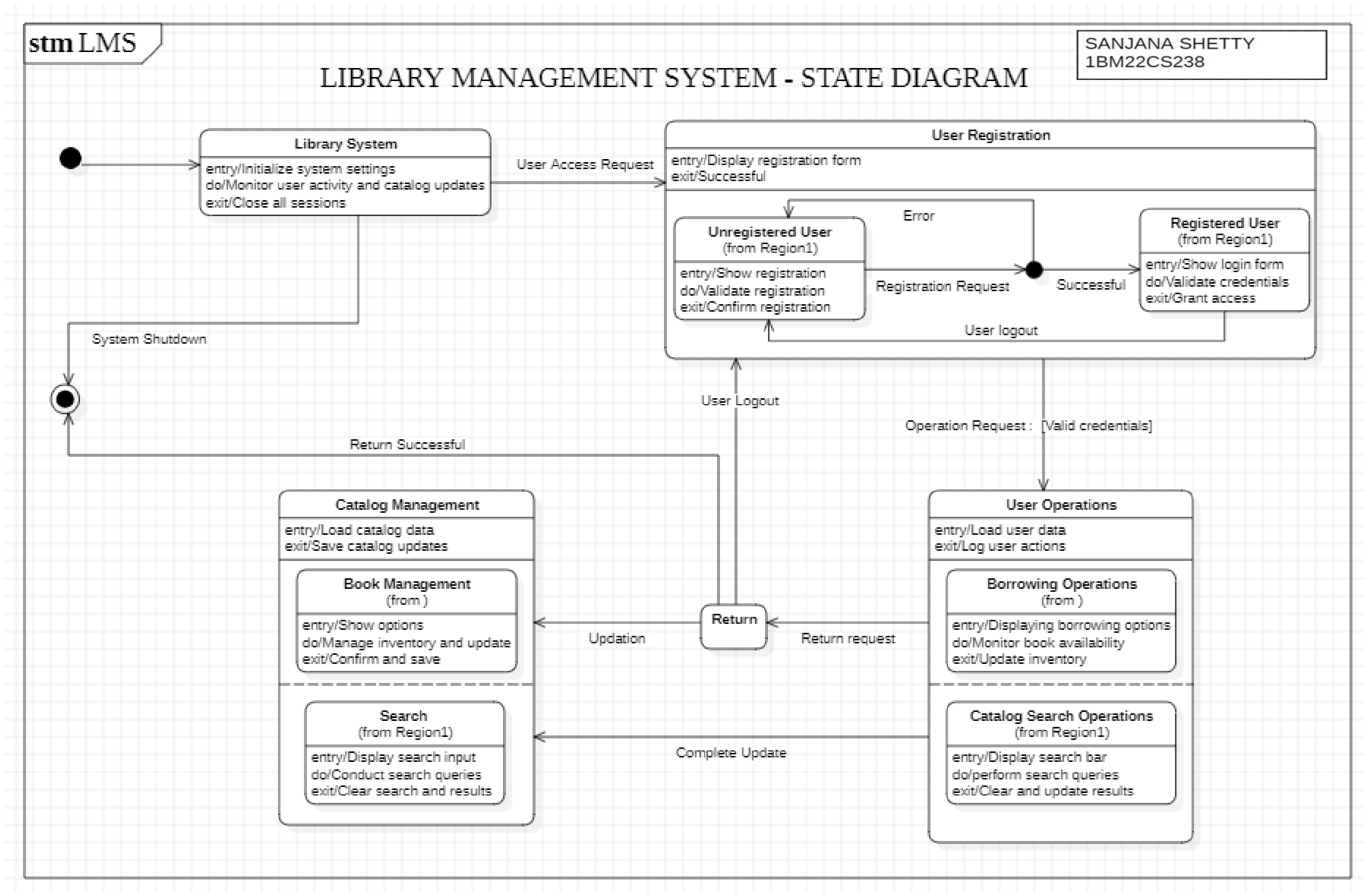
Estimated total budget : 15,00,000

CLASS DIAGRAM



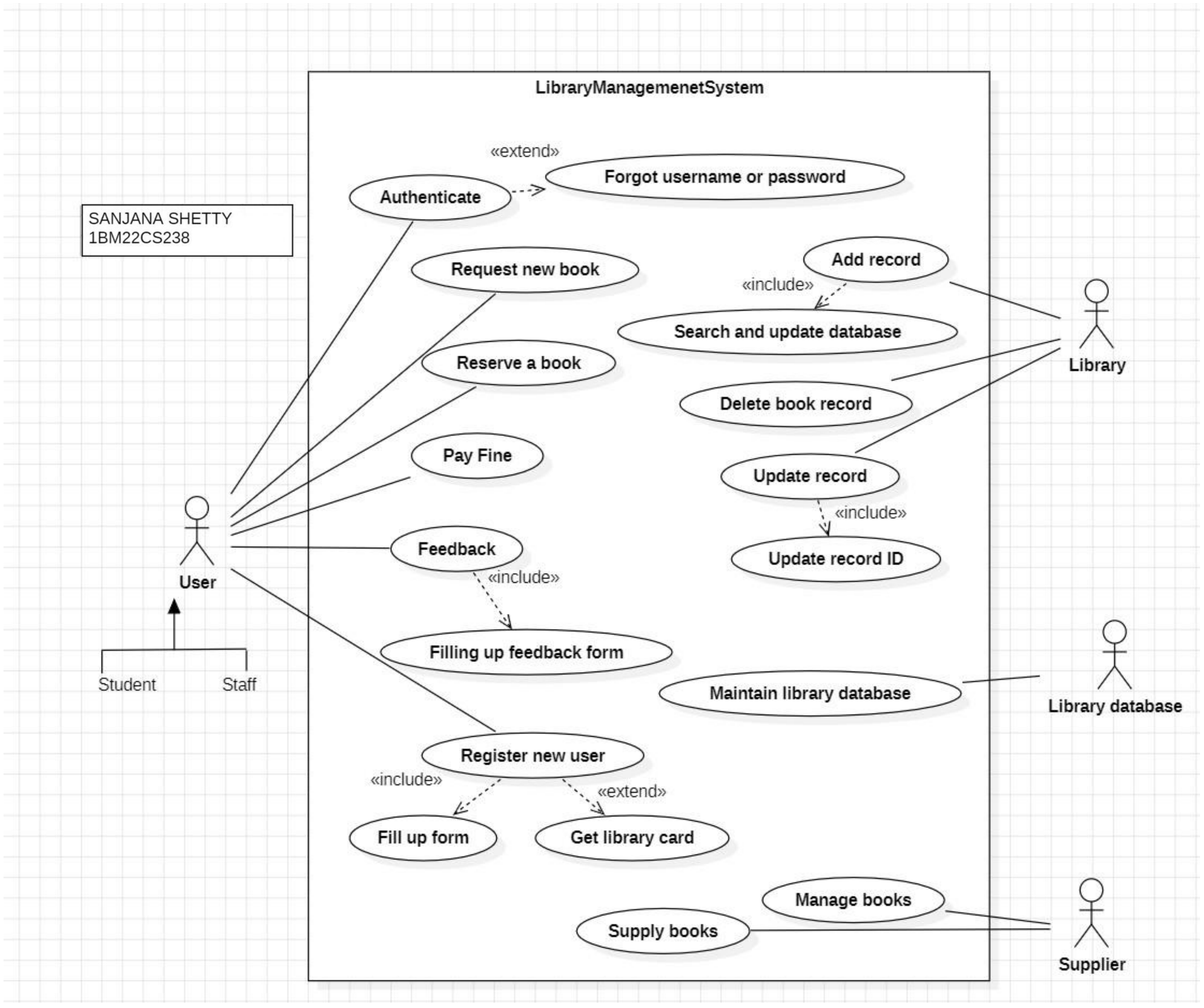
This UML class diagram illustrates the core components of a library management system. It depicts entities such as Library, Book, Member, Librarian, and their relationships. Key features include book reservations, borrowing transactions, and fine management. The diagram also includes enumerations for different member types, shifts, and statuses.

STATE DIAGRAM



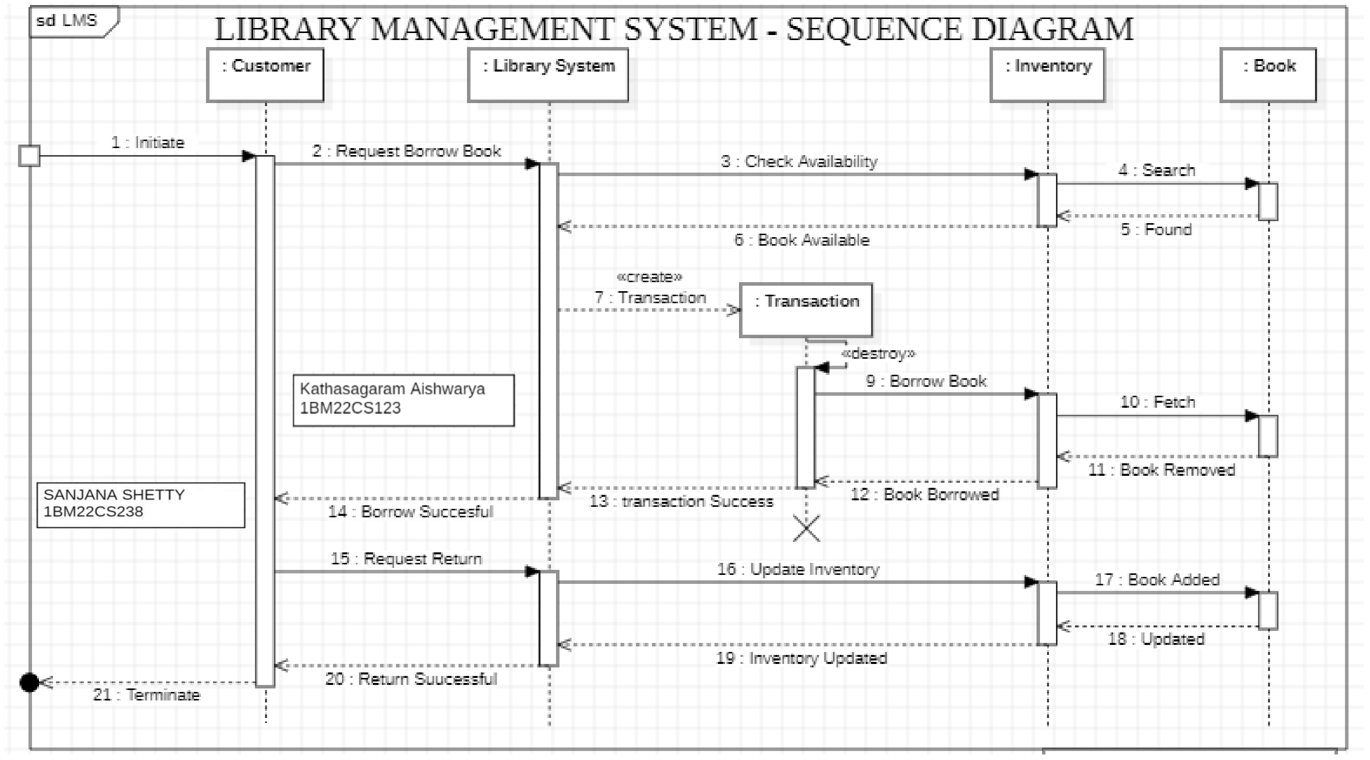
This state diagram illustrates the workflow of a library management system. It starts with the system initializing settings and monitoring user activity. Users can register and log in to access operations like catalog management, book management, borrowing operations, and catalog search. The system handles various states, including user registration, login, catalog loading, book management, search operations, and user operations. The diagram also includes error handling for unsuccessful registration or login attempts.

USE CASE DIAGRAM



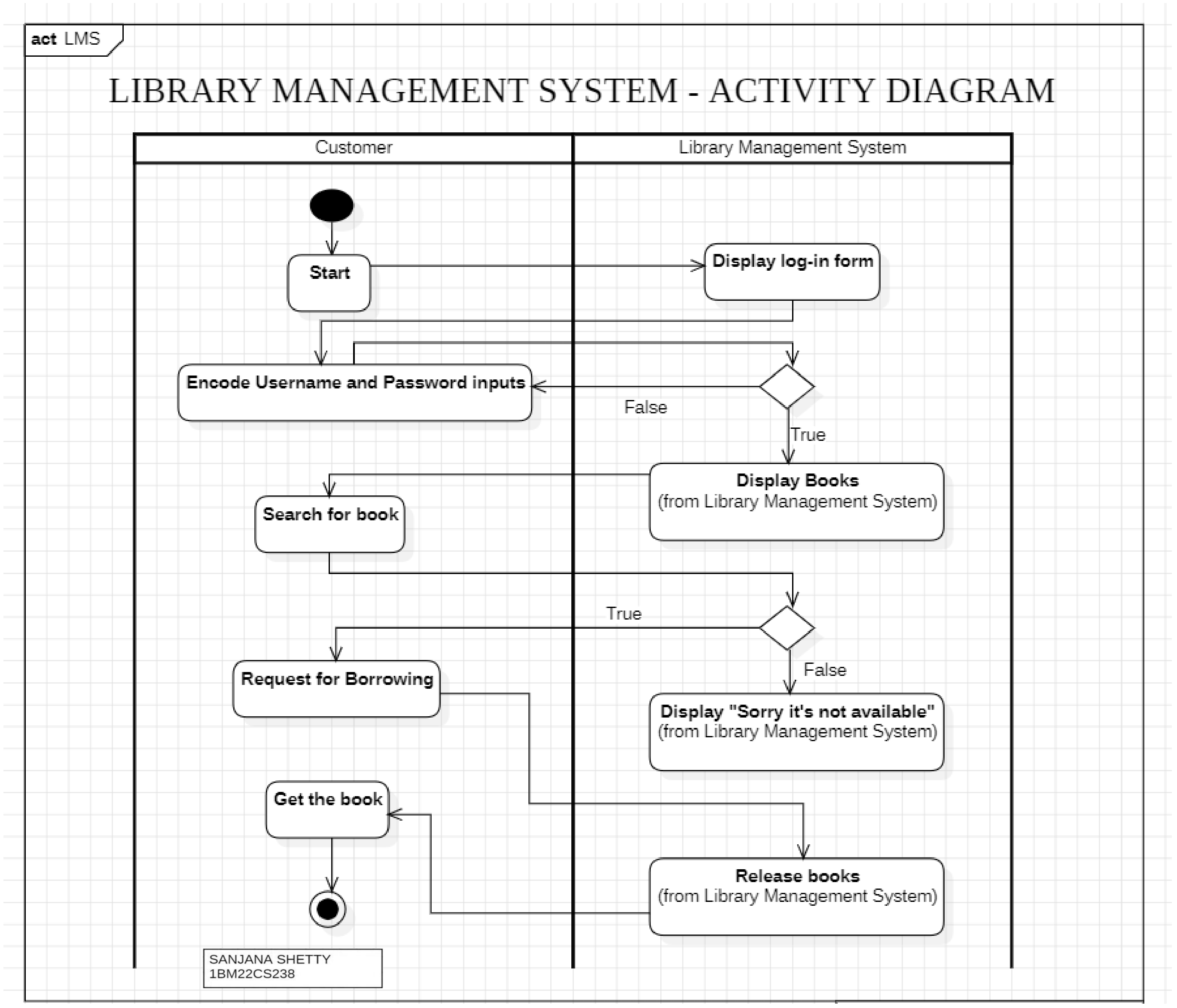
This UML use case diagram depicts the functionalities of a Library Management System. It shows how different actors, such as Users (Students and Staff), Library, Library Database, and Suppliers, interact with the system. Key use cases include Authentication, Book-related operations (Requesting, Reserving, Paying fines), Feedback, User Registration, and Library Management tasks like maintaining the database and managing books. The diagram also utilizes relationships like <<include>> and <<extend>> to represent dependencies between use cases.

SEQUENCE DIAGRAM



This sequence diagram illustrates the process of borrowing a book in a Library Management System. It shows the interactions between the Customer, Library System, Inventory, and Book objects. The sequence starts with the Customer initiating a request to borrow a book. The Library System checks the availability of the book in the Inventory. If available, a transaction is created, and the book is borrowed by the Customer. When the Customer returns the book, the Library System updates the Inventory. Finally, the process terminates.

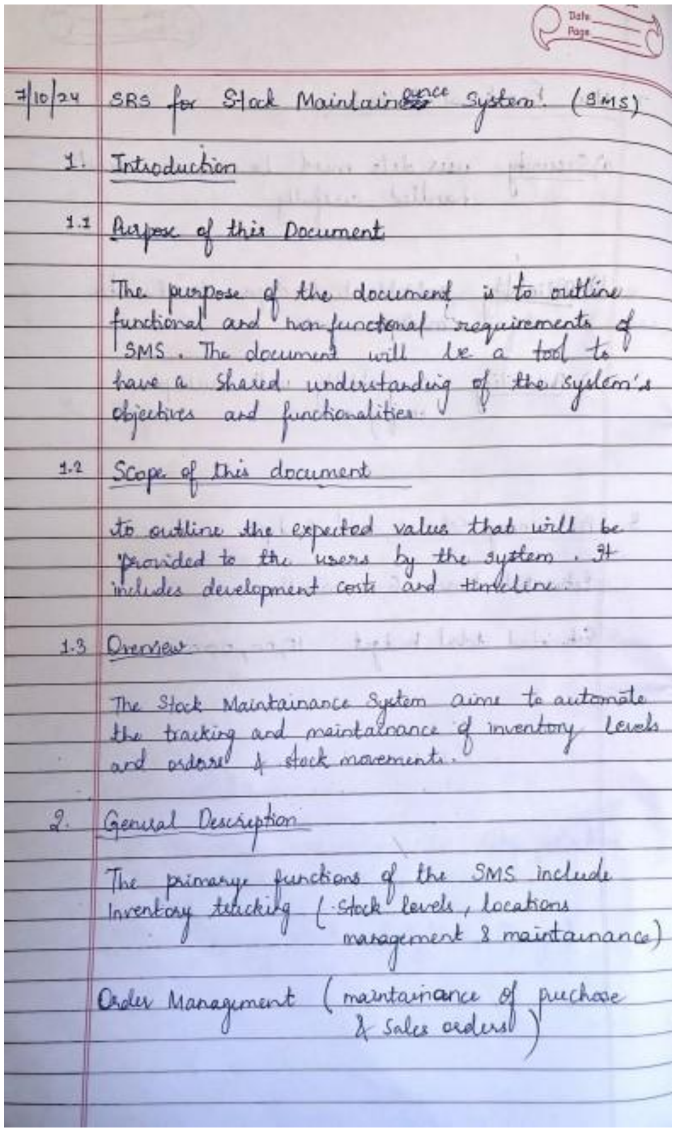
ACTIVITY DIAGRAM


act LMS
LIBRARY MANAGEMENT SYSTEM - ACTIVITY DIAGRAM
Customer
Library Management System
Start
Display log-in form
Encode Username and Password inputs
False
True
Display Books
(from Library Management System)
Search for book
True
Request for Borrowing
False
Display "Sorry it's not available"
(from Library Management System)
Get the book
Release books
(from Library Management System)
SANJANA SHETTY
1BM22CS238

This activity diagram models the process of borrowing a book in a Library Management System. It starts with the customer logging in to the system. After successful login, the customer searches for a book. If the book is available, the customer requests to borrow it. Upon approval, the customer receives the book. When the customer is done, they return the book to the library. If the book is not available during the search, the system displays a message indicating that the book is currently unavailable.

STOCK MAINTENANCE SYSTEM

SOFTWARE REQUIREMENTS SPECIFICATION (SRS)



Date
Page

7/10/24 SRS for Stock Maintain~~ance~~ance System. (SMS)

1. Introduction

1.1 Purpose of this Document

The purpose of the document is to outline functional and non functional requirements of SMS. The document will be a tool to have a shared understanding of the system's objectives and functionalities.

1.2 Scope of this document

to outline the expected values that will be provided to the users by the system. It includes development costs and timeline.

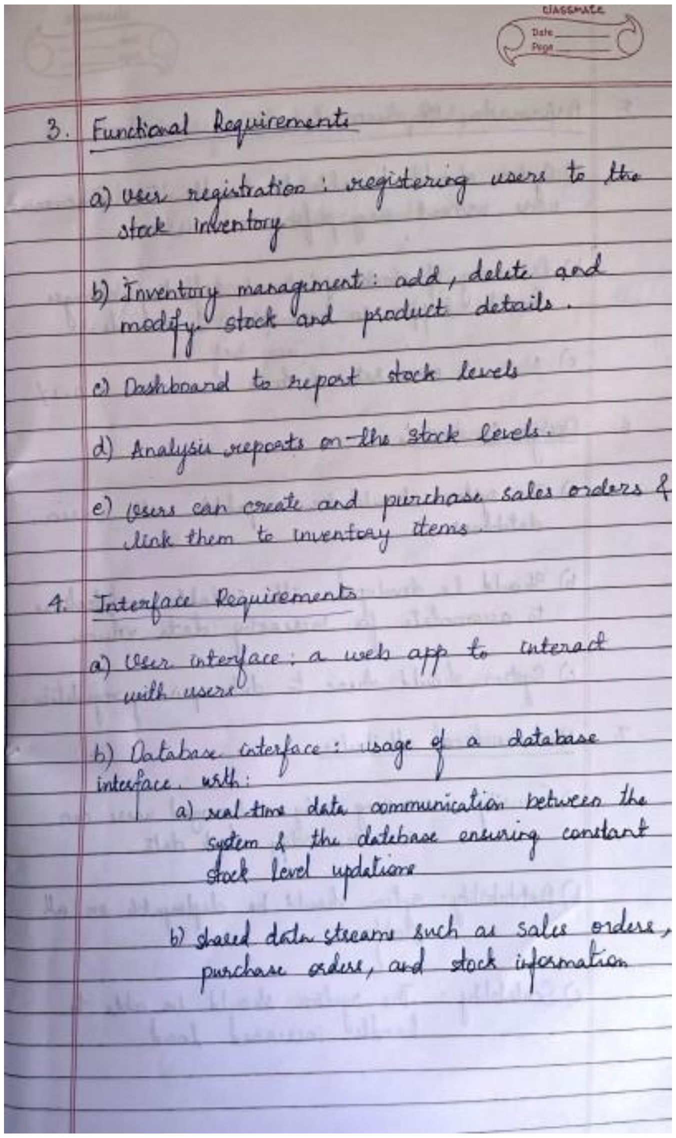
1.3 Overview

The Stock Maintainance System aims to automate the tracking and maintainance of inventory levels and orders & stock movements.

2. General Description

The primary functions of the SMS include Inventory tracking (Stock levels, locations management & maintainance)

Order Management (maintainance of purchase & Sales orders)



classmate
Date
Page

3. Functional Requirements

a) User registration : registering users to the stock inventory

b) Inventory management : add, delete and modify stock and product details.

c) Dashboard to report stock levels

d) Analysis reports on the stock levels.

e) Users can create and purchase sales orders & link them to inventory items.

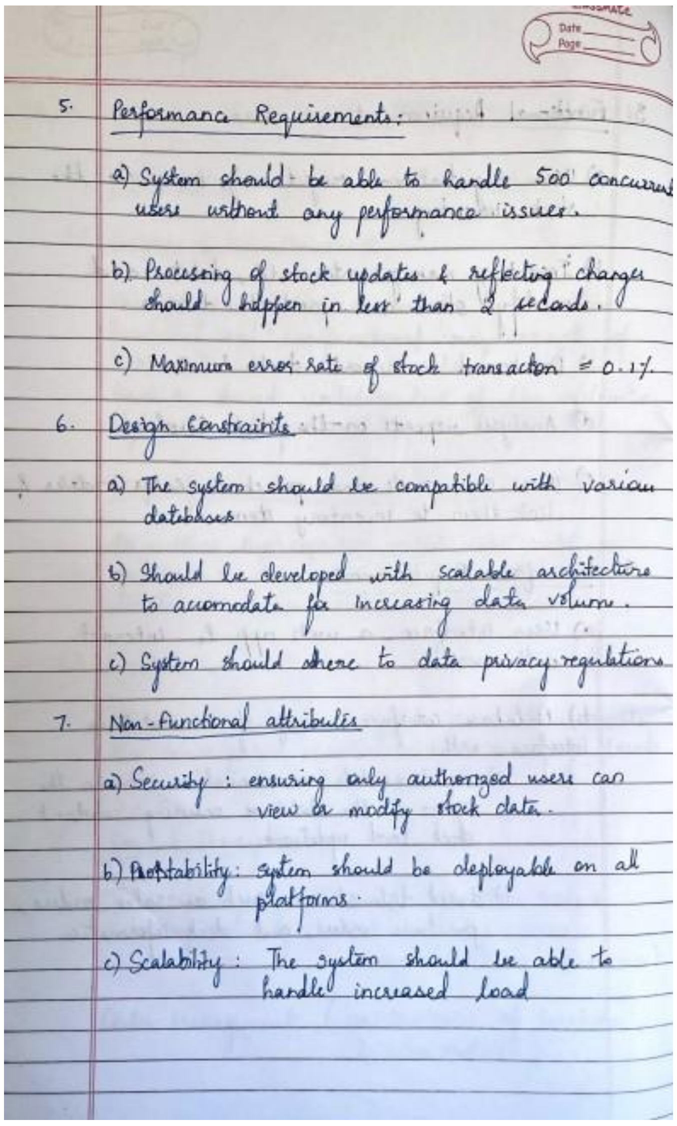
4. Interface Requirements

a) User interface : a web app to interact with users.

b) Database interface : usage of a database interface with:

a) real time data communication between the system & the database ensuring constant stock level updations

b) shared data streams such as sales orders, purchase orders, and stock information



5. Performance Requirements:

a) System should be able to handle 500 concurrent users without any performance issues.

b) Processing of stock updates & reflecting changes should happen in less than 2 seconds.

c) Maximum error rate of stock transaction ≤ 0.1%.

6. Design Constraints

a) The system should be compatible with various databases

b) Should be developed with scalable architecture to accomodate for increasing data volume.

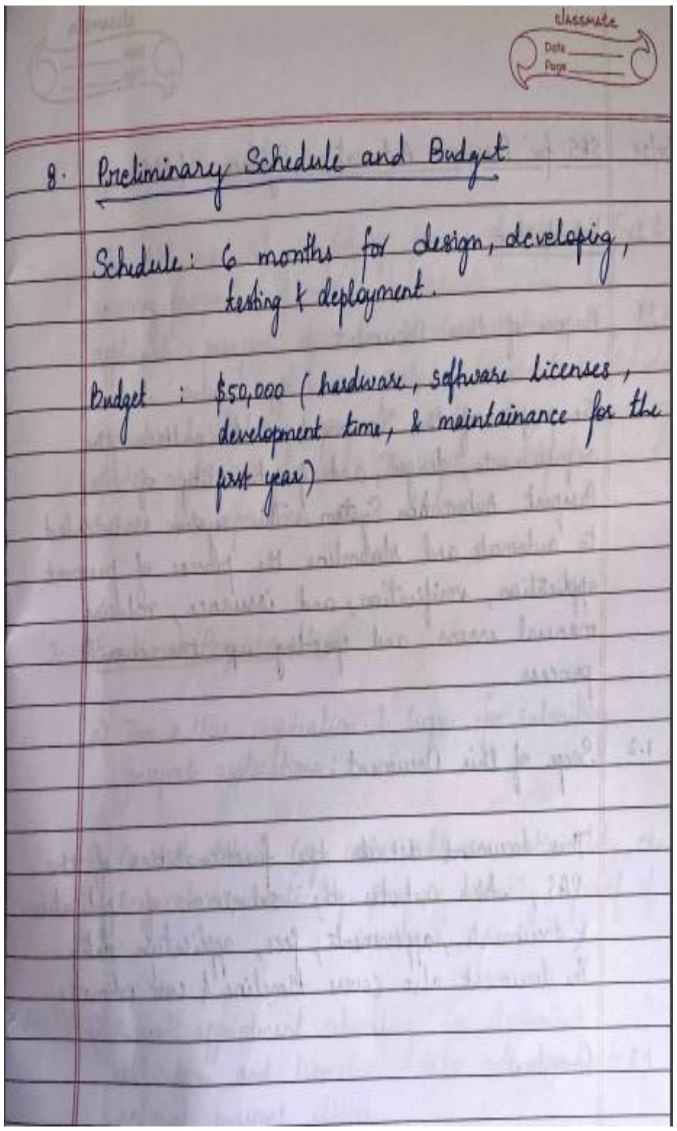
c) System should adhere to data privacy regulations.

7. Non-functional attributes

a) Security : ensuring only authorized users can view or modify stock data.

b) Portability : system should be deployable on all platforms.

c) Scalability : The system should be able to handle increased load

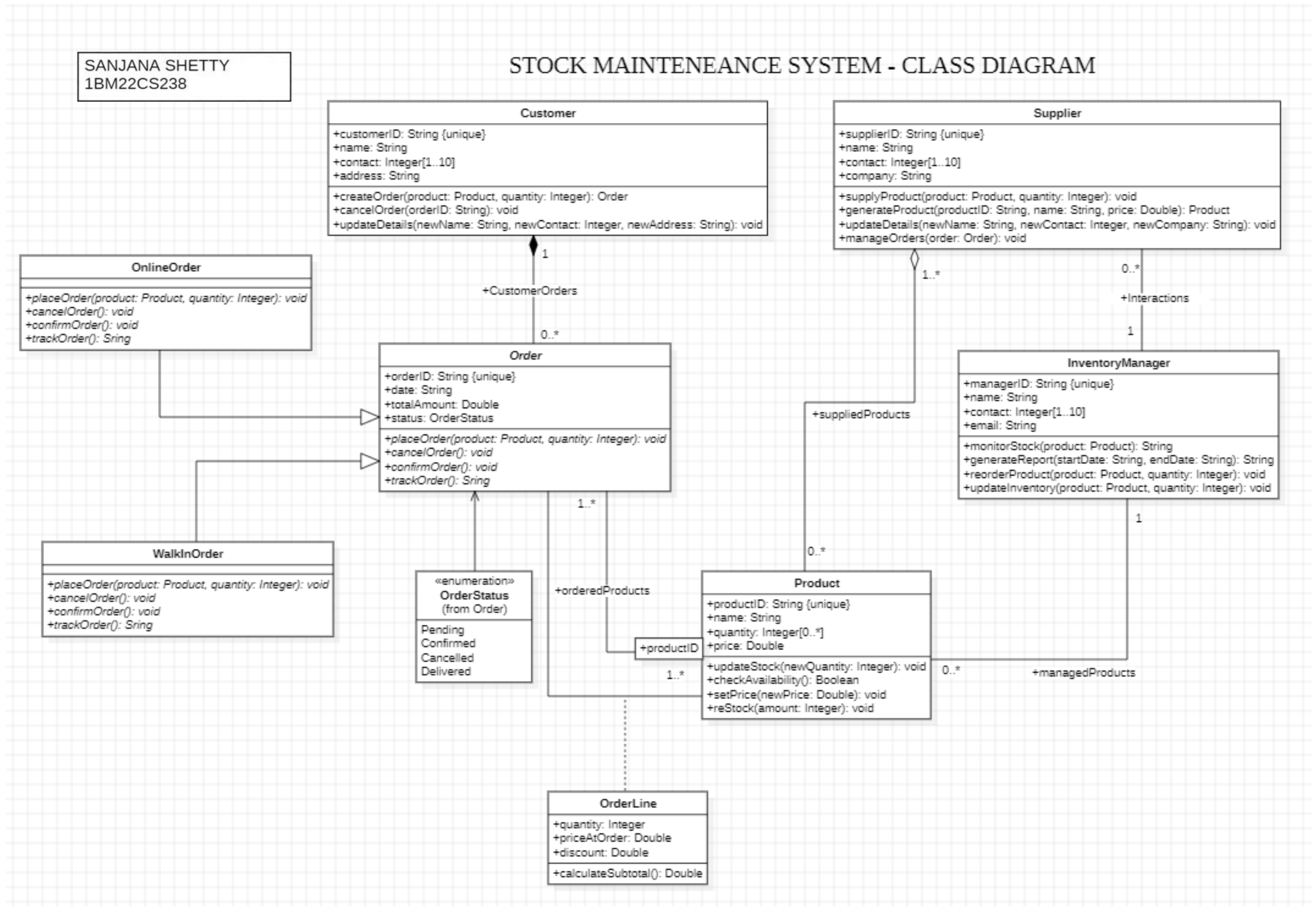


8. Preliminary Schedule and Budget

Schedule : 6 months for design, developing, testing & deployment.

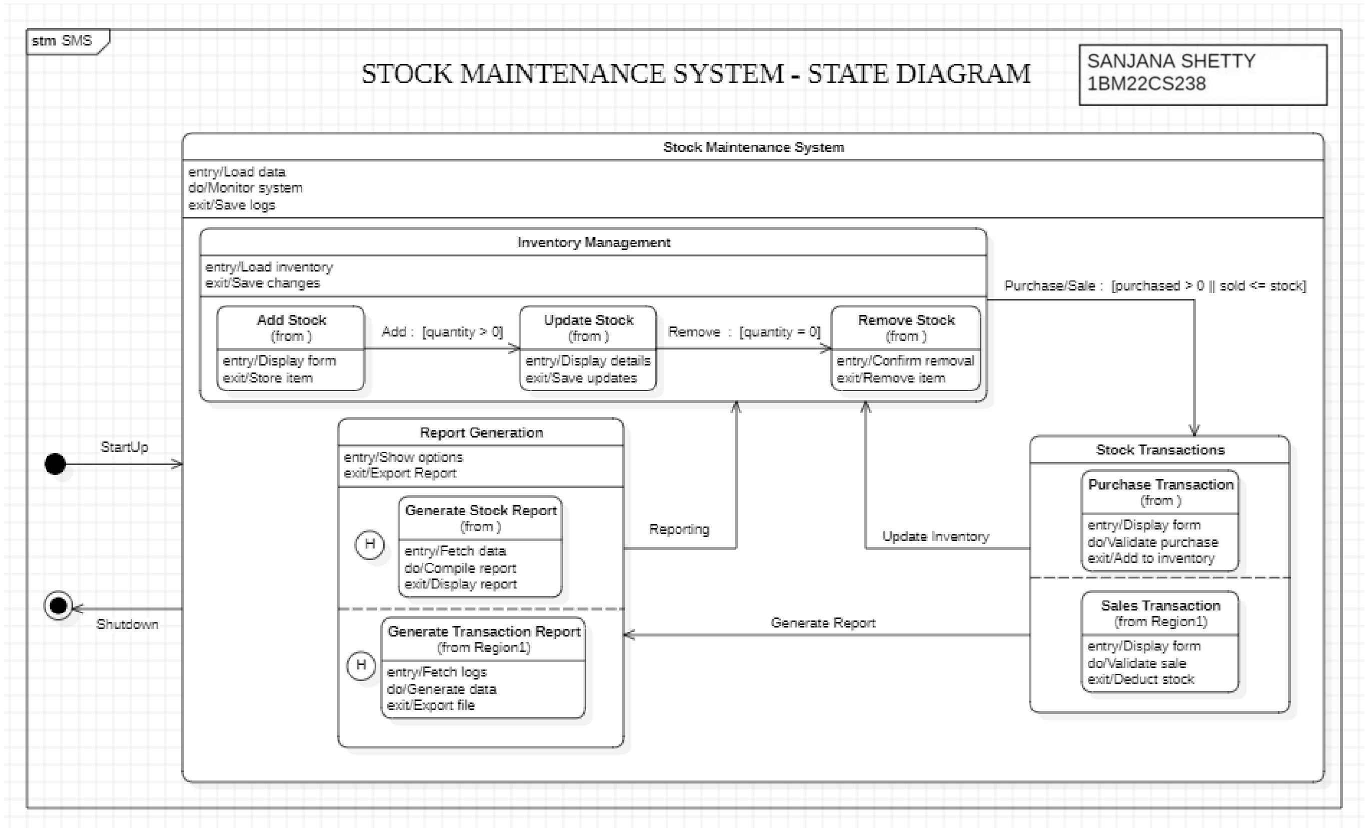
Budget : $50,000 (hardware, software licenses, development time, & maintainance for the first year)

CLASS DIAGRAM


SANJANA SHETTY
1BM22CS238
STOCK MAINTENEANCE SYSTEM - CLASS DIAGRAM
Customer
+customerID: String {unique}
+name: String
+contact: Integer[1..10]
+address: String
+createOrder(product: Product, quantity: Integer): Order
+cancelOrder(orderID: String): void
+updateDetails(newName: String, newContact: Integer, newAddress: String): void
Supplier
+supplierID: String {unique}
+name: String
+contact: Integer[1..10]
+company: String
+supplyProduct(product: Product, quantity: Integer): void
+generateProduct(productID: String, name: String, price: Double): Product
+updateDetails(newName: String, newContact: Integer, newCompany: String): void
+manageOrders(order: Order): void
OnlineOrder
+placeOrder(product: Product, quantity: Integer): void
+cancelOrder(): void
+confirmOrder(): void
+trackOrder(): Sring
1
+CustomerOrders
0..*
1..*
0..*
+Interactions
1
Order
+orderID: String {unique}
+date: String
+totalAmount: Double
+status: OrderStatus
+placeOrder(product: Product, quantity: Integer): void
+cancelOrder(): void
+confirmOrder(): void
+trackOrder(): Sring
+suppliedProducts
InventoryManager
+managerID: String {unique}
+name: String
+contact: Integer[1..10]
+email: String
+monitorStock(product: Product): String
+generateReport(startDate: String, endDate: String): String
+reorderProduct(product: Product, quantity: Integer): void
+updateInventory(product: Product, quantity: Integer): void
1..*
1
0..*
WalkInOrder
+placeOrder(product: Product, quantity: Integer): void
+cancelOrder(): void
+confirmOrder(): void
+trackOrder(): Sring
«enumeration»
OrderStatus
(from Order)
Pending
Confirmed
Cancelled
Delivered
+orderedProducts
+productID
1..*
Product
+productID: String {unique}
+name: String
+quantity: Integer[0..*]
+price: Double
+updateStock(newQuantity: Integer): void
+checkAvailability(): Boolean
+setPrice(newPrice: Double): void
+reStock(amount: Integer): void
0..*
+managedProducts
OrderLine
+quantity: Integer
+priceAtOrder: Double
+discount: Double
+calculateSubtotal(): Double

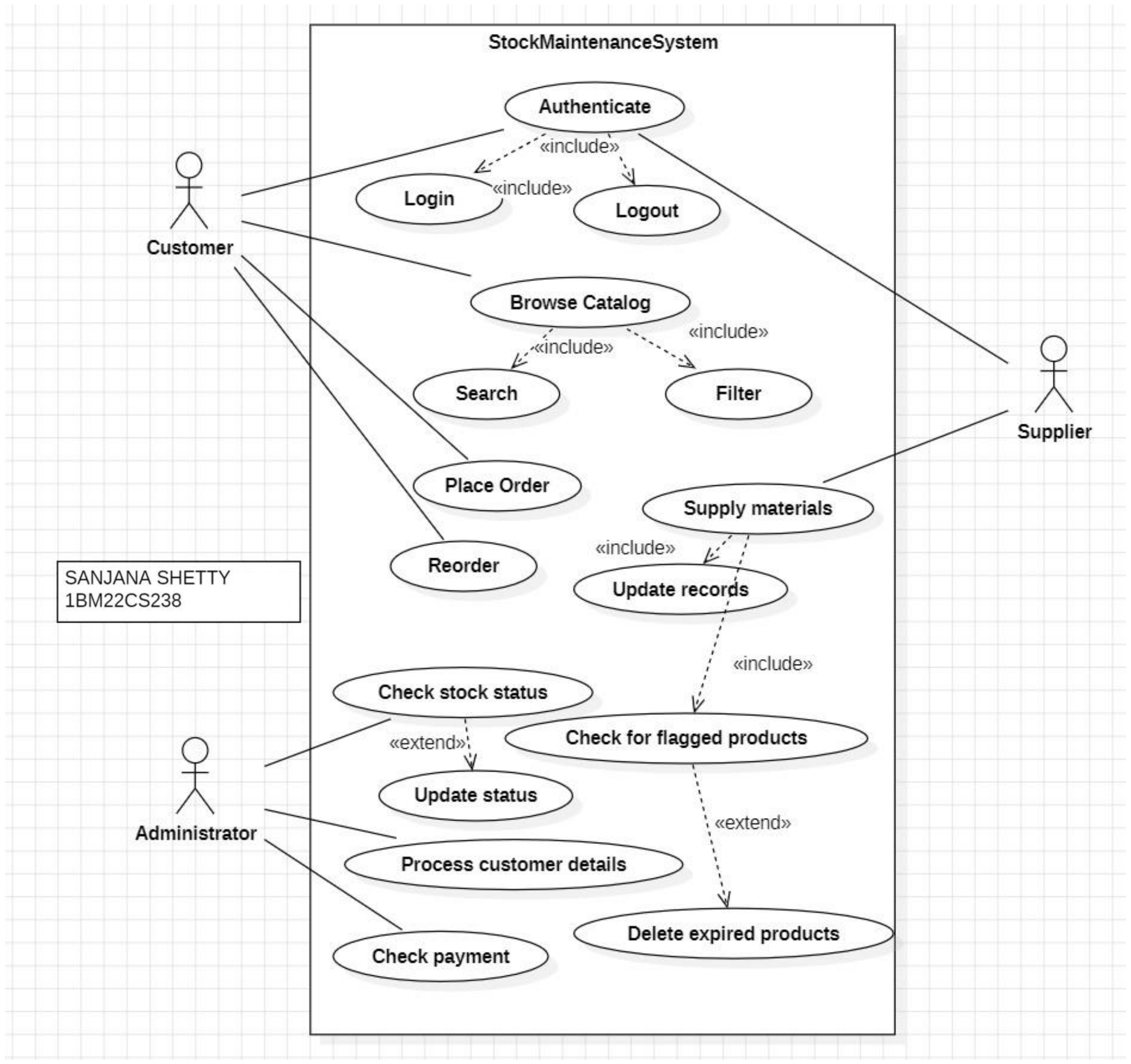
This UML class diagram illustrates the structure of a Stock Maintenance System. It depicts various entities such as Customer, Supplier, Inventory Manager, Product, and Order, along with their attributes and relationships. Key relationships include: Customers placing orders, Suppliers supplying products, Inventory Manager managing stock, and Orders involving OrderLines. The diagram also includes enumerations for OrderStatus, representing the different stages of an order. This diagram provides a high-level overview of the system's components and their interactions.

STATE DIAGRAM



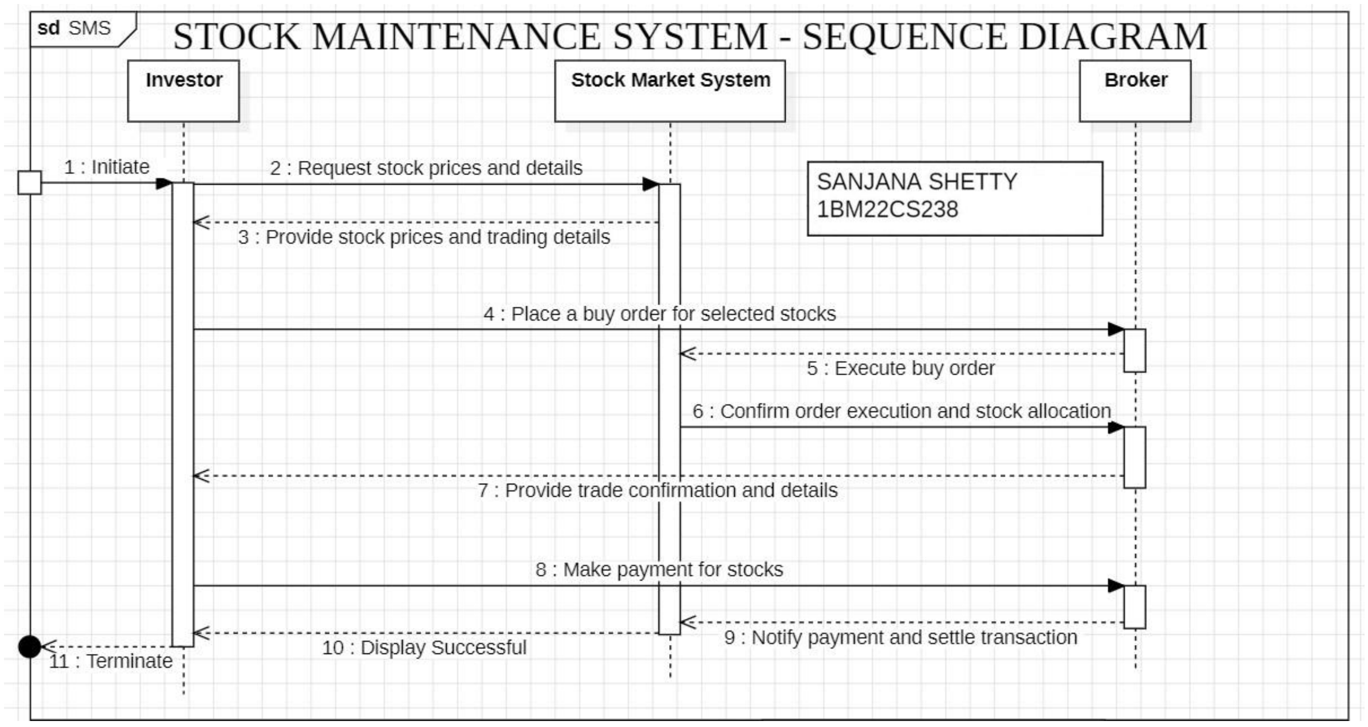
This state diagram illustrates the workflow of a Stock Maintenance System. It starts with the system loading data and monitoring operations. The system can then enter Inventory Management mode, where actions like adding stock, updating stock details, and removing stock can be performed. The system also supports Report Generation, including generating stock reports and transaction reports. The system can transition between these modes and ultimately shut down, saving logs before exiting.

USECASE DIAGRAM



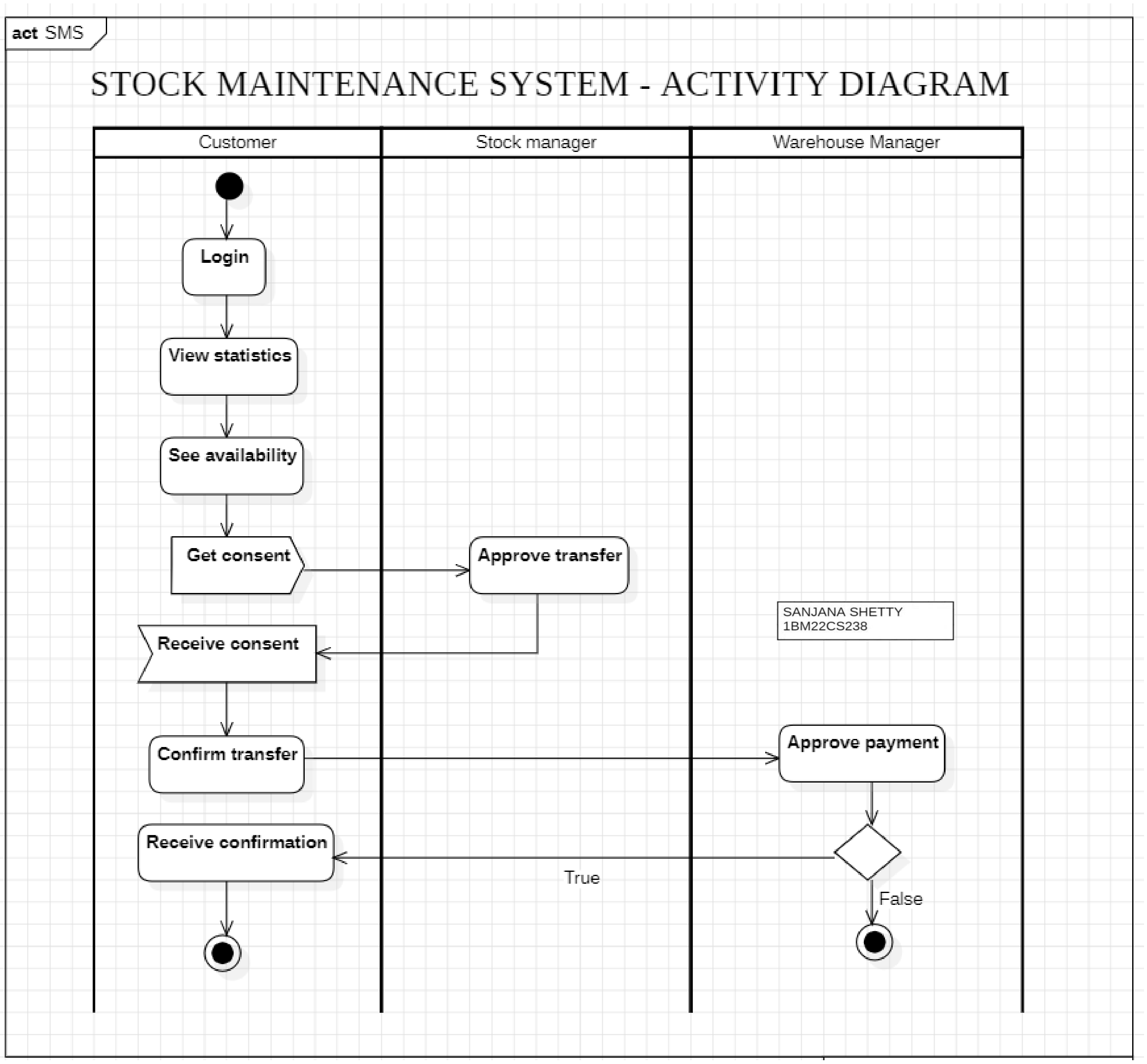
This UML use case diagram models the functionalities of a Stock Maintenance System. It shows how various actors, such as Customers, Suppliers, and Administrators, interact with the system. Key use cases include Authentication (Login and Logout), browsing and searching the catalog, placing orders, reordering, supplying materials, checking stock status, updating records, and managing flagged products. The diagram also utilizes relationships like <<include>> and <<extend>> to represent dependencies and variations between use cases.

SEQUENCE DIAGRAM


sd SMS
STOCK MAINTENANCE SYSTEM - SEQUENCE DIAGRAM
Investor
Stock Market System
Broker
SANJANA SHETTY
1BM22CS238
1 : Initiate
2 : Request stock prices and details
3 : Provide stock prices and trading details
4 : Place a buy order for selected stocks
5 : Execute buy order
6 : Confirm order execution and stock allocation
7 : Provide trade confirmation and details
8 : Make payment for stocks
9 : Notify payment and settle transaction
10 : Display Successful
11 : Terminate

This sequence diagram illustrates the process of a stock purchase transaction in a Stock Maintenance System. It shows the interactions between the Investor, Stock Market System, and Broker. The sequence starts with the Investor initiating a request for stock prices and details. The Stock Market System provides this information, and the Investor then places a buy order for selected stocks. The Broker executes the order and confirms its execution and stock allocation to the Investor. Finally, the Investor makes payment, and the transaction is settled and notified.

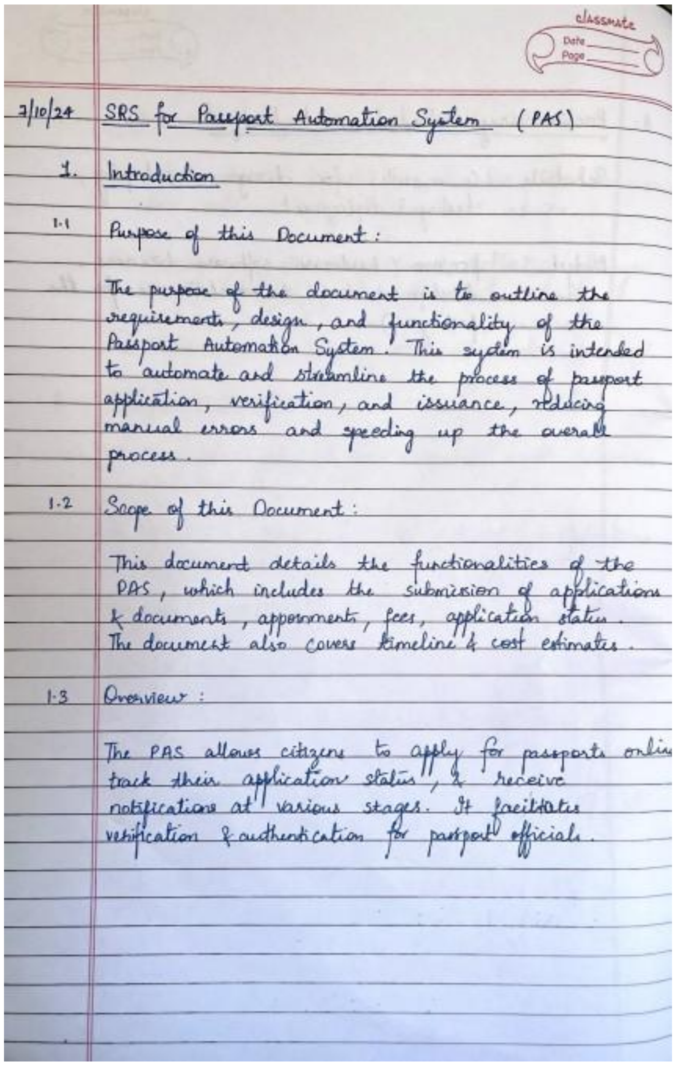
ACTIVITY DIAGRAM



This activity diagram outlines the process of transferring goods within a stock maintenance system. It involves the customer initiating the transfer request, obtaining necessary approvals from the stock manager and warehouse manager, and finally receiving confirmation upon successful transfer.

PASSPORT AUTOMATION SYSTEM

SOFTWARE REQUIREMENTS SPECIFICATION (SRS)



classmate
Date
Page

7/10/24 SRS for Passport Automation System (PAS)

1. Introduction

1.1 Purpose of this Document:

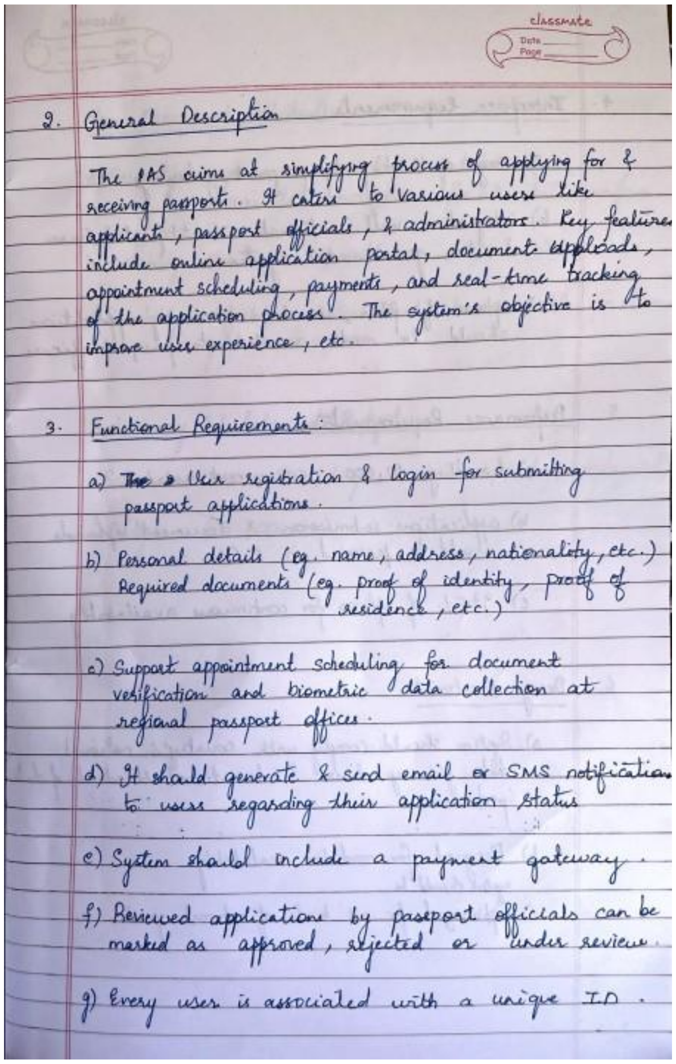
The purpose of the document is to outline the requirements, design, and functionality of the Passport Automation System. This system is intended to automate and streamline the process of passport application, verification, and issuance, reducing manual errors and speeding up the overall process.

1.2 Scope of this Document:

This document details the functionalities of the PAS, which includes the submission of applications & documents, appointments, fees, application status. The document also covers timeline & cost estimates.

1.3 Overview:

The PAS allows citizens to apply for passports online track their application status, & receive notifications at various stages. It facilitates verification & authentication for passport officials.



classmate
Date
Page

2. General Description

The PAS aims at simplifying process of applying for & receiving passports. It caters to various users like applicants, passport officials, & administrators. Key features include online application portal, document uploads, appointment scheduling, payments, and real-time tracking of the application process. The system's objective is to improve user experience, etc.

3. Functional Requirements:

a) ~~The~~ User registration & login for submitting passport applications.

b) Personal details (eg. name, address, nationality, etc.) Required documents (eg. proof of identity, proof of residence, etc.)

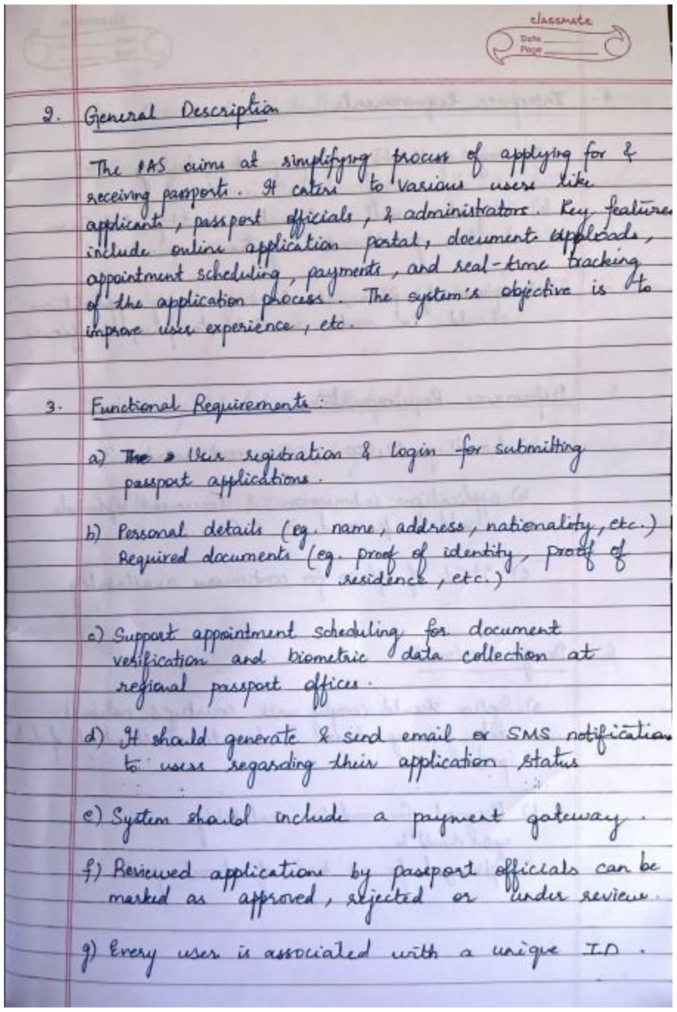
c) Support appointment scheduling for document verification and biometric data collection at regional passport offices.

d) It should generate & send email or SMS notification to users regarding their application status

e) System should include a payment gateway.

f) Reviewed applications by passport officials can be marked as approved, rejected or under review.

g) Every user is associated with a unique ID.



classmate
Date
Page

2. General Description

The PAS aims at simplifying process of applying for & receiving passports. It caters to various users like applicants, passport officials, & administrators. Key features include online application portal, document uploads, appointment scheduling, payments, and real-time tracking of the application process. The system's objective is to improve user experience, etc.

3. Functional Requirements:

a) ~~The~~ User registration & login for submitting passport applications.

b) Personal details (eg. name, address, nationality, etc.) Required documents (eg. proof of identity, proof of residence, etc.)

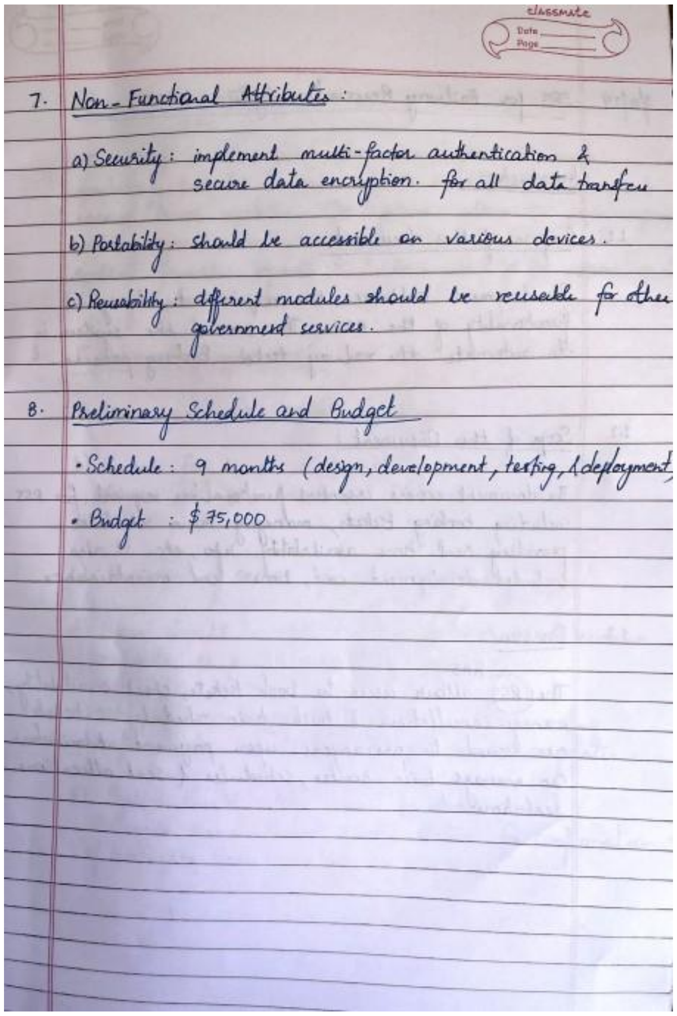
c) Support appointment scheduling for document verification and biometric data collection at regional passport offices.

d) It should generate & send email or SMS notification to users regarding their application status

e) System should include a payment gateway.

f) Reviewed applications by passport officials can be marked as approved, rejected or under review.

g) Every user is associated with a unique ID.



classmate
Date
Page

7. Non-Functional Attributes:

a) Security: implement multi-factor authentication & secure data encryption for all data transfer

b) Portability: should be accessible on various devices.

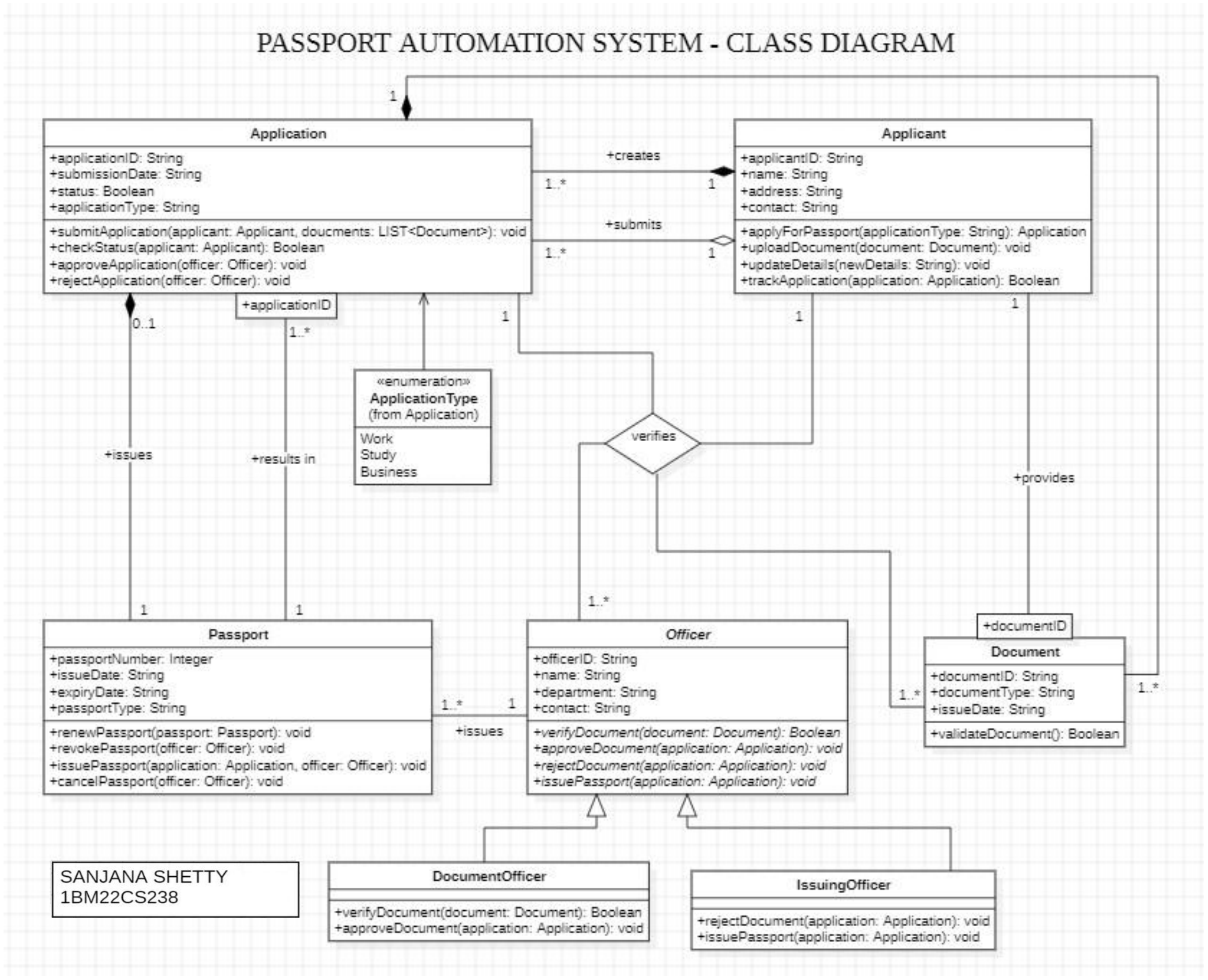
c) Reusability: different modules should be reusable for other government services.

8. Preliminary Schedule and Budget

• Schedule: 9 months (design, development, testing, & deployment)

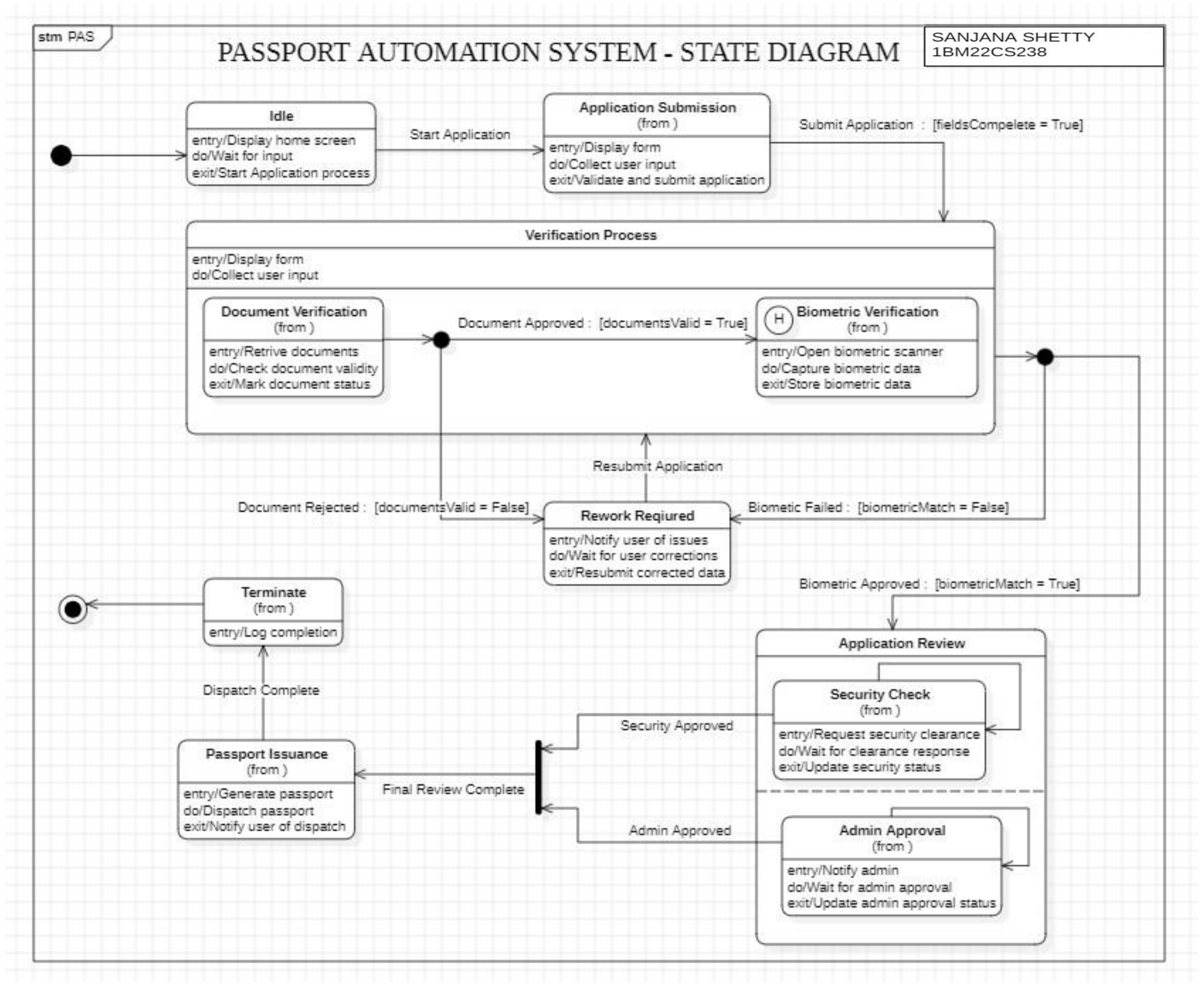
• Budget : $ 75,000

CLASS DIAGRAM


PASSPORT AUTOMATION SYSTEM - CLASS DIAGRAM
Application
+applicationID: String
+submissionDate: String
+status: Boolean
+applicationType: String
+submitApplication(applicant: Applicant, doucments: LIST<Document>): void
+checkStatus(applicant: Applicant): Boolean
+approveApplication(officer: Officer): void
+rejectApplication(officer: Officer): void
Applicant
+applicantID: String
+name: String
+address: String
+contact: String
+applyForPassport(applicationType: String): Application
+uploadDocument(document: Document): void
+updateDetails(newDetails: String): void
+trackApplication(application: Application): Boolean
+creates
+submits
1..*
1
+applicationID
0..1
«enumeration»
ApplicationType
(from Application)
Work
Study
Business
verifies
+issues
+results in
+provides
Passport
+passportNumber: Integer
+issueDate: String
+expiryDate: String
+passportType: String
+renewPassport(passport: Passport): void
+revokePassport(officer: Officer): void
+issuePassport(application: Application, officer: Officer): void
+cancelPassport(officer: Officer): void
Officer
+officerID: String
+name: String
+department: String
+contact: String
+verifyDocument(document: Document): Boolean
+approveDocument(application: Application): void
+rejectDocument(application: Application): void
+issuePassport(application: Application): void
+documentID
Document
+documentID: String
+documentType: String
+issueDate: String
+validateDocument(): Boolean
DocumentOfficer
+verifyDocument(document: Document): Boolean
+approveDocument(application: Application): void
IssuingOfficer
+rejectDocument(application: Application): void
+issuePassport(application: Application): void
SANJANA SHETTY
1BM22CS238

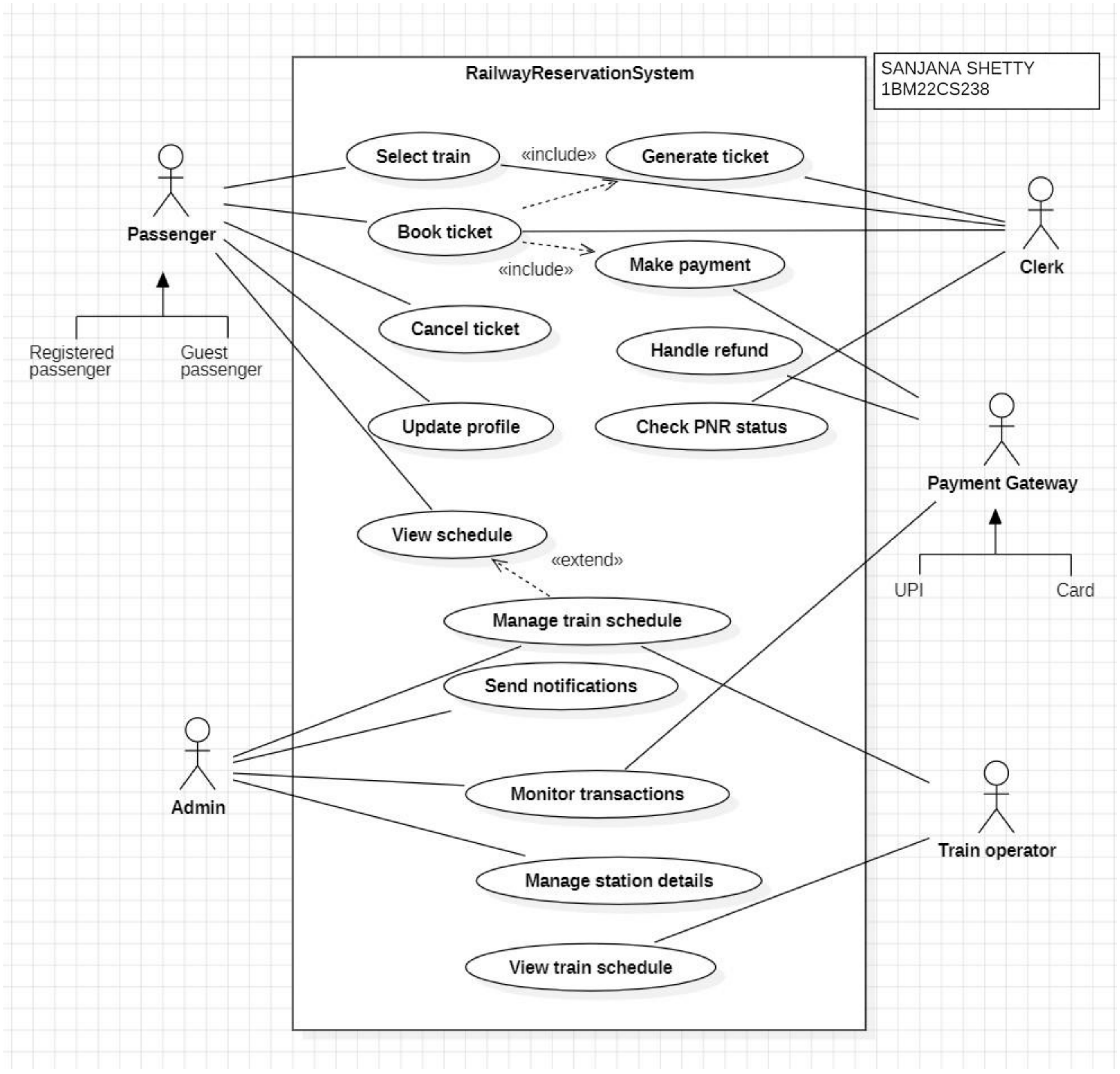
This diagram illustrates the entities involved in a Passport Automation System. It shows classes like Applicant, Application, Passport, Officer, and Document with their attributes and relationships. Key interactions include Applicants submitting applications, Officers verifying documents and approving or rejecting applications, and Issuing Officers issuing passports. The diagram also includes enumerations for Application Type and Document Type, providing a comprehensive overview of the system's components.

STATE DIAGRAM


stm PAS
PASSPORT AUTOMATION SYSTEM - STATE DIAGRAM
SANJANA SHETTY
1BM22CS238
Idle
entry/Display home screen
do/Wait for input
exit/Start Application process
Start Application
Application Submission
(from)
entry/Display form
do/Collect user input
exit/Validate and submit application
Submit Application : [fieldsCompelete = True]
Verification Process
entry/Display form
do/Collect user input
Document Verification
(from)
entry/Retrive documents
do/Check document validity
exit/Mark document status
Document Approved : [documentsValid = True]
H
Biometric Verification
(from)
entry/Open biometric scanner
do/Capture biometric data
exit/Store biometric data
Resubmit Application
Document Rejected : [documentsValid = False]
Rework Reqiured
entry/Notify user of issues
do/Wait for user corrections
exit/Resubmit corrected data
Biometic Failed : [biometricMatch = False]
Biometric Approved : [biometricMatch = True]
Terminate
(from)
entry/Log completion
Dispatch Complete
Application Review
Security Check
(from)
entry/Request security clearance
do/Wait for clearance response
exit/Update security status
Security Approved
Passport Issuance
(from)
entry/Generate passport
do/Dispatch passport
exit/Notify user of dispatch
Final Review Complete
Admin Approved
Admin Approval
(from)
entry/Notify admin
do/Wait for admin approval
exit/Update admin approval status

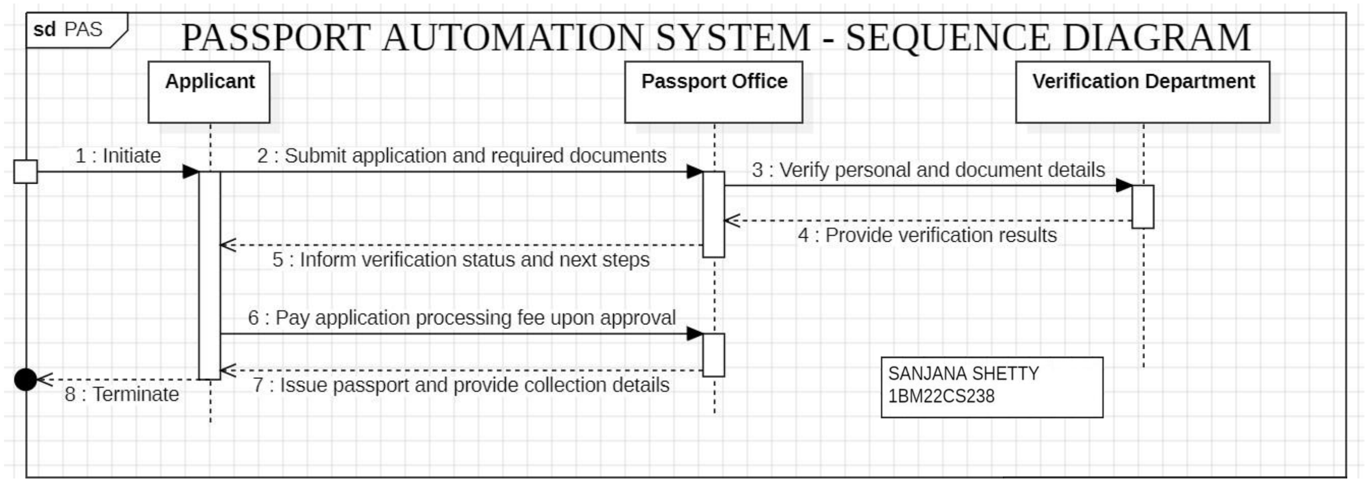
This state diagram illustrates the workflow of a Passport Automation System. It starts in an Idle state, displaying a home screen. The system transitions to the Application Submission state where the user fills out the application form. The system then verifies the application's completeness. If complete, it moves to the Verification Process, where documents are verified and biometric data is captured. Based on the verification results, the system may reject the application, require rework, or proceed to the Application Review stage. In the review stage, security checks and administrative approval are obtained. Finally, if approved, the passport is issued and the application is marked as complete.

USE CASE DIAGRAM



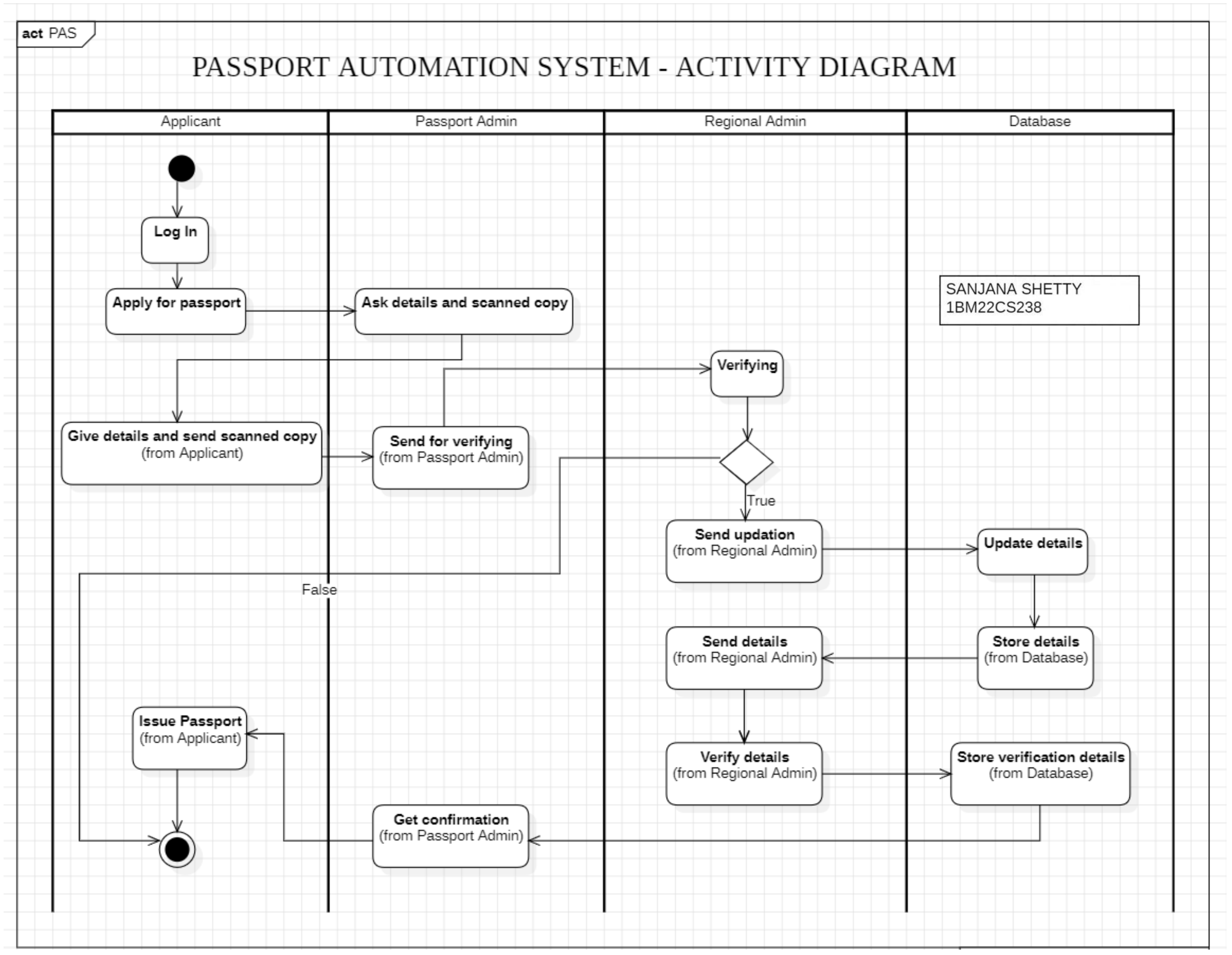
This UML use case diagram models the functionalities of a Railway Reservation System. It shows how different actors, such as Passengers (Registered and Guest), Clerk, Admin, Payment Gateway, Train Operator, and Station, interact with the system. Key use cases include booking tickets, canceling tickets, making payments, checking PNR status, viewing schedules, managing train schedules, and monitoring transactions. The diagram also utilizes relationships like <<include>> and <<extend>> to represent dependencies and variations between use cases.

SEQUENCE DIAGRAM


sd PAS
PASSPORT AUTOMATION SYSTEM - SEQUENCE DIAGRAM
Applicant
Passport Office
Verification Department
1 : Initiate
2 : Submit application and required documents
3 : Verify personal and document details
4 : Provide verification results
5 : Inform verification status and next steps
6 : Pay application processing fee upon approval
7 : Issue passport and provide collection details
8 : Terminate
SANJANA SHETTY
1BM22CS238

This sequence diagram illustrates the process of a passport application in a Passport Automation System. It shows the interactions between the Applicant, Passport Office, and Verification Department. The sequence begins with the Applicant initiating the process by submitting the application and required documents. The Verification Department verifies the details and informs the Passport Office of the results. Upon approval, the Applicant pays the processing fee. Finally, the Passport Office issues the passport and provides collection details, concluding the process.

ACTIVITY DIAGRAM


act PAS
PASSPORT AUTOMATION SYSTEM - ACTIVITY DIAGRAM
Applicant
Passport Admin
Regional Admin
Database
SANJANA SHETTY
1BM22CS238
Log In
Apply for passport
Ask details and scanned copy
Verifying
Give details and send scanned copy (from Applicant)
Send for verifying (from Passport Admin)
True
False
Send updation (from Regional Admin)
Update details
Send details (from Regional Admin)
Store details (from Database)
Issue Passport (from Applicant)
Verify details (from Regional Admin)
Store verification details (from Database)
Get confirmation (from Passport Admin)

This activity diagram illustrates the workflow of a Passport Application process in a Passport Automation System. It starts with the Applicant logging in and applying for a passport. The Passport Admin then asks for details and scanned copies of documents. The Applicant provides the details and sends the scanned copies. The Passport Admin sends the details to the Regional Admin for verification. If the Regional Admin verifies the details, they are updated in the database. If not verified, the Regional Admin sends the details back to the Passport Admin, who then verifies them and stores the verification details in the database. Finally, the Applicant issues the passport and receives confirmation from the Passport Admin.