Q1 Develop a complete IEEE standard SRS document with several equipments.

HOTEL MANAGEMENT SYSTEM

1. Introduction :-

(a) Purpose :-

This document outlines the functional and non-functional requirements for the Hotel Management System. It will serve as a guide for developers, testers and stakeholders to understand the expected features and performance of the system. The goal is to automate hotel operations and improve customer service.

(b.) Document Conventions :-

All headings are bold and properly numbered for easy reference.
Requirements are labeled as Functional, Non-functional, External Interface.
Standard English is used throughout for clarity.

(c.) Intended Audience and Reading Suggestions

The SRS document intended for developers, testers, project managers and hotel administrators. Developers should focus on requirements, testers on functionality and interfaces while managers

Date / /
Page 2

and clients may focus on scope and user roles.

(d) Project Scope :-

The HMS will manage hotel operations such as reservations, room availability, customer check-in, check out, staff billing.

(e) References :-

- IEEE 830 Software Requirements specification standard.
- My SQL and Java Swing documentation
- API's for online payment and mail notification

2. Overall Descriptions :-

(A) Product Perspective :-

The HMS is standalone application but maybe extended to integrate with payment gateways and email services. It is intended for both local use and online access.

(B) Product functions :-

Main functions include room reservation, check-in/checkout, billing, report generation and housekeeping status tracking. It also allows admin-level control for staff management.

(c) User Classes and Characteristics :-
- Administrator :- Full access to all modules and data
- Receptionist :- Can manage manage bookings and billings
- Housekeeping staff :- Can view and update room cleaning status
- Customer :- Can book rooms online

(d) Operating Environment :-
The system will run on windows. It uses MySQL for backend and Java for frontend, web components should be compatible with modern browsers.

(e) Design and Implementation Constraints :-
It must be scalable, secure and support integration with external services. The system should use only open source technologies.

(f) User Documentation :-
User guides and admin guides will be provided. These will be include system navigation, features, FAQ's and troubleshooting.

(g) Assumptions and Dependencies :-
Assumes users have basic computer knowledge. Online features depend on internet availability. The system also depends on correct setup of hosting environment.

(3) Specific Requirements :-

(a) Functional Requirements :-
- Users can book, modify and cancel reservations
- Receptionist manage check-ins and check-outs
- System generates and prints bill.
- Admin can add/edit rooms and view reports
- Email confirms are sent after booking.

(b) Non-functional Requirements :-
- System should respond within 2 seconds.
- 99.9% uptime is expected.
- Secure login and encrypted data structure
- Must support atleast 20 users at the same time
- Should be user friendly and fast

(c) External Interface Requirements :-
- GUI for admin, staff and customers
- Integration with payment gateways
- Email servers for sending notification
- optional barcode scanner support at reception

(d) Appendices :-
- Glossary of terms used in HMS
- Screenshot mockups and interfaces
- Use Case, ER and DFD diagrams
- sample test case for each page

Date 19/8/25
Page 5

2 CREDIT CARD PROCESSING

1. Introduction :-

(a) Purpose :- This system securely processes credit card payments, including validation, authorization, fraud check and transaction recording. It ensures fast, reliable and compliant payment handling.

(b) Document Conventions :-
Follows IEEE 830 format using clear section numbering and labels like Functional Requirements, Non-functional and external interface. Language is simple and consistent

(c) Intended Audience :-
For developers, testers, security analysts each should focus on relevant sections like requirement and performance criteria.

(d) Project Scope :-
The system handles online and offline credit card transactions, detects fraud, validate card details.

(e) References :-
- IEEE 830
- PCI DSS guidelines
- VISA / Mastercard API docs
- ISO smart card standards

2. Overall Description :-

a) Product Perspective :-
Acts as middleware between merchants, banks and card networks. Integrates with payment gateways for secure transactions.

b) Product Functions :-
Performs card validation, payment approval, fraud detection, transaction logging and reporting.

c) User Classes :-
Merchant : Initiates and monitors transactions
Cardholder : Makes payment
Admin : Manages users and logs
Security Team : Monitors and fraud alerts

d) Operating environment :-
Runs on secure with HTTPS, supports web/mobile/POS system and using encrypted connections.

e) Implementation constraints :-
Can't store sensitive card data without compliance. Must integrate with API's from banks and card networks and ensure high performance.

f) User Documentation :-
Includes guides for merchants, admin panels, API integration and security

(g) Assumptions :-
Requires internet, verified users and third party fraud detection systems for smooth operations.

3. Specific Requirements :-
Note

(a) Functional Requirements :-
Validate card details and approve/reject payments
Record transactions and notify users.
Block suspicious activity.
Provide summary reports.

(b) Non-functional Requirements :-
Response time less than 3 seconds.
System should be available 24/7 with 99.9% uptime
End to end encrypted data transmission
Scalable to handle peak load traffic

(c) External Interface Requirements :-
Integration with banking gateaway APIs
GUI dashboards for merchants and admins
Communication via secure sockets
Support web and mobile interface.

4. Appendices :-
Glossary, use case and sequence diagrams for transactions, API request format examples, Sample test case and validation criteria.

Date / /
Page 10

3 STOCK MAINTENANCE SYSTEM

1 Introduction :-

(a) Purpose :- to manage and track stock digitally with real time updates

(b) Conventions :- "Shall" used for mandatory requirements

(c) Intended audience :- Managers, Developers, Testers, Staff

(d) Scope :- Automates stock tracking, reporting and alerts

(e) References :- IEEE 830, Inventory guidelines

2 Overall Description :-

(a) Perspective :- Standalone, future integration with POS

(b) Functions :- Add / Delete / update items, stock alerts, reports, search / filters

(c) Users :- Admin (full control), Staff (update / report), Viewer

(d) operating environment :- Windows / Linux, MySQL, DB, Desktop.

(e) Design and implementation constraints :- Relational DB, security policies, LAN/WAN access.

(f) User Documentation :- User manual, online help.

(g) Assumptions and Dependencies :- Users are computer-literate. data entered correctly

3. Specific Requirements :-

(a) Functional Requirements :-
The system manages stock by adding, updating, deleting items, showing real time availability, generating low-stock alerts, reports and keeping transaction logs with role based access.

(b) Non Functional Requirements :-
It ensures fast response and scalability upto 10,000 items, security with encryption, user friendly design, high uptime and easy maintanance.

(c) External Interface Requirements :-
The system provides GUI with dash-boards, connects to database like SQL works on standard OS, communicates

Date __/__/__
Page 10

via LAN/WAN and supports future POS integration.

(d) Appendices:

Glossary: stock, report, Threshhold
Future enhancements: Mobile app, barcode scanner, auto supplier ordering.

Date __/__/__
Page 4

4. PASSPORT AUTOMATION SYSTEM

1. Introduction :-

(a) Purpose :- the system automates passport application, verification and issuance online to reduce delay and manual work.

(b) Document conventions :- All requirement should use "shall", categories are functional, non-functional and interface

(c) Intended audience and reading suggestion :- Applicants, govt officials, developers, tester and managers

(d) Project Scope :- The system enables online applications, payment, tracking verification and final passport delivery

(e) References :- IEEE Std 830, official govt e-Governance policies and existing passport guidelines

2. Overall Description :-

(a) Product Perspective :- A web based solution replacing manual process designed for integration with govt databases.

(b) Product Functions: Users apply online upload documents, pay fees, schedule appointments, track status and officials issue passports

(c) User classes and characteristics Applicants submit request; verifies check and approve document and admin control the system

(d) Operating Environment: Works on windows/LINUX servers with MYSQL, DB, accessible via common browsers

(e) Design and implementation constraints Must follow govt. data protection, security standards and handle large user traffic

(f) User Documentation: Provides user manuals, online help and FAQ's for applicants

(g) Assumptions and Dependencies: Users have internet access and valid documents, system depends on secure payment methods

(3) Specific Requirements :-

(a) Functional Requirements :- Applicants, can register, apply, upload, pay, track applications while officials verify update and issue passports

(b) Non-Functional Requirements :-
The system shall be fast, secure, reliable, scalable and easy to use

(c) External Interface Requirements :-
Provides browser based GUI, connects to databases, integrate with payment verification system over internet / LAN.

Appendices :-

Glossary : Applicant = citizen user, verifier = govt officer, status = current stage

Future Enhancements :- integration with mobile app, biometric verification and fraud detection

Date __/__/__
Page 44

5. LIBRARY MANAGEMENT SYSTEM

1. Introduction :-

(a) Purpose :- the system automates library operations including book issue, return, cataloging and member management to save time, reduce errors

(b) Document Conventions :- All req. should use "shall", categories are functional, non-functional and External interfaces

(c) Intended audience and Reading suggestion Librarians, students, faculty, developers, testers and managers

(d) Project Scope :- the system manages book records, member accounts, transactions and generate reports

(e) References :- IEEE std 830, library automation standard, and institutional library guidelines

2. Overall Description :-

(a) Product Perspective :- A standalone solution replacing manual registers with options for future integration

Date / /
Page 15

(b) Product functions: Allows adding, removing books, issuing, returning generating reports and provide search functionality.

(c) User classes and characteristics:-
Librarians manages books and members students borrow book and admin sees the system.

(d) operating environment: Works on windows / LINUS with MYSQL DB and accessible via web browsers.

(e) Design implementation constraints:
Must ensure data consistency, prevent issues of same copy and follow institutional policies.

(f) User Documentation: Includes manuals for staff, FAQ's for students and training guides.

(g) Assumptions and Dependencies:
Users should have valid accounts, system depends on reliable database and network connection.

3. Specific Requirements:-

(a) Functional Requirements: The system should allow book issue / return, manage due dates and fines,

and generate usage reports

(b) Non-functional Requirements :-
It shall provide responses within 2 sec, ensure security, maintain 99% uptime and user friendly interface

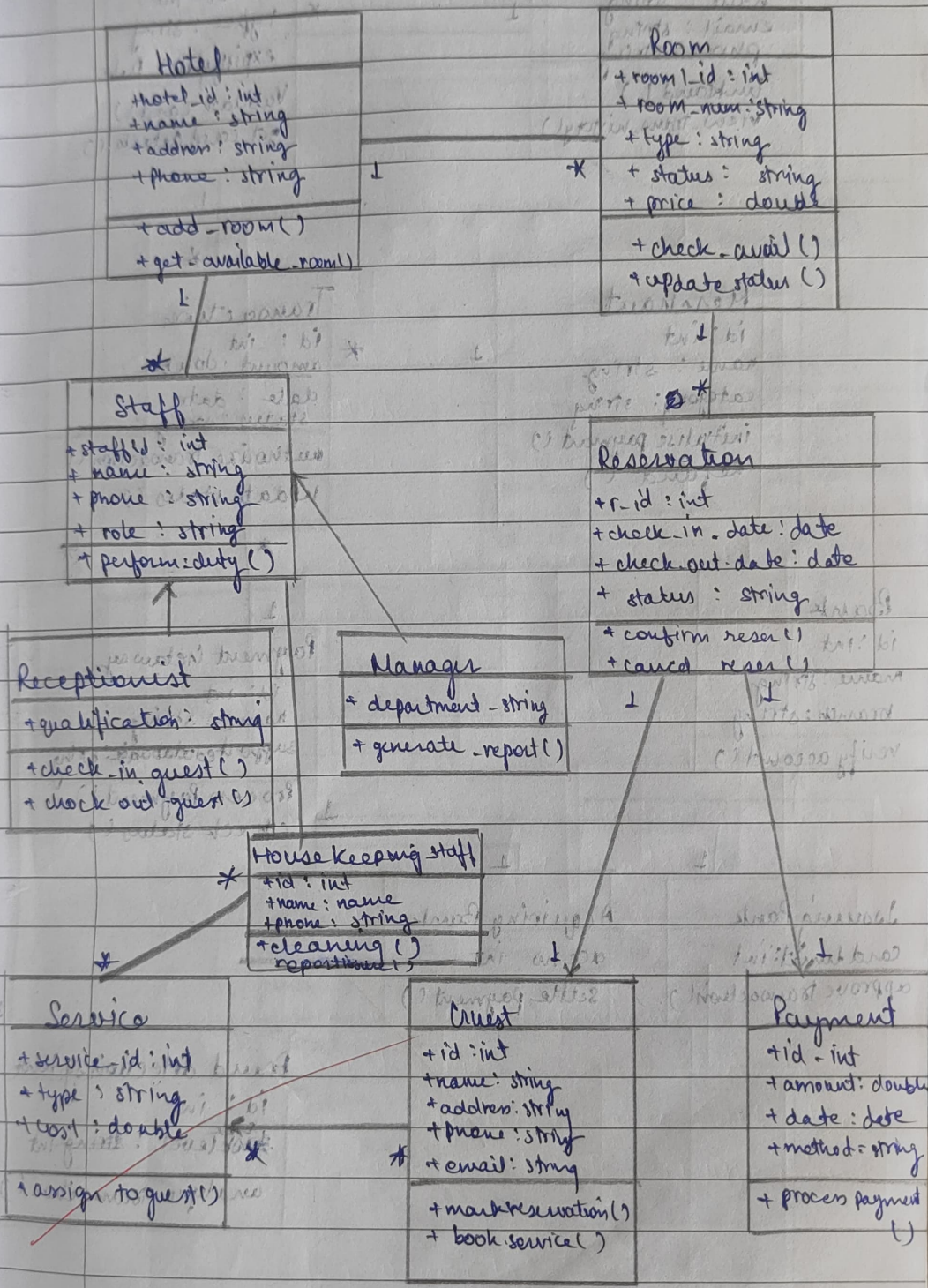
(c) External Interface Requirements :-
Provides a GUI with search and menus, connects to relational databases and communicates over LAN / Internet of offline

Appendices :-
Glossary : Member = student / faculty ;
Librarian : staff, transaction = issue / return
future enhancement : Barcode support, e-book access, mobile app, auto fine payment

Date 2/9/25
Page

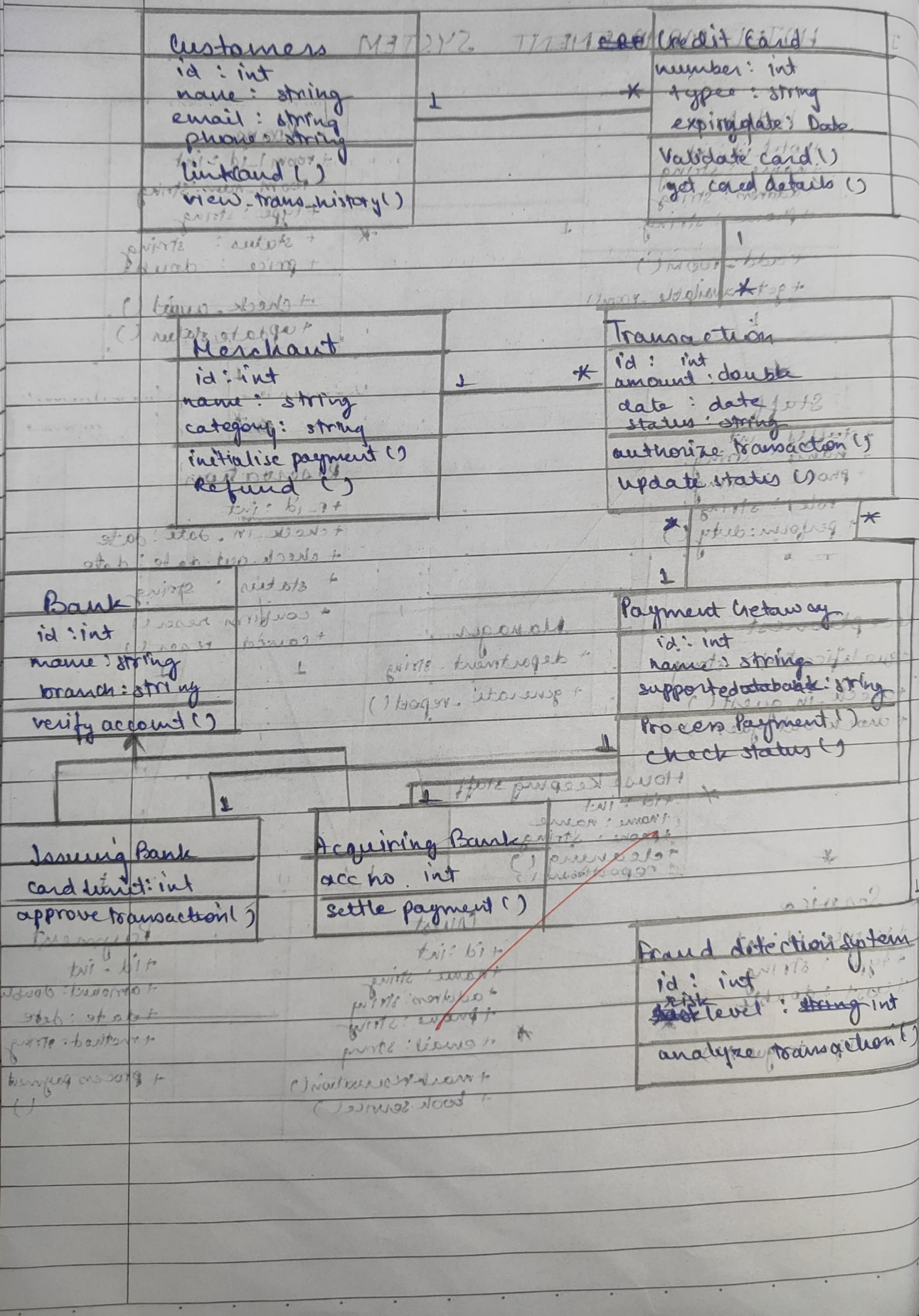
Class Diagram:

I HOTEL MANAGEMENT SYSTEM



Date 2/9/25
Page

CREDIT CARD PROCESSING



Date 2/9/25
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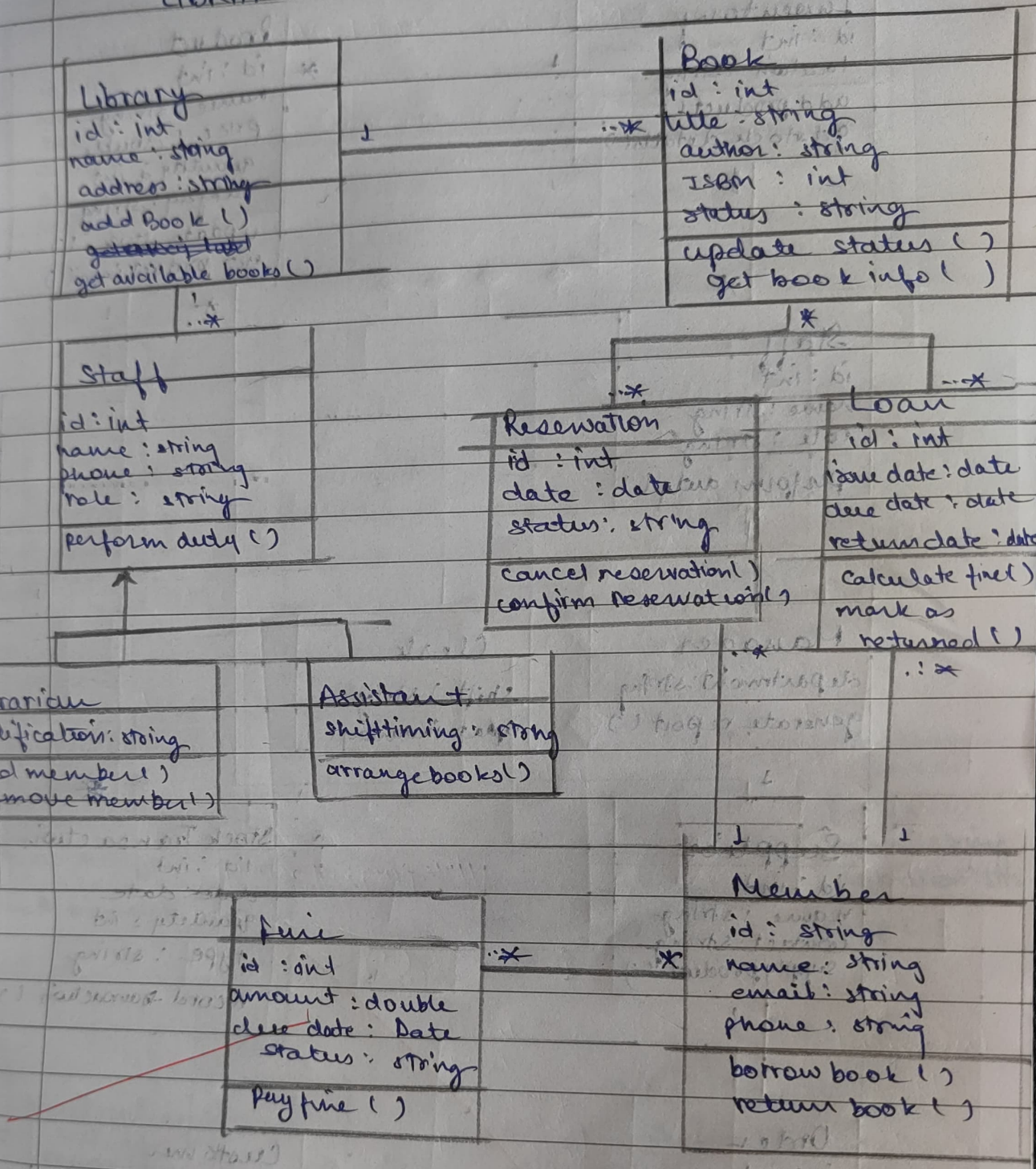
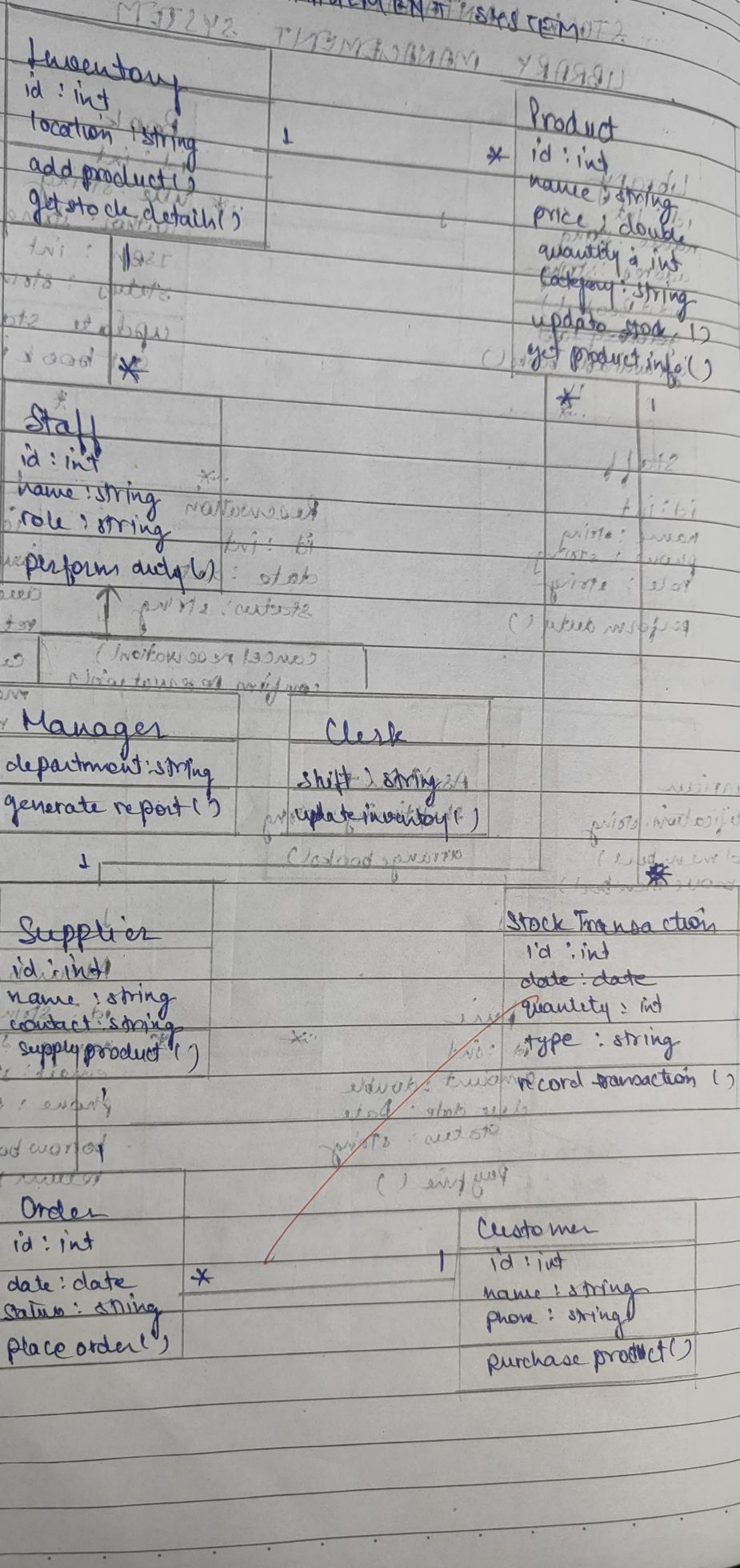
~~STOCK MAINTANANCE SYSTEM~~
LIBRARY MANAGEMENT SYSTEM

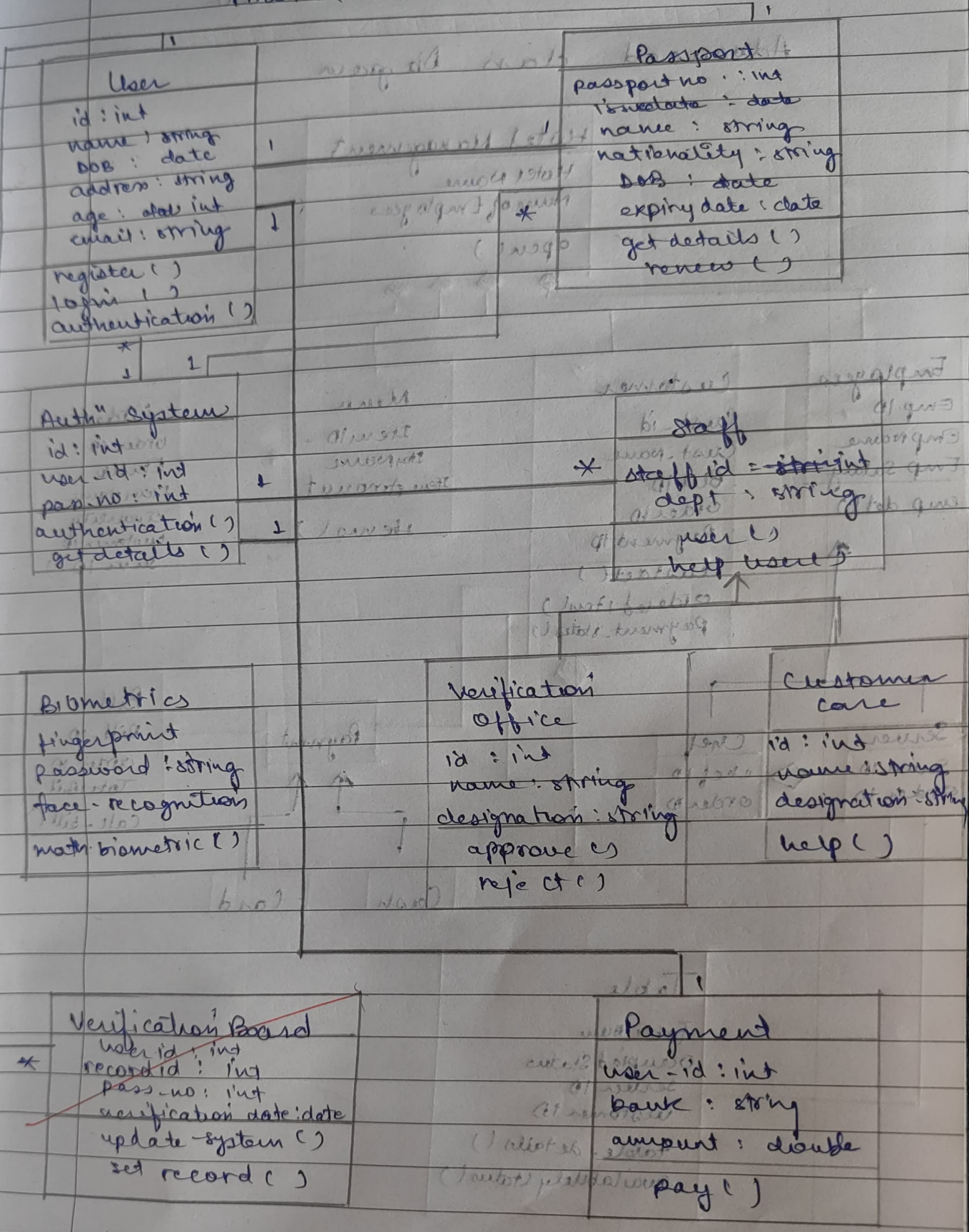


STOCK MANAGEMENT SYSTEM



Date __/__/____
Page _____

PASSPORT AUTOMATION SYSTEM



Date 9/9/25
Page

HOTEL MANAGEMENT SYSTEM

Advanced class Diagram