FA22- BSE - 059
Syed Shah Mansoor Trimzi

SDA LAB MID
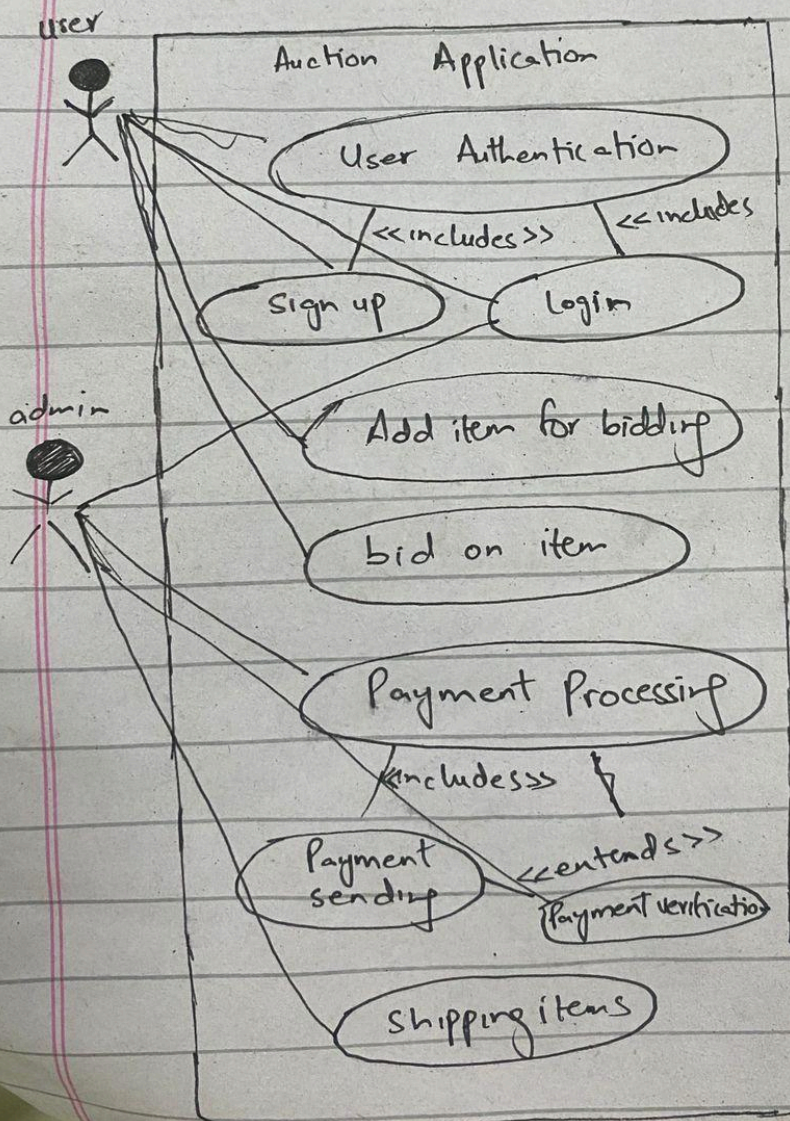

Usecase diagram:

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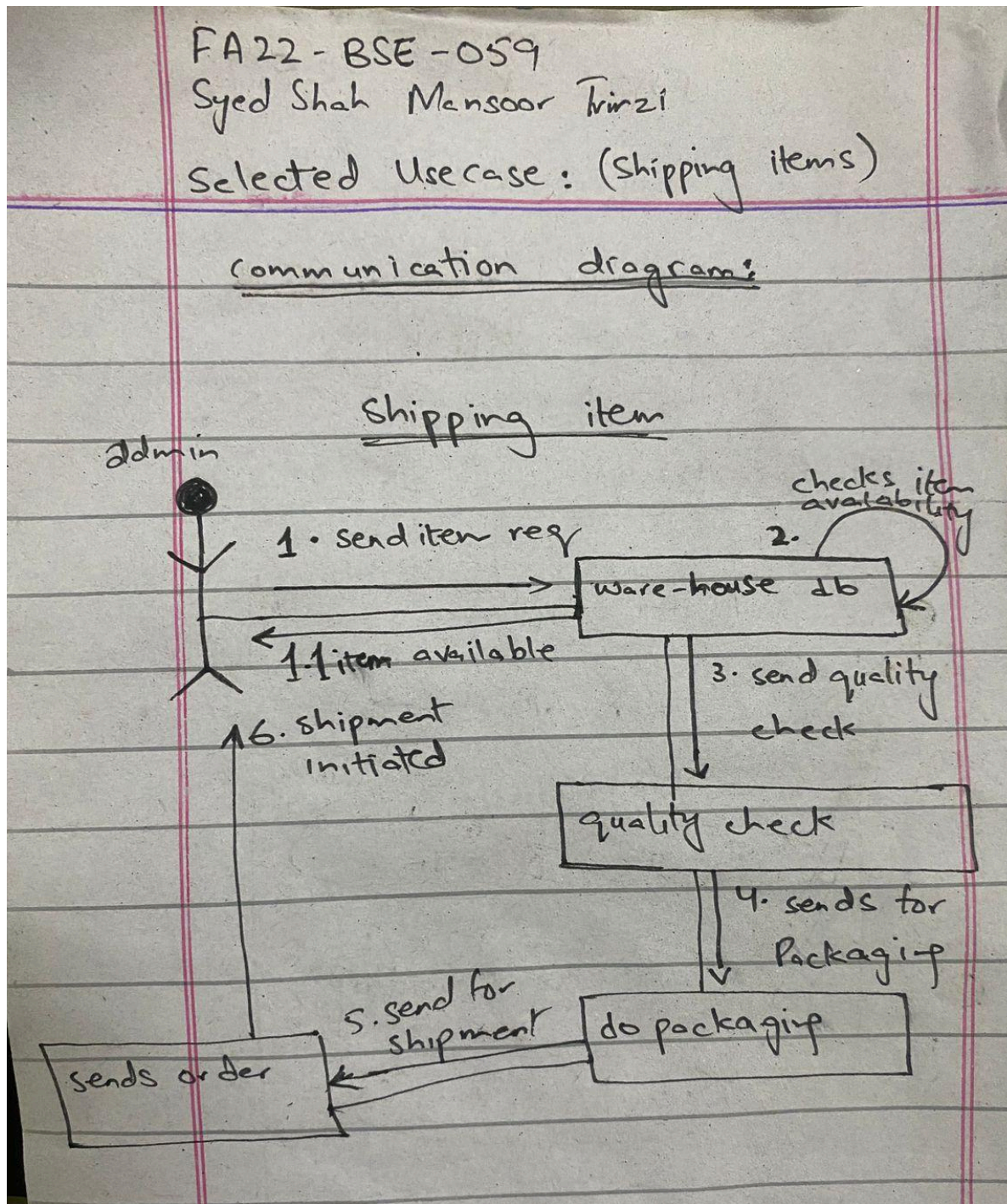
Auction Application

Use Case Diagram:

user

admin

Auction Application

- User Authentication
  - <<includes>> Sign up
  - <<includes>> Login
- Add item for bidding
- bid on item
- Payment Processing
  - <<includes>> Payment sending
  - <<extends>> Payment verification
- shipping items

Communication Diagram:

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Selected Usecase: (Shipping items)

communication dragram:

Shipping item

admin

1. send item req

checks item
availability
2.

ware-house db

1.1 item available

3. send quality
check

6. shipment
initiated

quality check

4. sends for
Packagig

5. send for
shipment

do packagig

sends order

Principles and Architectural patterns and design implemented:

Architecture: We'll use **Layered Architecture** with separate layers for UI, Service (Business Logic), and Data Access to ensure modularity and easy maintenance.

Design Patterns: We'll apply **Factory Pattern** for creating processes (like QualityCheck, Packaging), **Singleton Pattern** for Inventory and Notification services, and **Observer Pattern** to notify the Admin when shipping starts.

OOP Principles: We'll follow **Encapsulation** (each class handles its data), **Abstraction** (hiding process details behind interfaces), **Inheritance** (common behavior in base classes), and **Polymorphism** (flexible processing of steps).