

ASSIGNMENT NO. 1

D

- cmm is a framework used to analyse approach & technique followed by any organization to develop software products. It provides guidelines to further enhance maturity of process.
- levels of cmm are:
 - level 5 - Optimizing
 - process change management
 - tech change management
 - defect prevention
 - level 4 - Managed
 - software quality and quantity management
 - level 3 - Refined
 - peer review, training program
 - inter group coordination
 - level 2 - Repeatable
 - project planning, configuration
 - requirements
 - level 1 - Initial
 - No KPA's

Examples: People cmm - develop, motivate, retain project
Software cmm - enhance software

- Q) - Waterfall model is described as linear sequential lifecycle model, where, result of each phase is cascade down to next level of development.

Pros - timescales are kept

- everyone gets upto speed quickly
- testing is made easy
- outcome is crystal clear
- No financial surprises

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Cons - needs can be difficult to define

- potential lack of flexibility

- longer delivery time

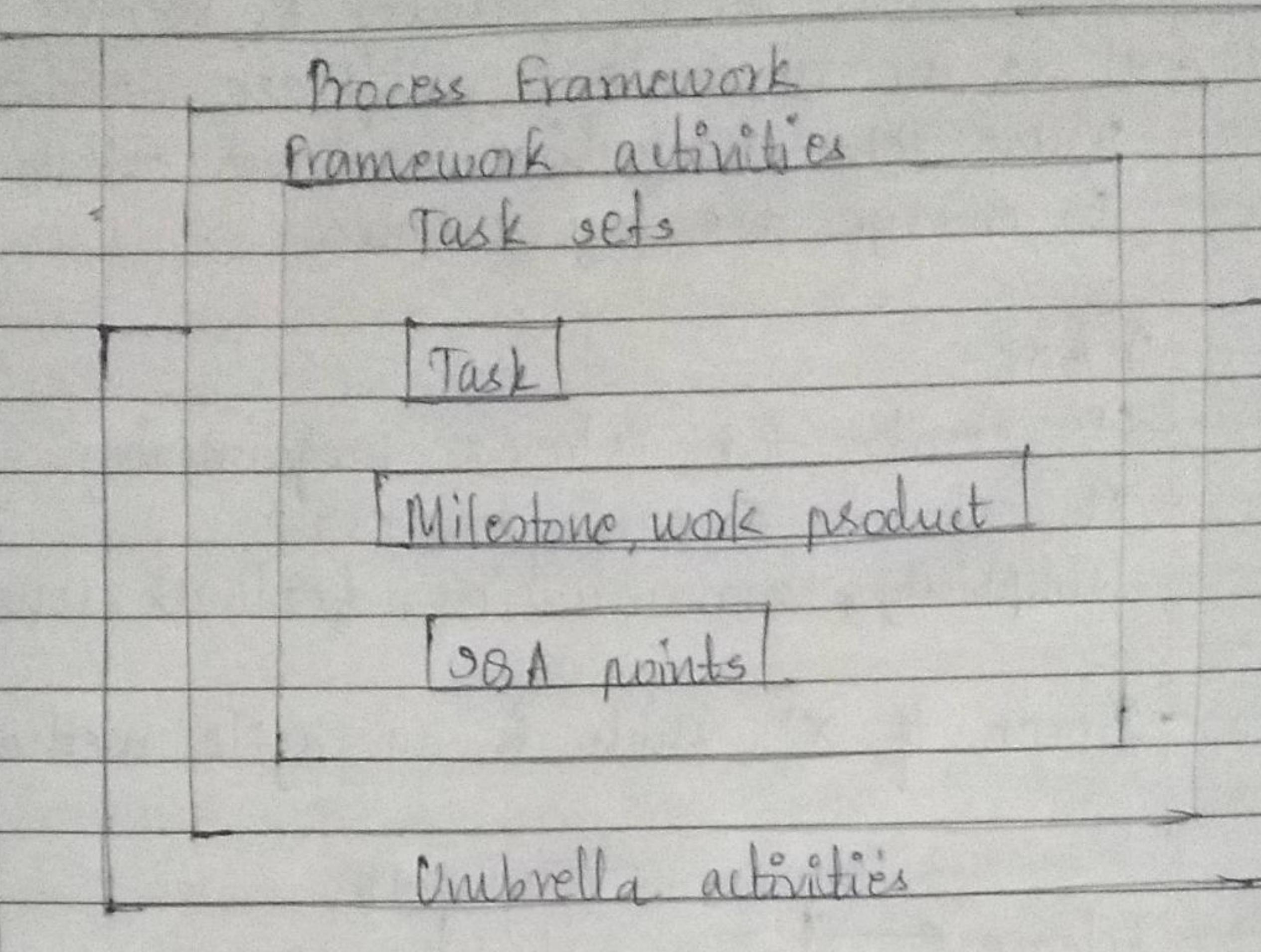
3) RAD Model

- consists of component / functions which are developed in parallel like mini project
- used for medium sized projects
- small team size is required
- more flexible
- overlapping of phases is possible
- cost is low
- requirement & early stage planning is not necessary

Spiral Model

- made with features of incremental waterfall / evolutionary prototyping
- used for large sized projects
- large team size is required
- less flexible
- overlapping of phases is not possible.
- cost is high
- requirement & early stage planning is required.

Q) - Software process framework is a standard way to build & deploy applications.



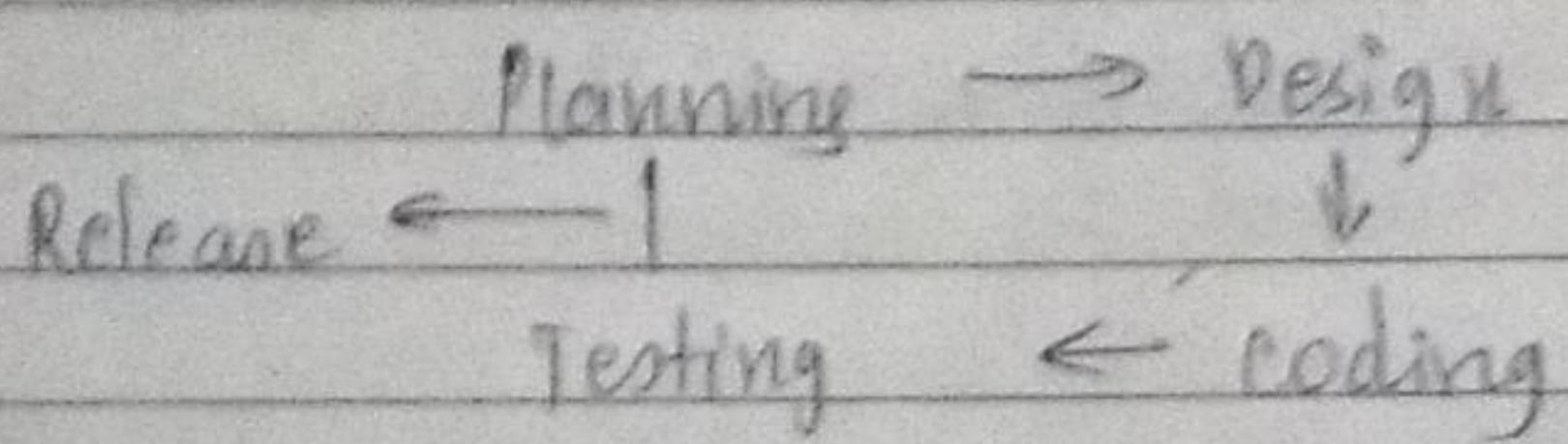
- A generic process framework has 5 activities: communication, planning, modelling, construction, deployment
- Umbrella activity:
 - ; software project tracking & control
 - ; formal technical reviews
 - ; software quality assurance
 - ; software configuration management
 - ; document preparation & production
 - ; reusability management
 - ; measurement & metrics
 - ; risk management

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- Q) Agile methodology is a set of values & principles that ought to be followed to become agile.
- It is an approach to software development where team interaction, customer collaboration & responding to change are key themes

a) XP -

- XP stands for extreme programming.
- It works on 5 core values:
simplicity, communication, feedback, courage, respect
- Proven of XP which is an agile methodology :-



- Advantages - Time saving
- cost effective
- Simplicity

b) Scrum -

- It focuses on the team and manages task within a team-based development environment.
- Principles of scrum are :
 - : under 2nd overestimation of time
 - : lack of progress report
 - : inability to adapt to change

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③ Kanban -

- It focuses on a visualized work flow where work is broken down into smaller tasks and displayed on the Kanban board.
- It helps in maintaining transparency.
- It works on following principles:
 - ; visualizing what you do
 - ; cap the WIP activities
 - ; Enhance flow, by pulling next most prior thing from backlog.

6)

- Requirement gathering is the process of defining, documenting & maintaining requirements.
- It is the process of gathering & defining service provided by system.
- It consists of following activities: Requirement elicitation
 - ; Requirement specification
 - ; Requirement verification
 - ; Requirement management

7)

- In SE, management spectrum describes the management of a software project.
- The management starts from requirement analysis and finishes on nature of project.
- It focuses on 4 P's -
people, product, process, project

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- 8) Size oriented software matrices are derived by normalizing quality &/or productivity measures by considering size of product that has been produced. Matrices include-
- Errors per KLOC
 - Defects per KLOC
 - Dollars per KLOC
 - Pages of doc per KLOC

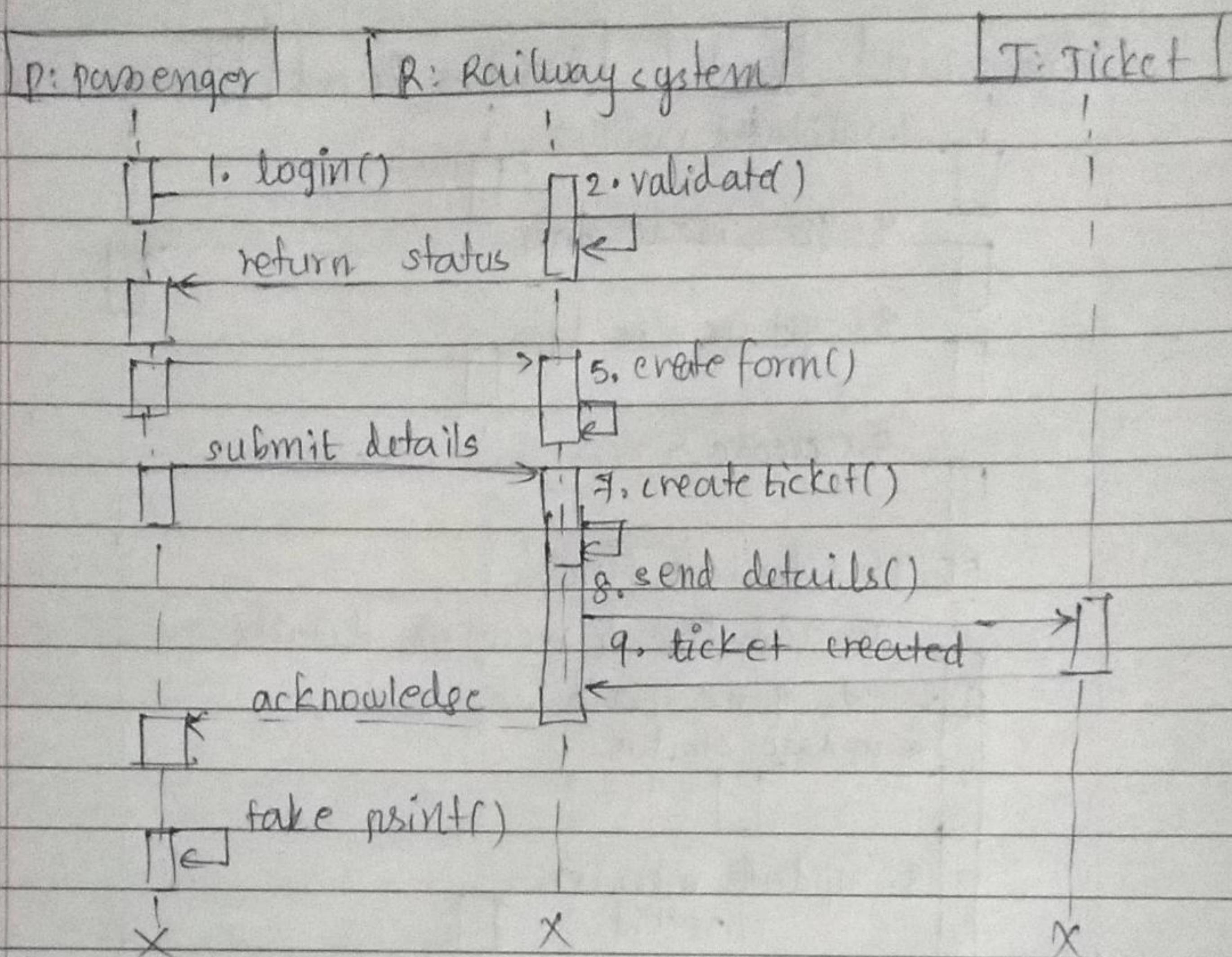
Sr.no	Domain characteristic	Count	Average : Total value
1.	no. of uses input	50	4 200
2.	no. of uses output	30	5 150
3.	no. of user enquiries	35	4 140
4.	no. of files	05	10 60
5.	no. of external interface	04	07 28 - 5 + 8

$$\begin{aligned}
 \text{Function points (FP)} &= \text{count total} \times (0.65 + (0.01 \times \\
 &\quad \text{sum } (F_i))) \\
 &= (578 \times (0.65 + (0.01 \times 42))) \\
 &= 578 \times (0.65 + 0.42) \\
 &= 618.46 \\
 &= \underline{\underline{618.46}}
 \end{aligned}$$

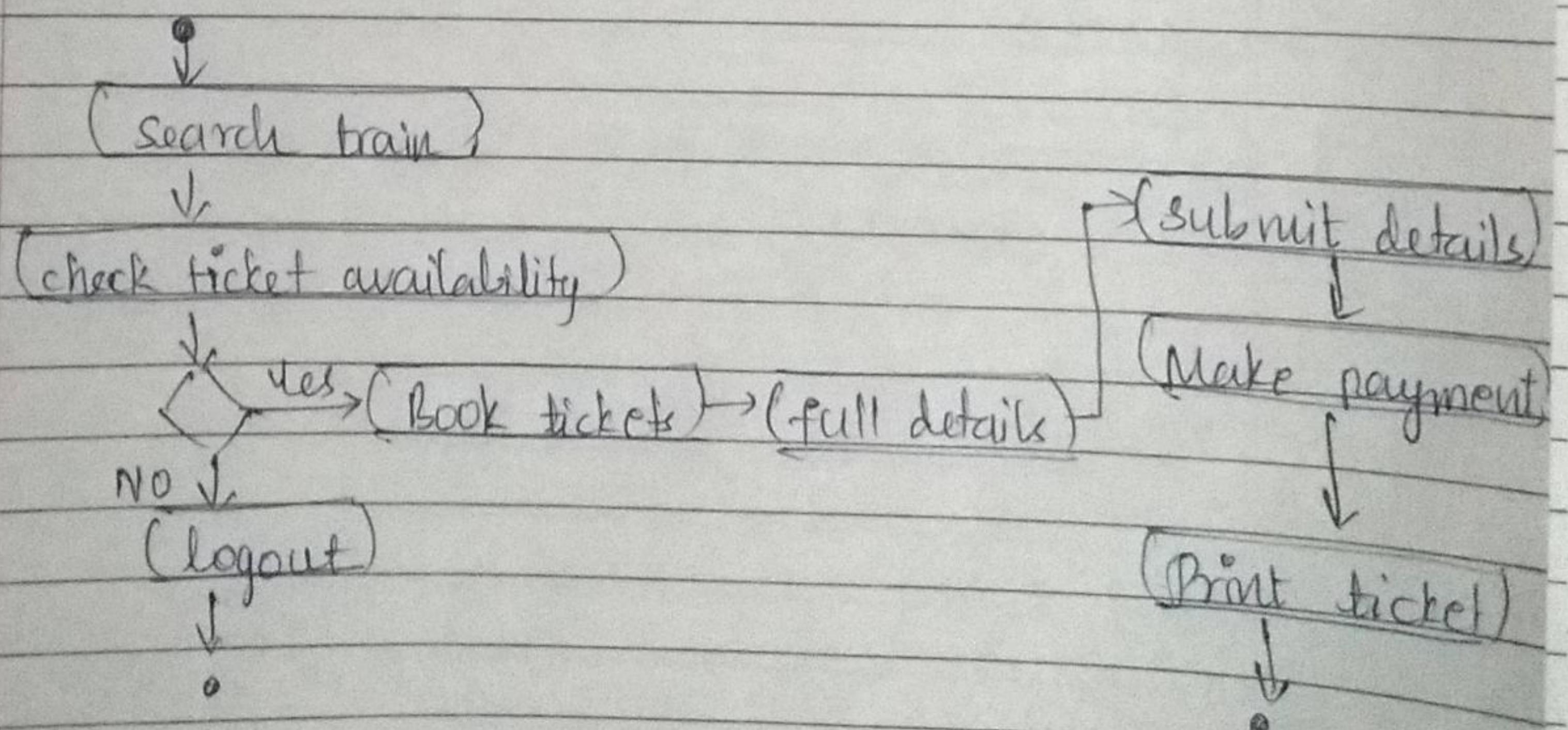
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9) i) Railway Reservation System

Sequence Diagram:



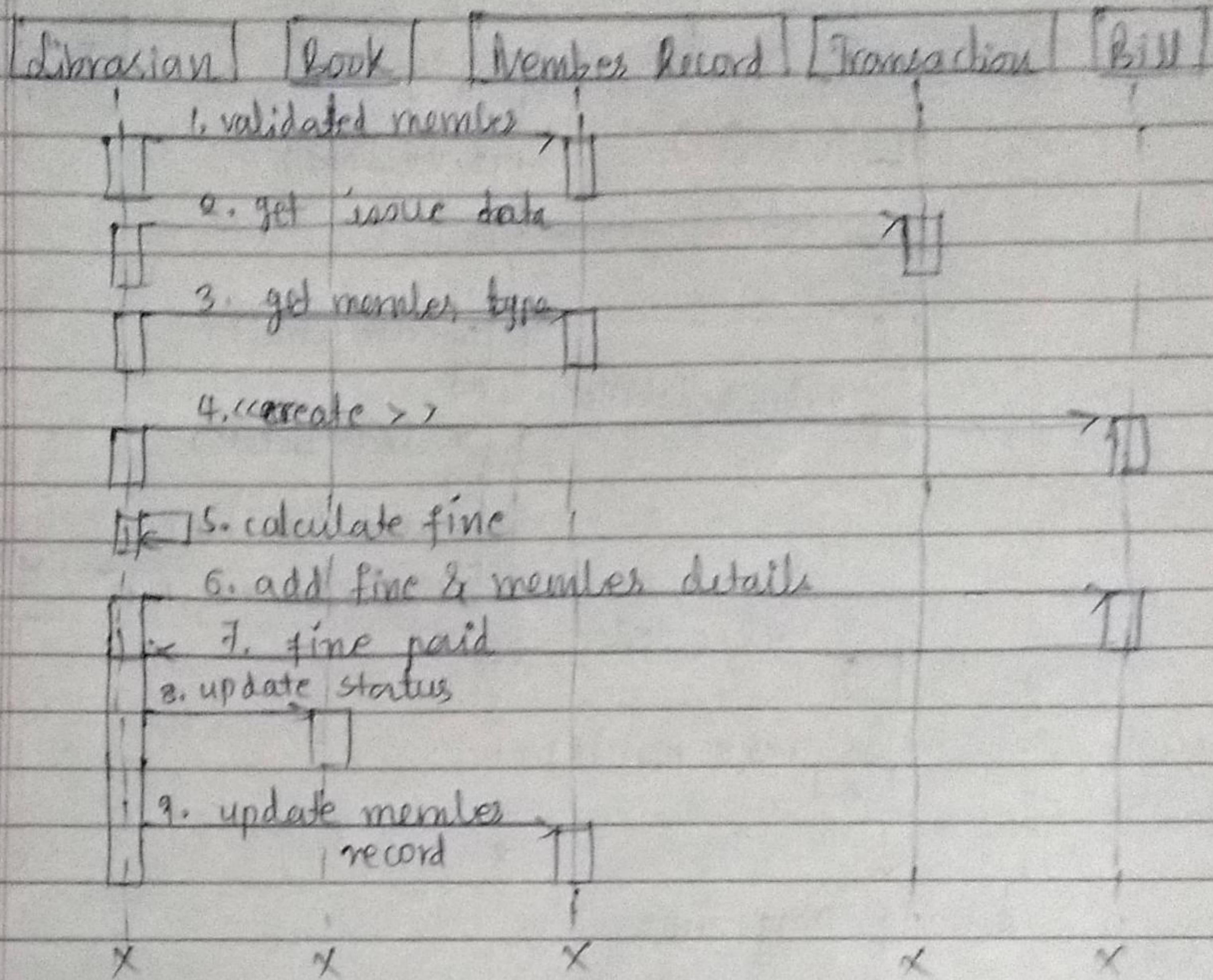
Activity Diagram:



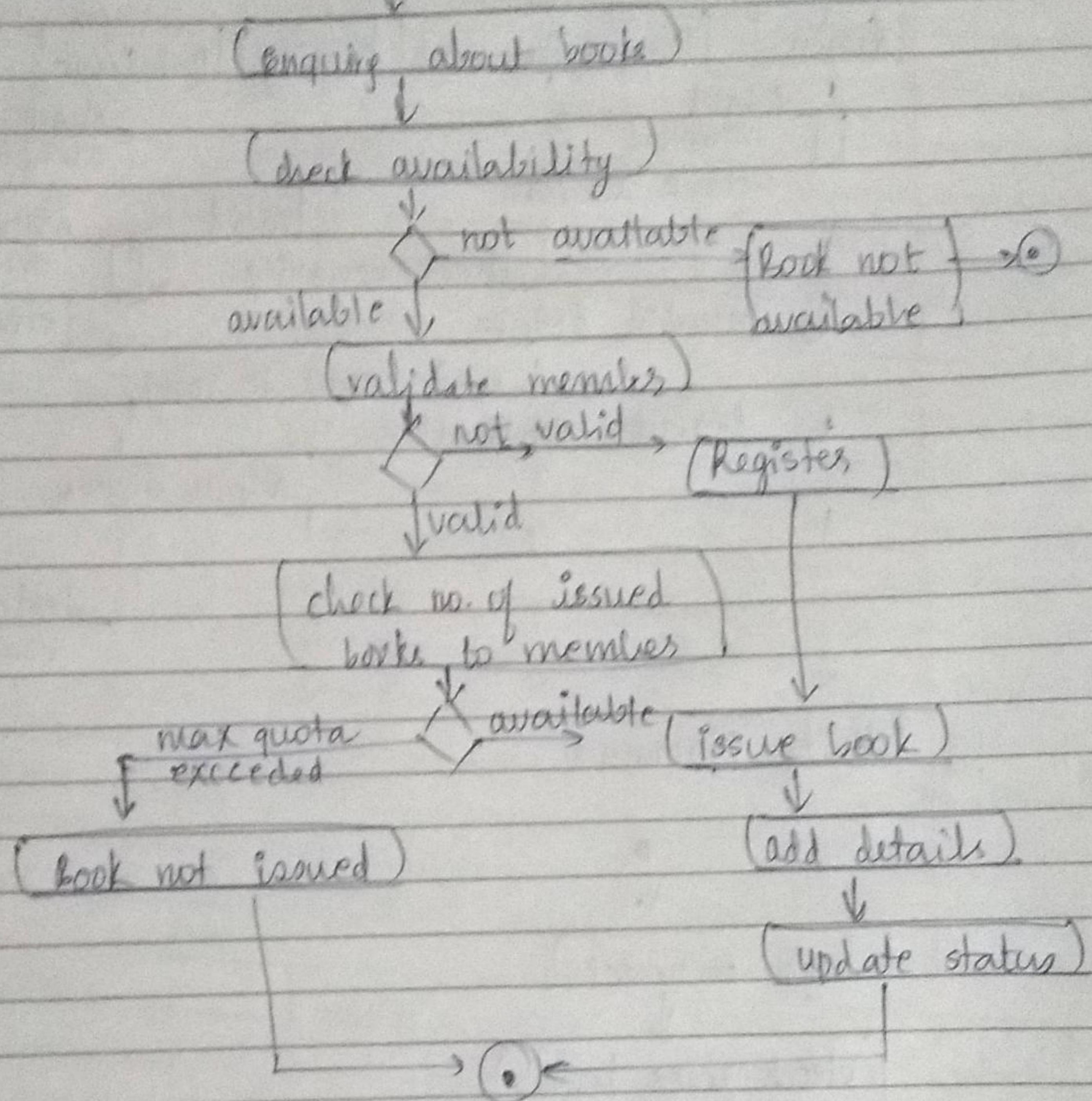
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a) Library Management System

Sequence Diagram:



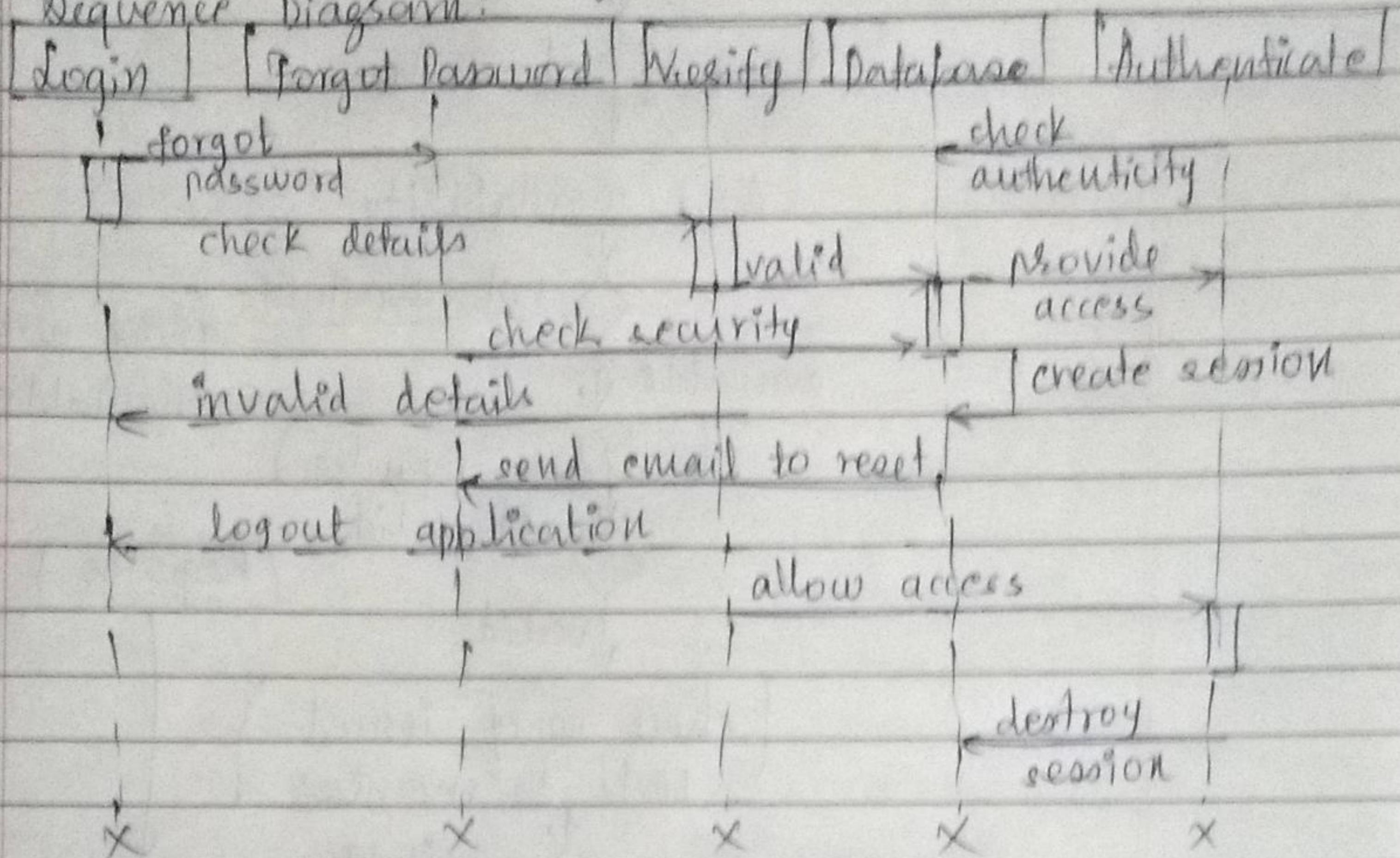
Activity Diagram:



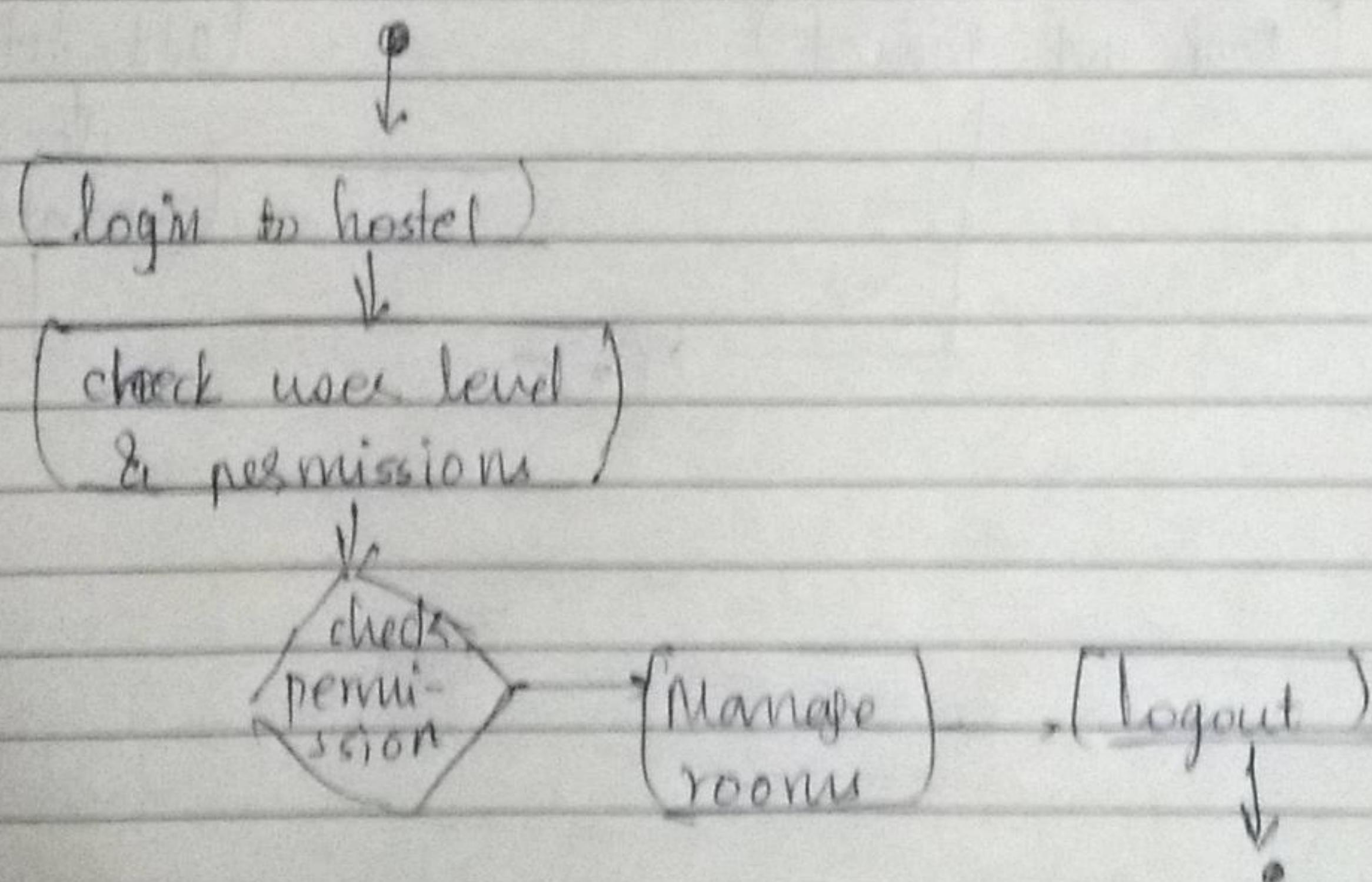
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3) Hostel Management System

Sequence Diagram:

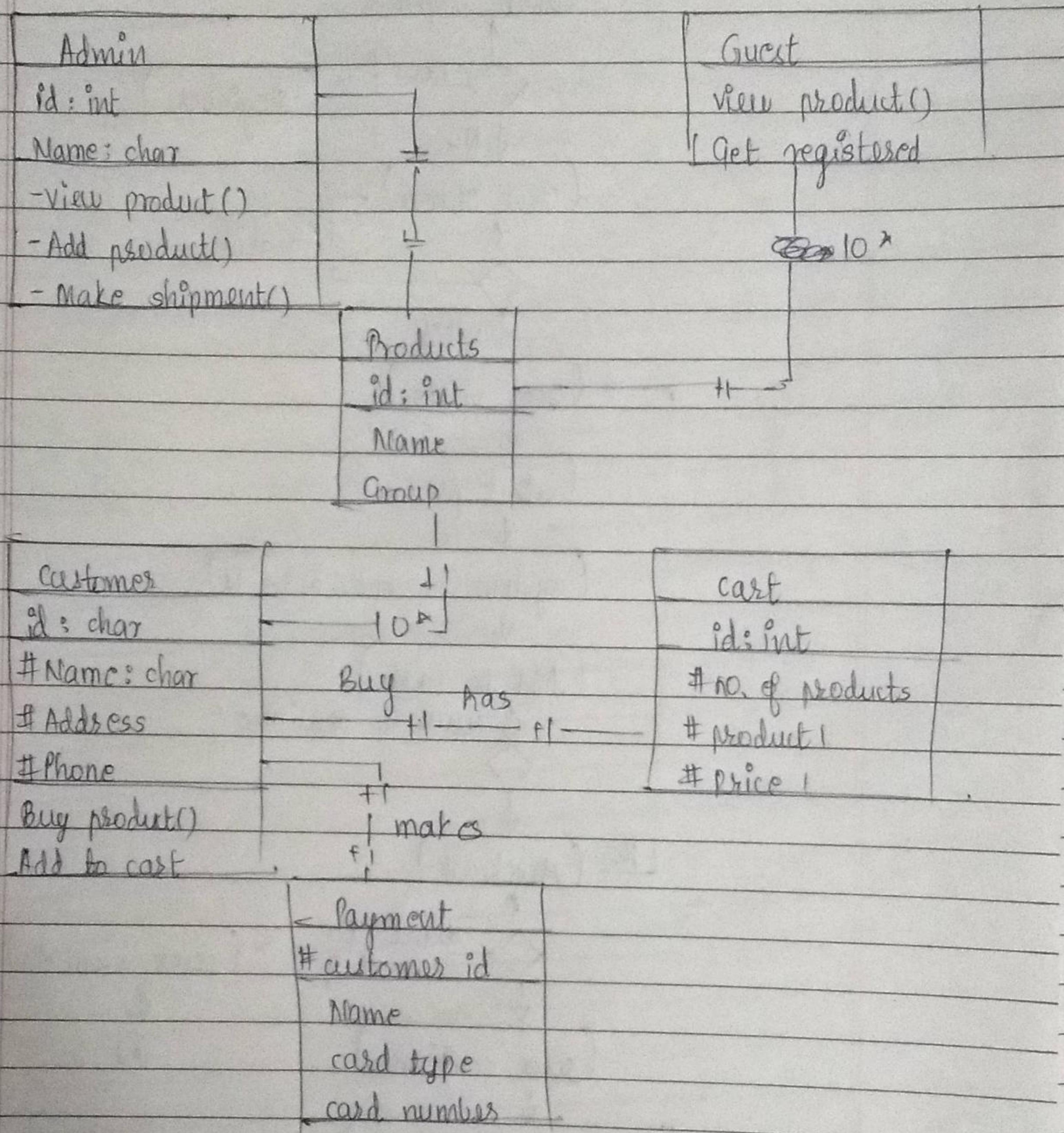


Activity Diagram:



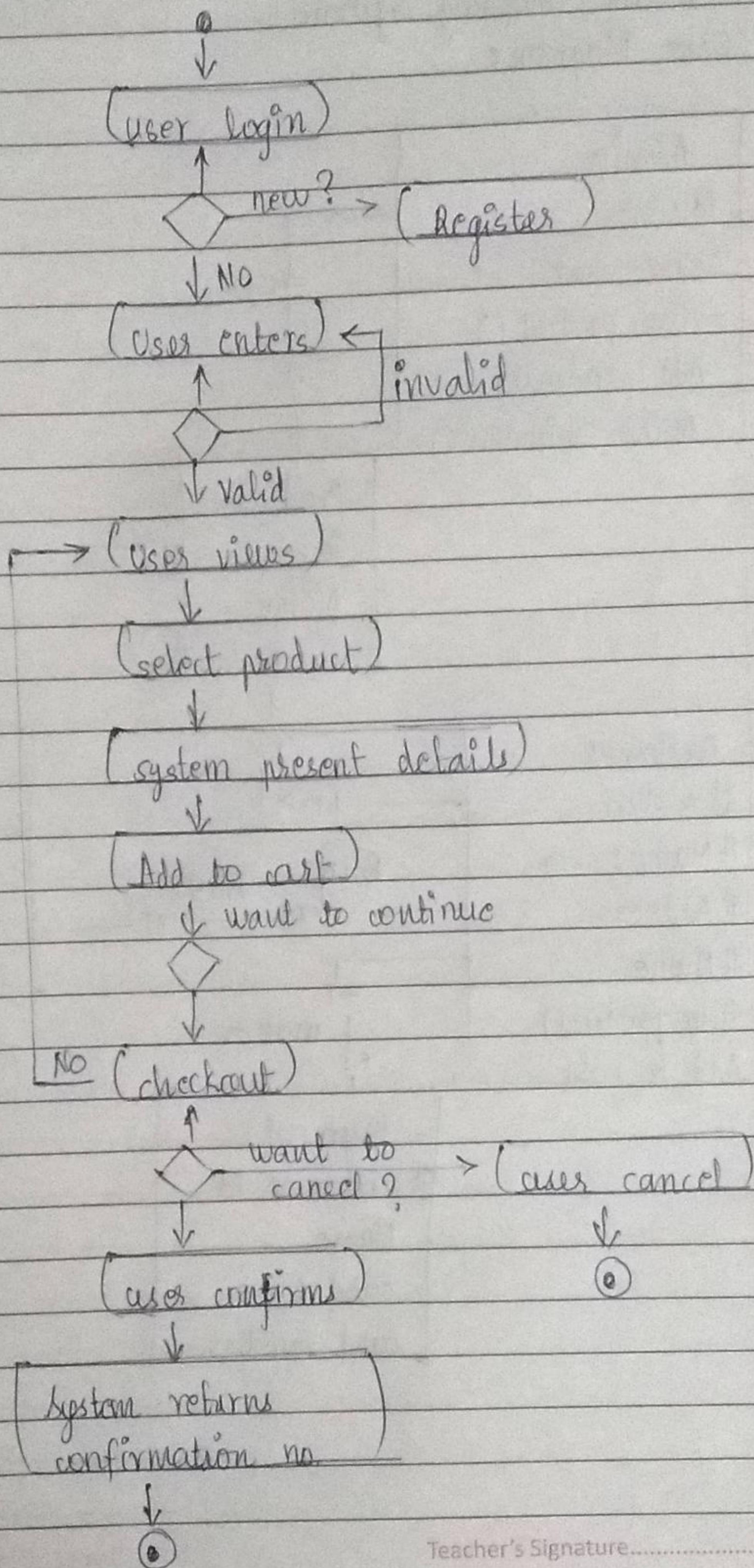
10) i) Online shopping system

Case Diagram:



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State Diagram :

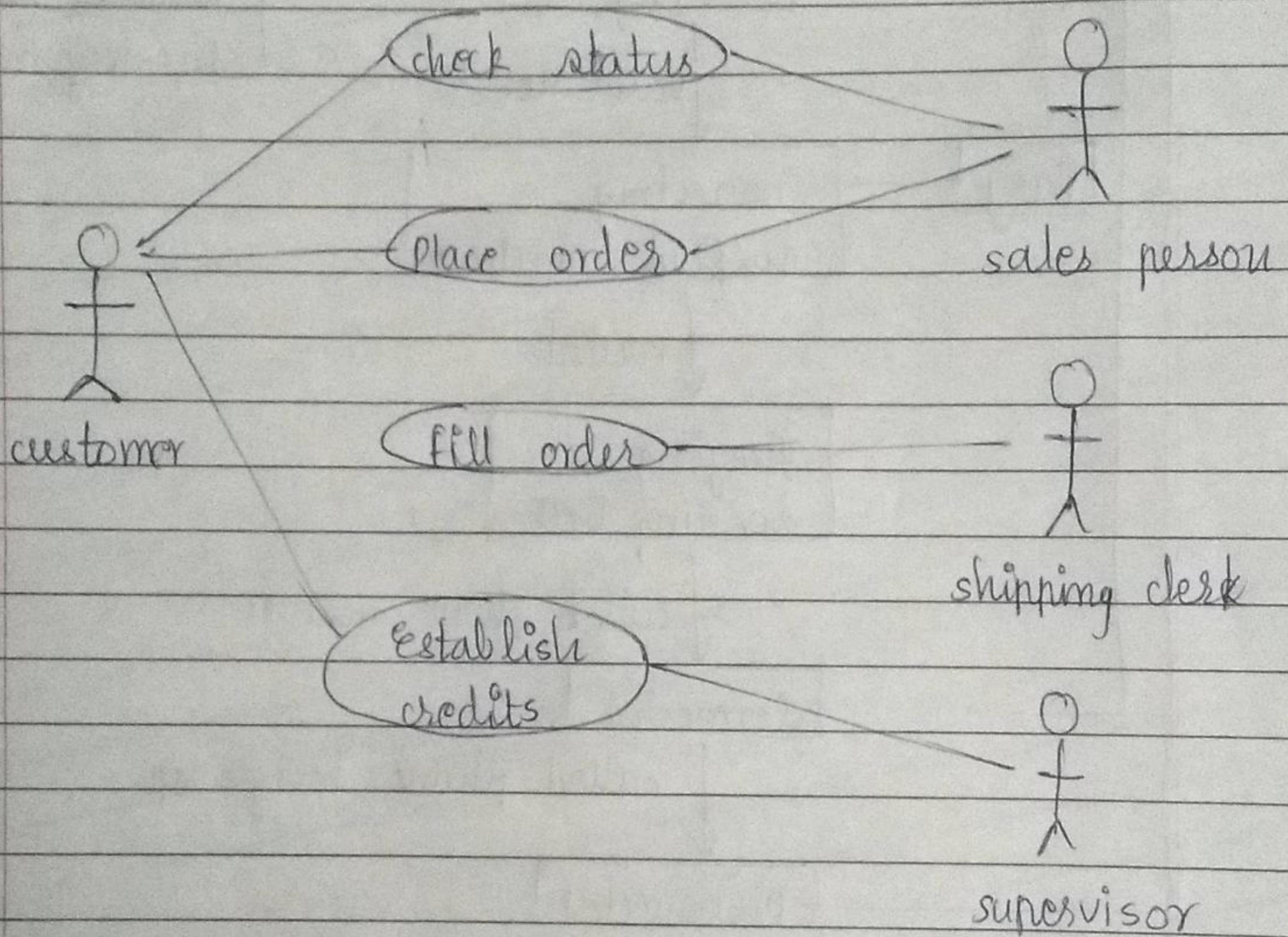


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(2) Telephone line

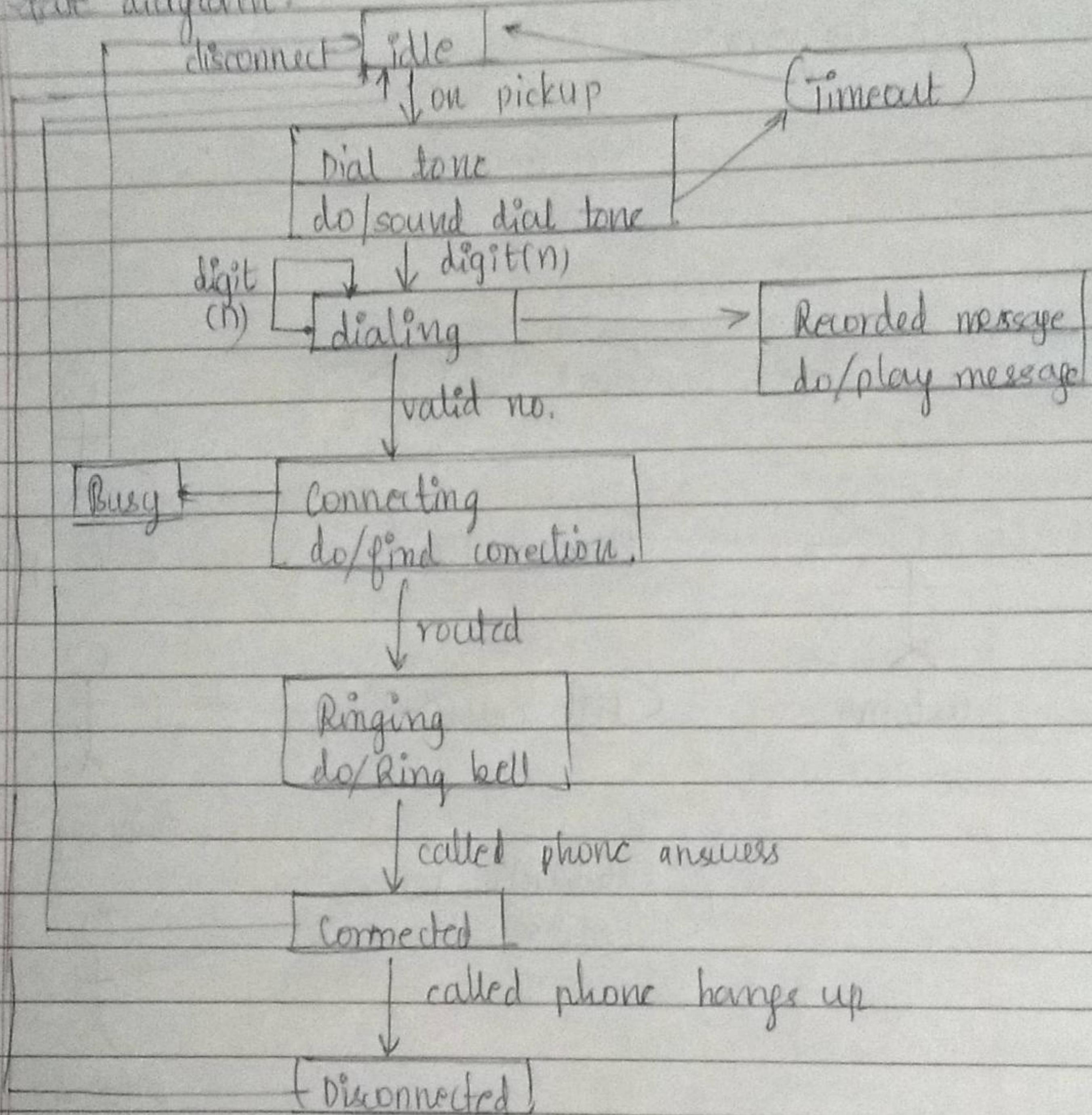
case diagram:

Telephone
catalog.



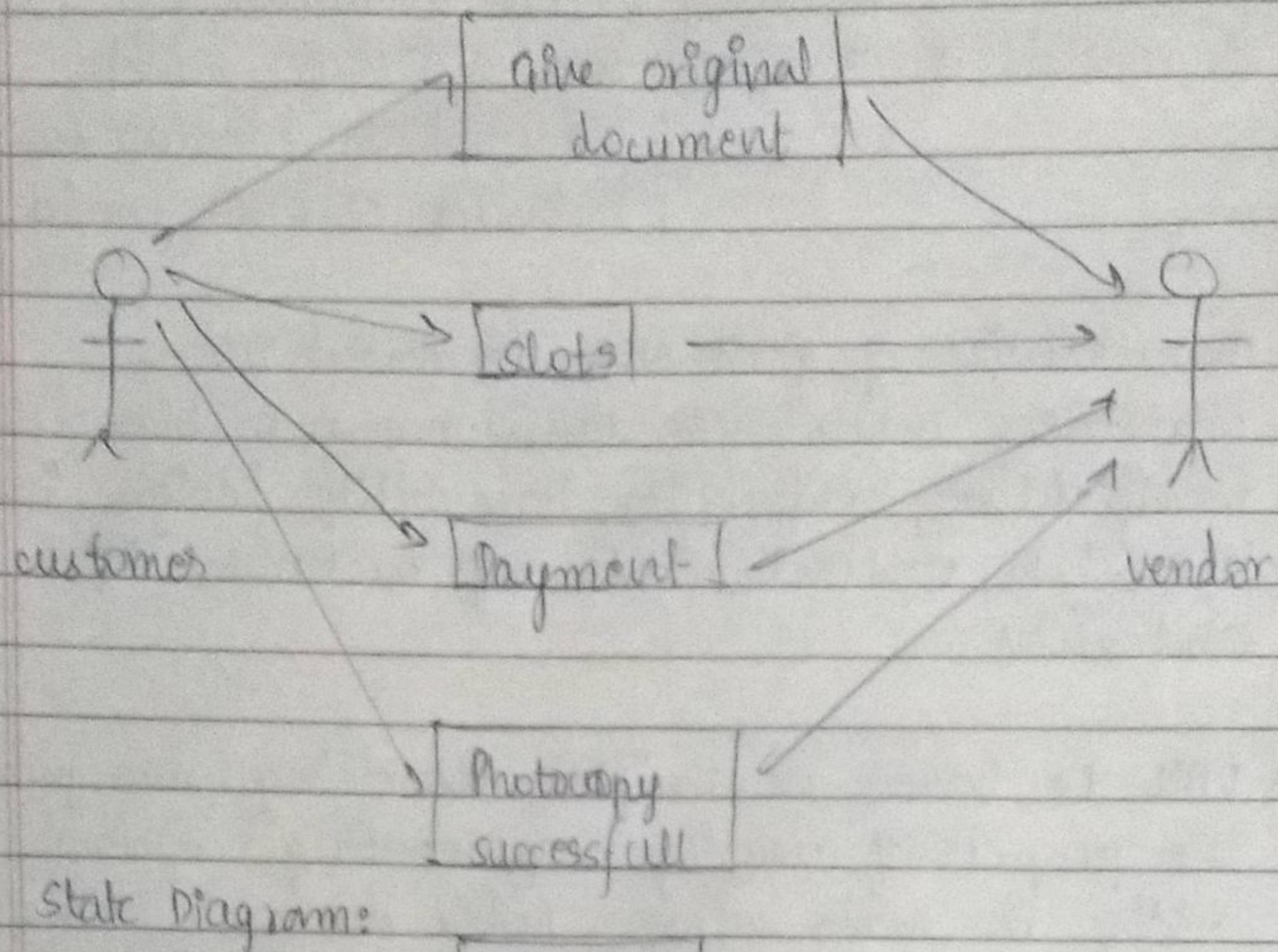
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State diagram:

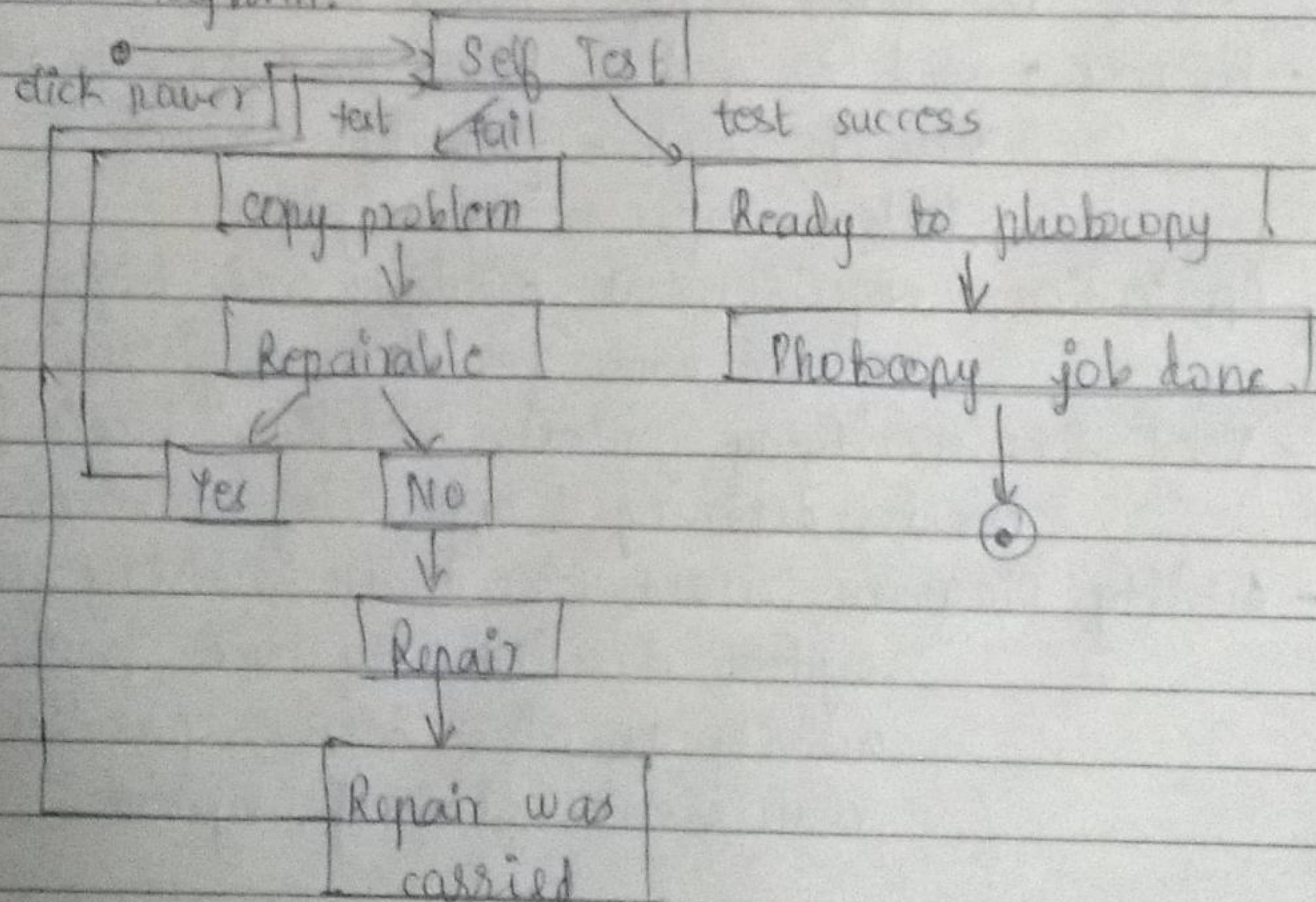


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8) Photocopy Case Diagrams



State Diagram:



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- 11) It is a regression model based on 100 (no. of lines of code). Key parameters that defines quality of any software products are primarily, effort & schedule.
It consists of 3 types:
: Basic COCOMO model
: Intermediate COCOMO model
: Detailed COCOMO model
- 12) characteristics of good SRS document are - correctness, completeness, consistency, unambiguosness, modifiability, verifiability, traceability, design independance, testability, understandable by customers, right level of abstraction.
- 13)- UML is based on Unified Modelling language with the purpose of usually representing system along with its main actors, roles etc.
- Purpose : used to gather requirements , to get outside view of system, identify external & internal factors influencing system.
- Application : requirement analysis and high level design, reverse and forward engineering
- Used for: specifying context, modelling basic flow of events, defining & organizing functional req.
- Activity Diagram used for: draw activity flow of system, describe sequence from one activity to others, describe parallel, branched, concurrent flow of system.

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