

TEB2014 Software Engineering & HCI	
PROJECT SEPT 2024	
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Instruction: <ol style="list-style-type: none"> The Lab Groupings should be maintained for the project. Pitch the solution through a 20-min inspection of report. The report is to be submitted through U-Learn. Provide introduction of the project and team members. Detailed drawings should be shown directly from the report. The format of the report is based on the questions that follows. 	

A concept hotel in Ipoh introduces counter-less check-in and check-out. Unlike conventional hotel, there will be no receptionist counter. All check-in and check-out shall be done using smartphone.

A potential guest can check for available rooms and reserve one or more rooms after making payment through credit card. Any cancellation can be made 3 days before check-in, with 30% of the full payment imposed as a penalty. Late cancellation is not entertained.

The challenge is how access to the reserved room can be given to the guest? How about access to other facilities such as restaurant, swimming pool and the gym?

Your software team that develops an access management system for the above hotel.

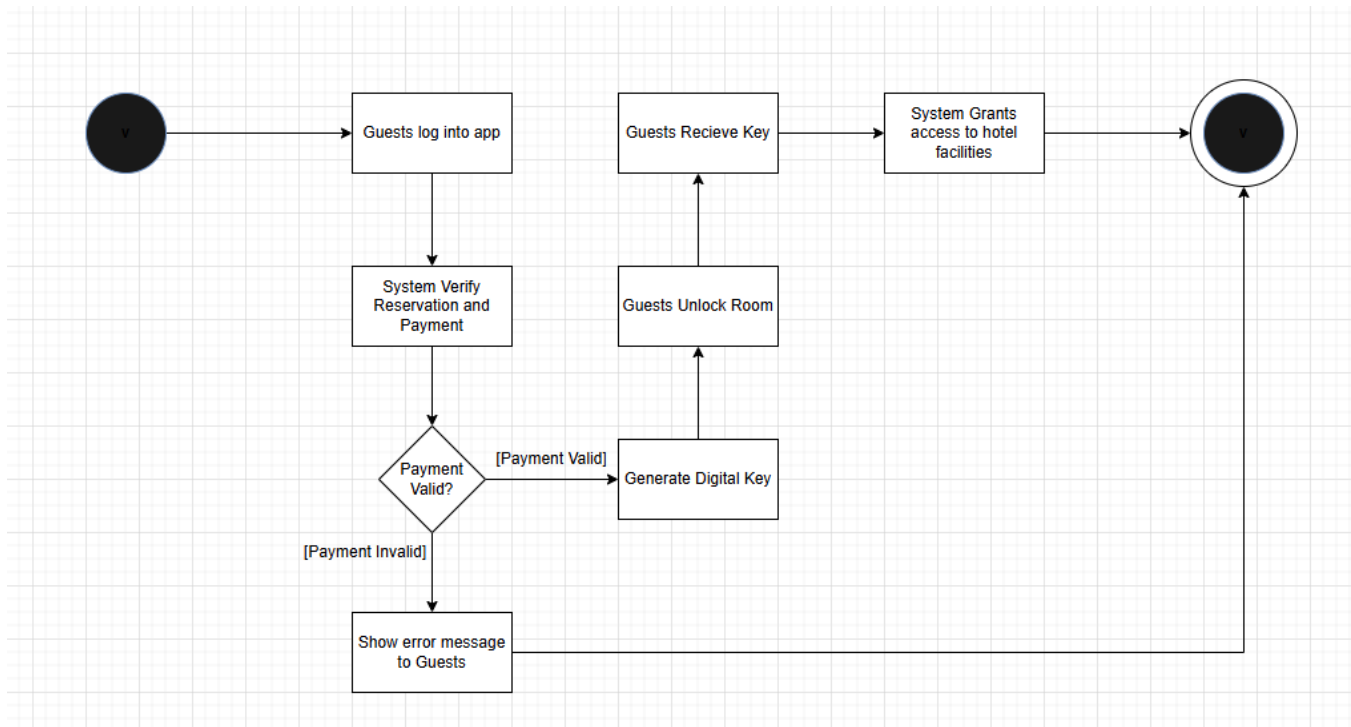
User stories are briefly captured in points as follows: -

- Guests can access the reserved room only during the period of rental. Access must be revoked immediately after checking out.
- Only hotel guests can use the hotel facilities.
- If the room has not been reserved by someone else, the resident can extend the stay by making additional payment for the extra few nights.

As a software engineer, analyze the requirements and propose the design of the solution.

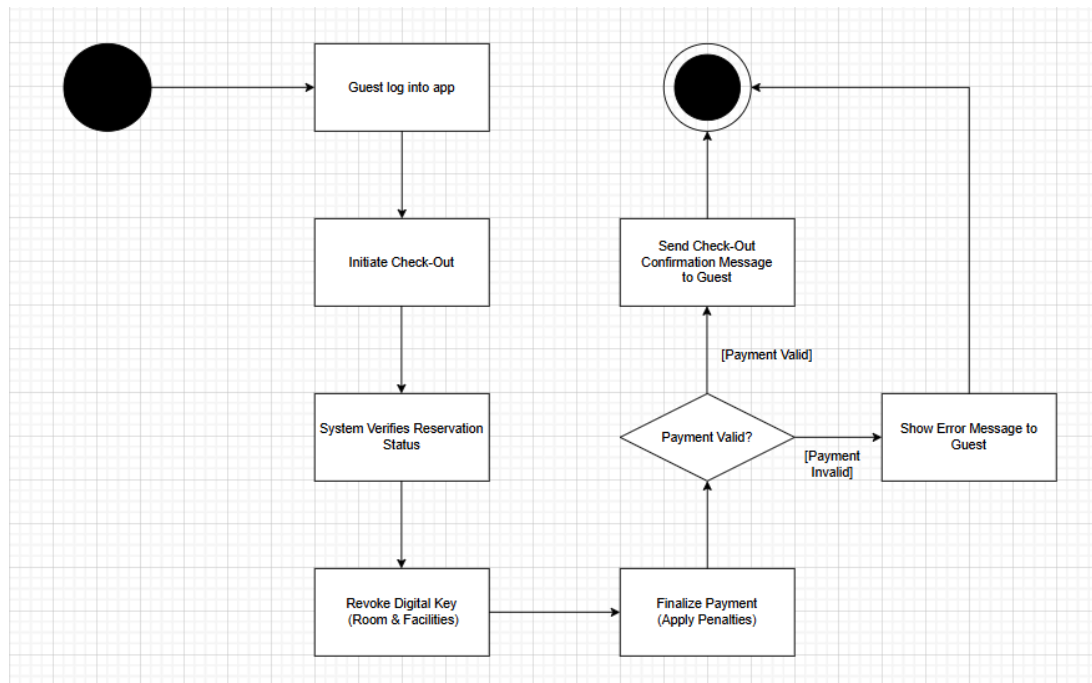
Section 1: Answer all

1. a. Prepare a detailed use case diagram.
[NOTE: Your answer should include both include and extend stereotypes.]
[10 marks]
- b. State the following:
 - i. Functional system requirements (functional) [5 marks]
 - ii. Non-functional system requirements (non-functional) [3 marks]
 - iii. Constraints (constraints) [2 marks]
2. Draw activity diagram for the following scenarios:
 - a. Check-in.



- b. Cancel stay.
- c. Extend stay.

d. Check-out. (Amir)



[20 marks]

3. Draw state diagram for the hotel access control key

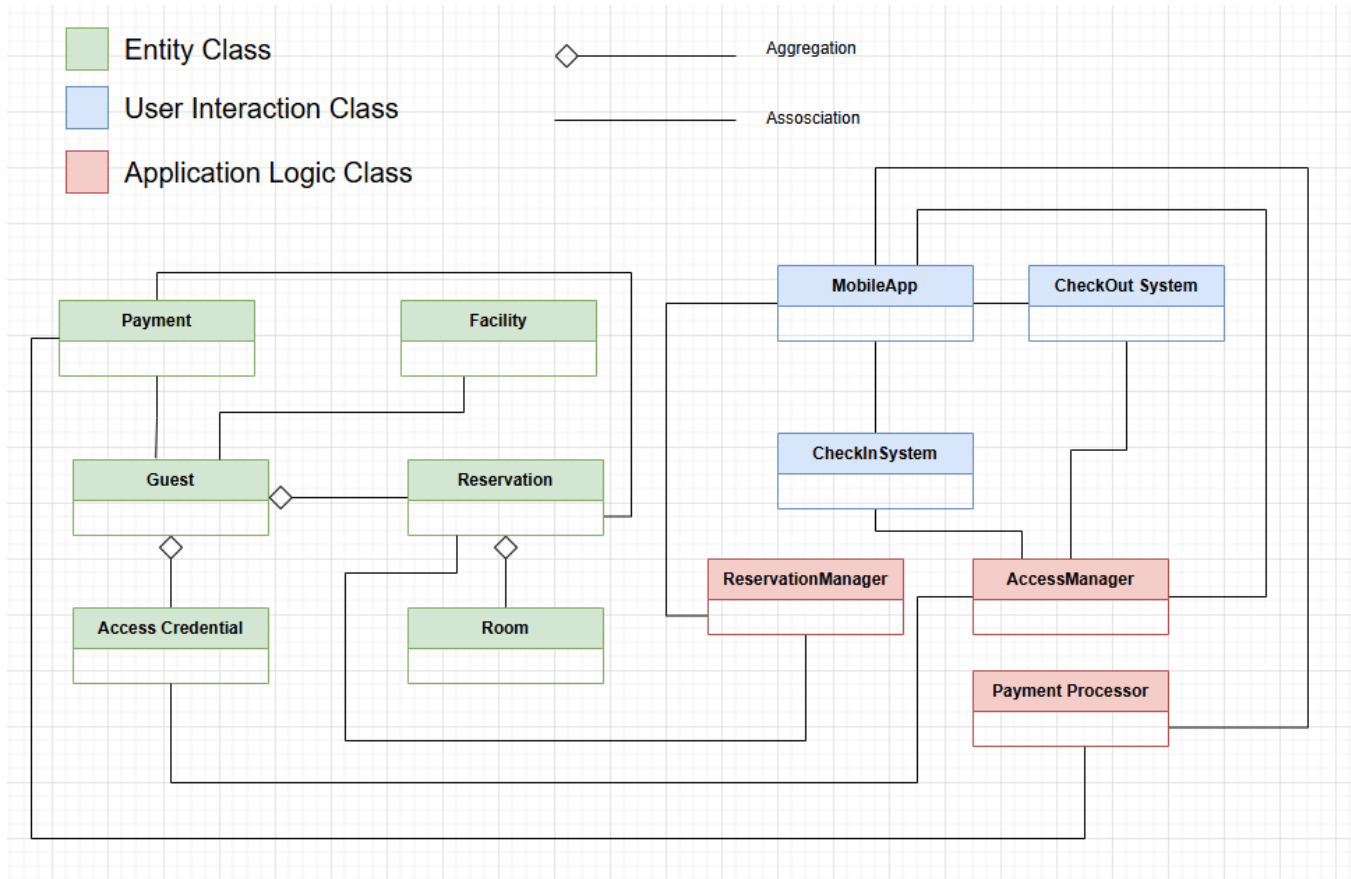
[NOTE: Your effort may be given 0 if you are presenting an activity diagram in place of state diagram]

[20 marks]

4. a. Design a class diagram as the solution to the system. Indicate:

- entity classes
- user interaction classes
- application logic classes

[NOTE: You class diagram must indicate labeled association, aggregation, and inheritance relationships. Details such as attributes and methods are not needed.] Thaifur



[20 marks]

- b. Propose a suitable architecture using UML deployment diagram. The architecture should show all the critical components and justification of the architectural styles.
- Identify all the hardware needed to implement your proposal, including required network protocol and storage if any.
 - Indicate relationship of the software components.

(Amir)

[20 marks]

5. a. Sketch the GUI of the smart app that the guest may see and interact with.
- Describe the widget's purpose.
 - Describe the navigation.

[20 marks]

- b. Explain how the proposed design may improve UX. (Amir)

[10 marks]

- c. Map the GUI to the database ERD. (Amir)

[20 marks]

-End of Project Instruction-