

ID2207 - Modern Methods in Software Engineering

Homework 1

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Question 1: Use Case Diagrams

Solution:

Identified roles in this business are:

Role	Responsibilities
Developer	a. Filling salary raise requests with required details
IT Manager	a. Reviewing, approving or rejecting applications b. Negotiating the application when possible
Finance Manager	a. Evaluate if the budget allows for a raise b. Decide from when the raise will be effective

Identified use cases in this business:

- a. Login
- b. ValidateUser
- c. CreateSalaryRaiseRequest
- d. ReviewApplication
- e. CheckPerformance
- f. CheckPriority
- g. FinalizeApplication
- h. ForwardingApplication
- i. CheckBudgetAvailability
- j. DecideEffectiveDate

Some exceptional use cases:

- a. InvalidCredentials
- b. PerformanceConflict
- c. PriorityConflict
- d. PauseRaiseEffect

Use Case Description:

Name: Manage Salary Raise Request
Actors: Developer Manager Finance Manager
Entry Conditions: 1. Developer logs in to the system. 2. System validates the developer credentials. 3. Developer accesses the create salary raise request functionality.

This use case extends InvalidCredentials, PerformanceConflict, PriorityConflict, and PauseRaiseEffect use cases. They are initiated when the login credentials are invalid, or when there is a problem with the developer's performance report, or when there are other developers who requested for salary raise in the same period and the developer has no priority, or when the finance manager pause the salary raise for insufficient budget.

Exit Condition:

Developer and Manager have agreed whether to approve or cancel the salary raise request and Finance Manager have decided from when the raise will take effect.

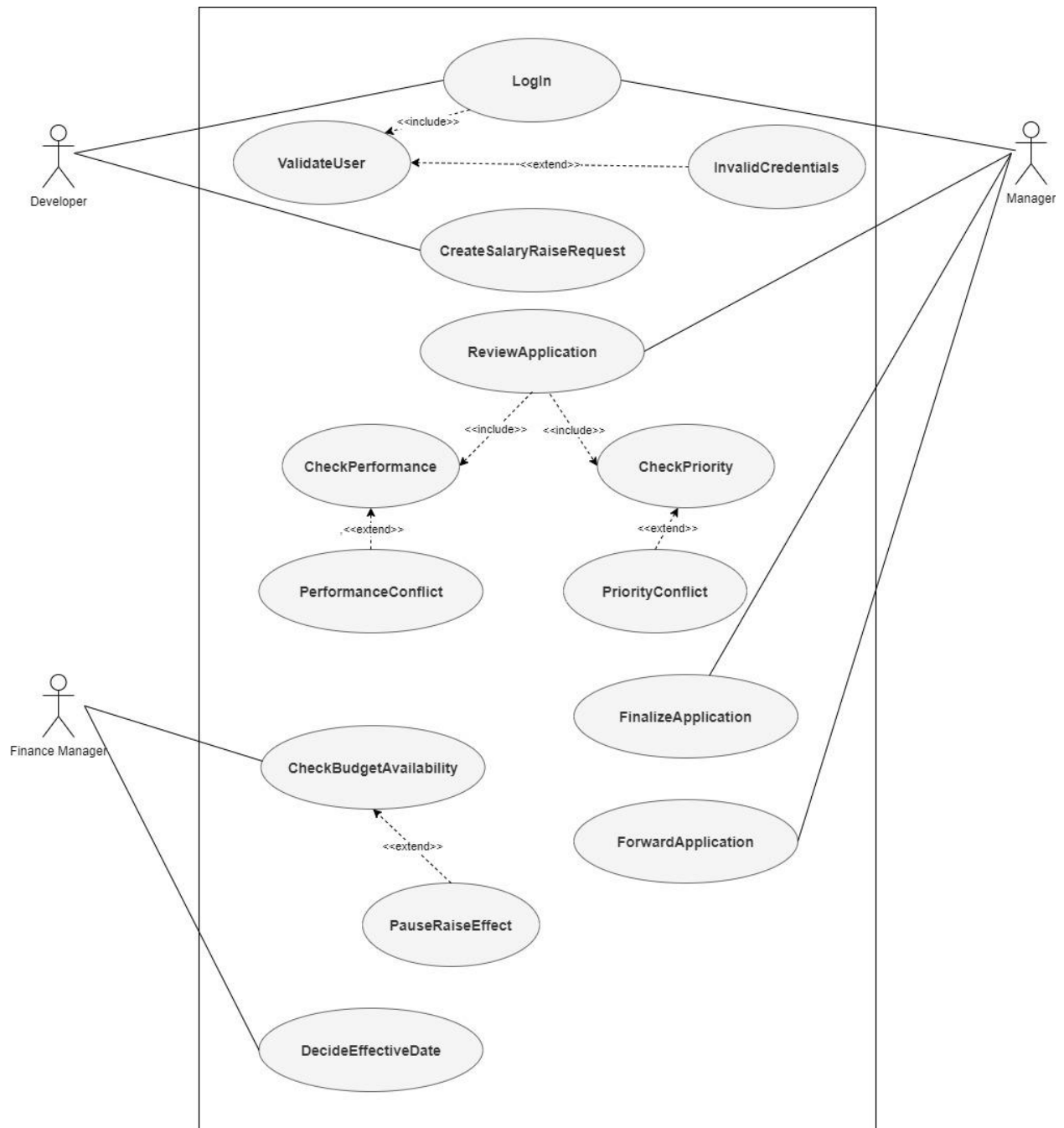
Quality Conditions:

The system should be available and functioning without unexpected interruptions.

Event Flow:

1. Developer chooses to create a new salary raise request application.
2. System displays the requested form.
3. Developer fills the application with the required reason for salary raise.
4. Developer chooses to send the application to the manager.
5. System displays the new request to the manager.
6. Manager reviews the application and chooses to review the performance record.
7. System displays the performance record to the manager.
8. Manager chooses to review the salary raise priorities for the other developers.
9. System displays the list of salary raise requests to the manager.
10. Manager reviews the application and chooses to approve or reject the application.
11. System send the approved application to the finance manager.
12. Finance manager checks if the budget allows for approving the raise at the current time.
13. Finance manager decide from when the raise will be effective.
14. System displays the result of the request to the initiator developer.

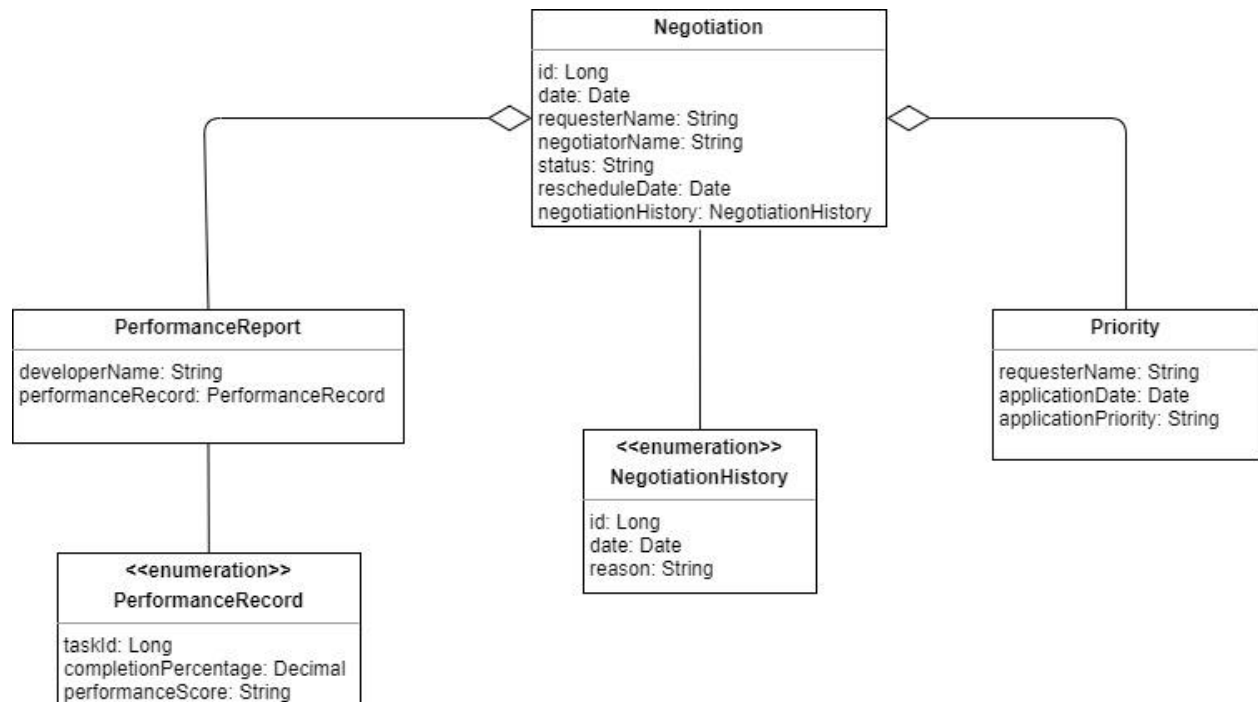
Use Case Diagram:



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Question Two : Class Diagrams

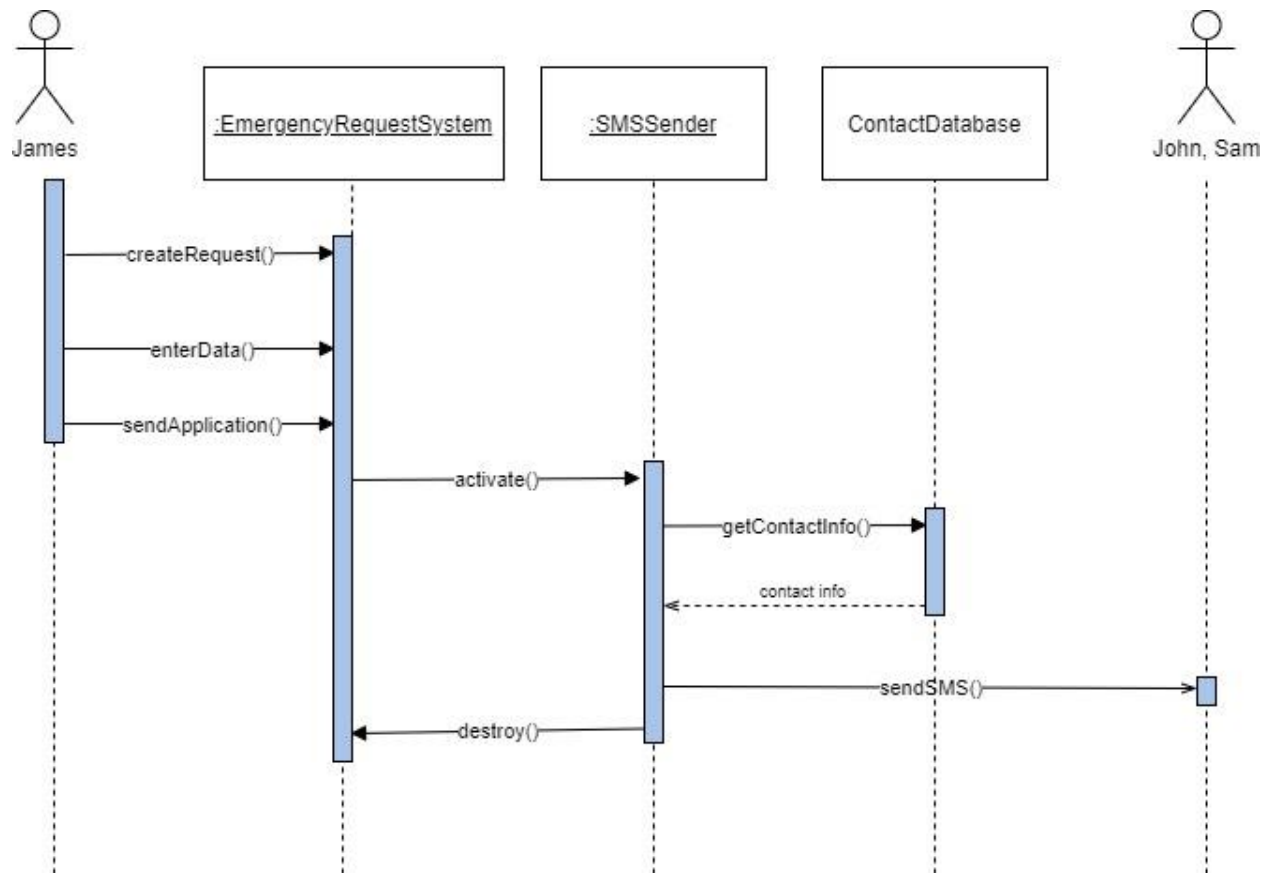
Solution:



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Question Three: Sequence Diagrams

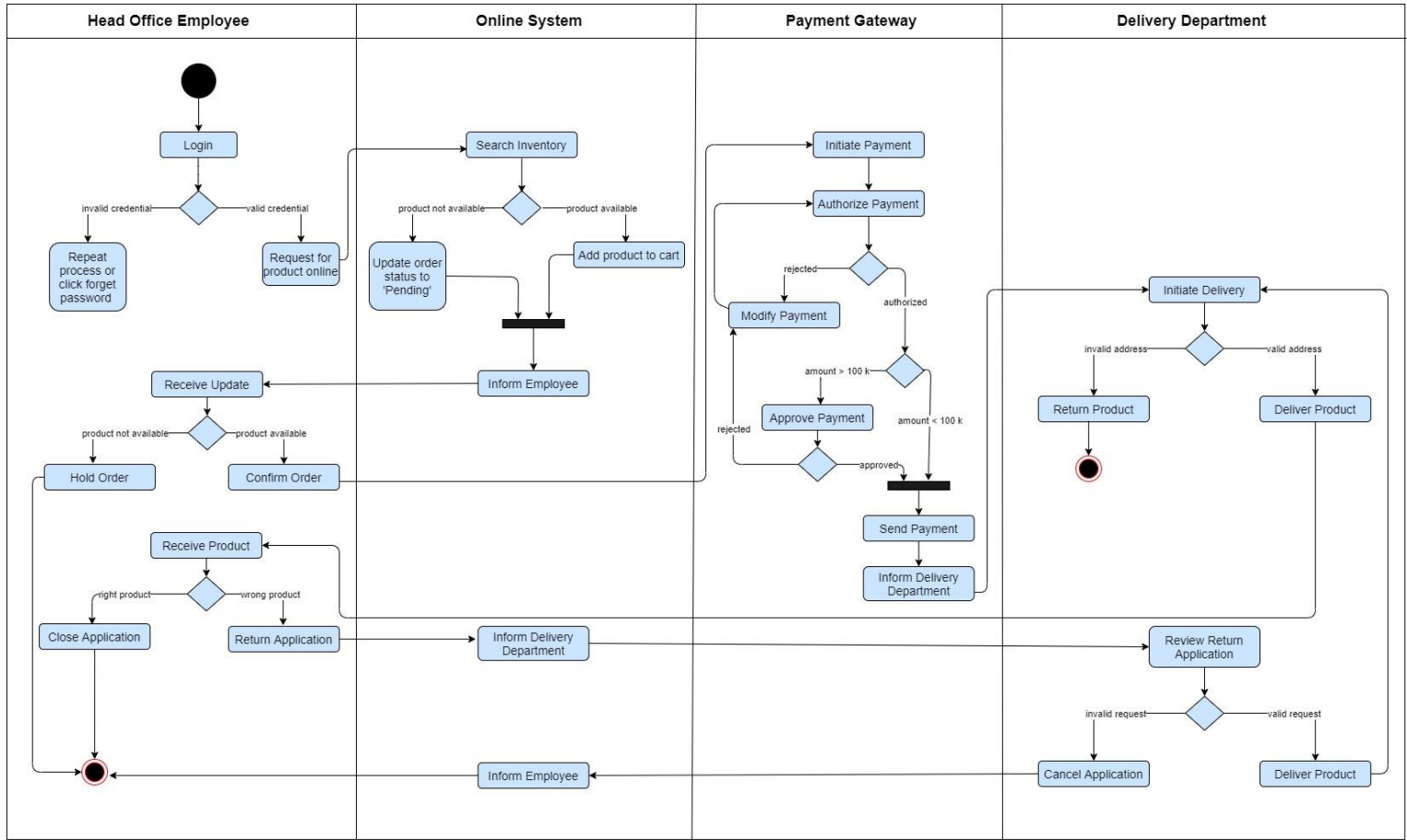
Solution:



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Question Four: Activity Diagrams

Solution:



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