WIA2002 Software Modelling
Semester 1, 2016/17
Tutorial 8 (Ans)

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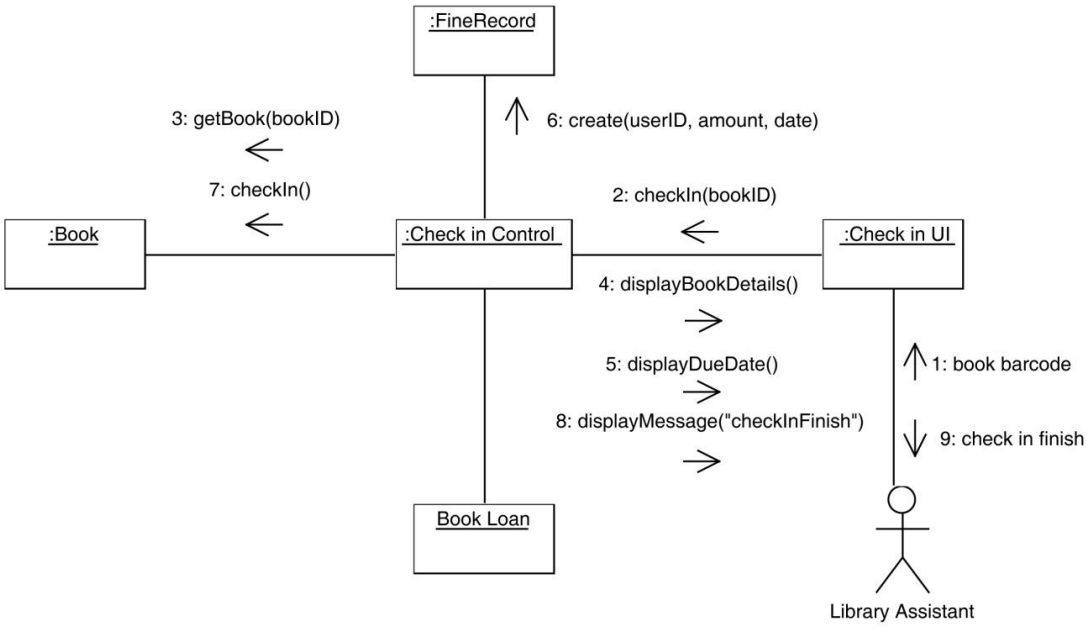
1. **You are asked to develop a library information system (LIS) for a public library. The LIS will be used to handle book loan and return procedures. Draw a communication diagram for a book return scenario in which the book is overdue. You need to include entity, boundary and control classes in this diagram.**

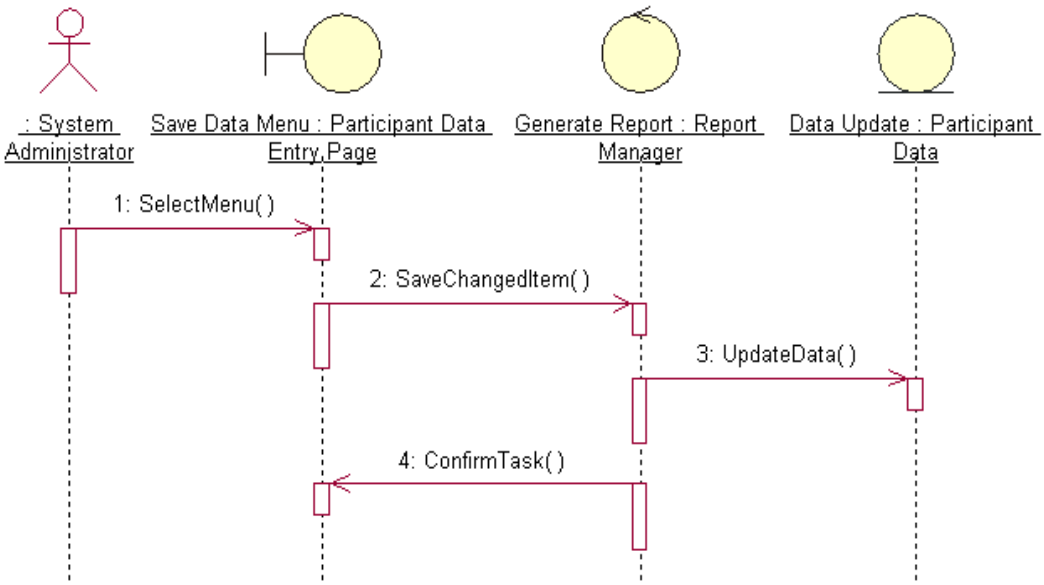
   Return Book Scenario:

   Books are returned through a collection box at the library entrance. When the Library assistants check in the returned books with the LIS administrator terminals, he/she has to scan the barcode of the book. The system displays the book details and the due date of the book loan. If a book is returned late, an overdue fine is calculated and a new fine record is created. Overdue fine is $1 per day. Once the book return is completed, the system will display a message "Check in Finish".

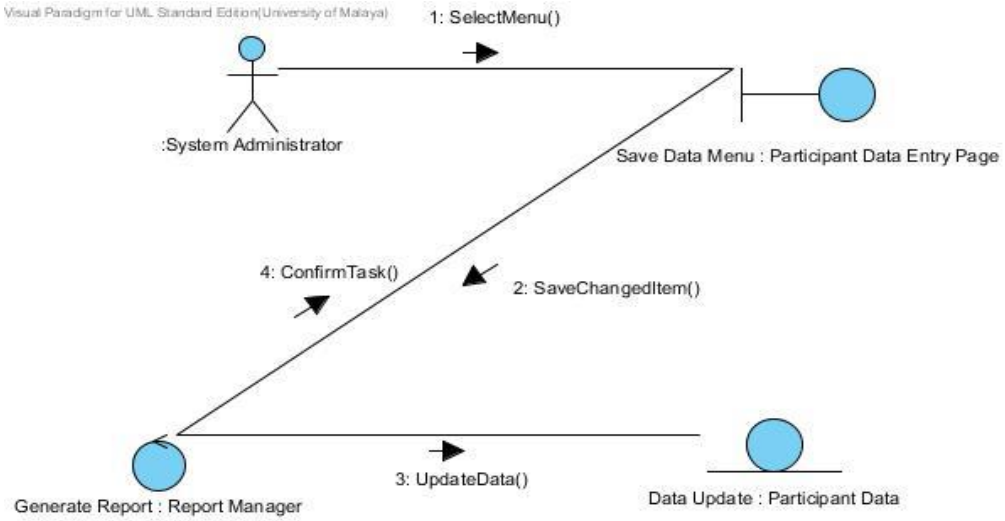
   Sample Communication Diagram:



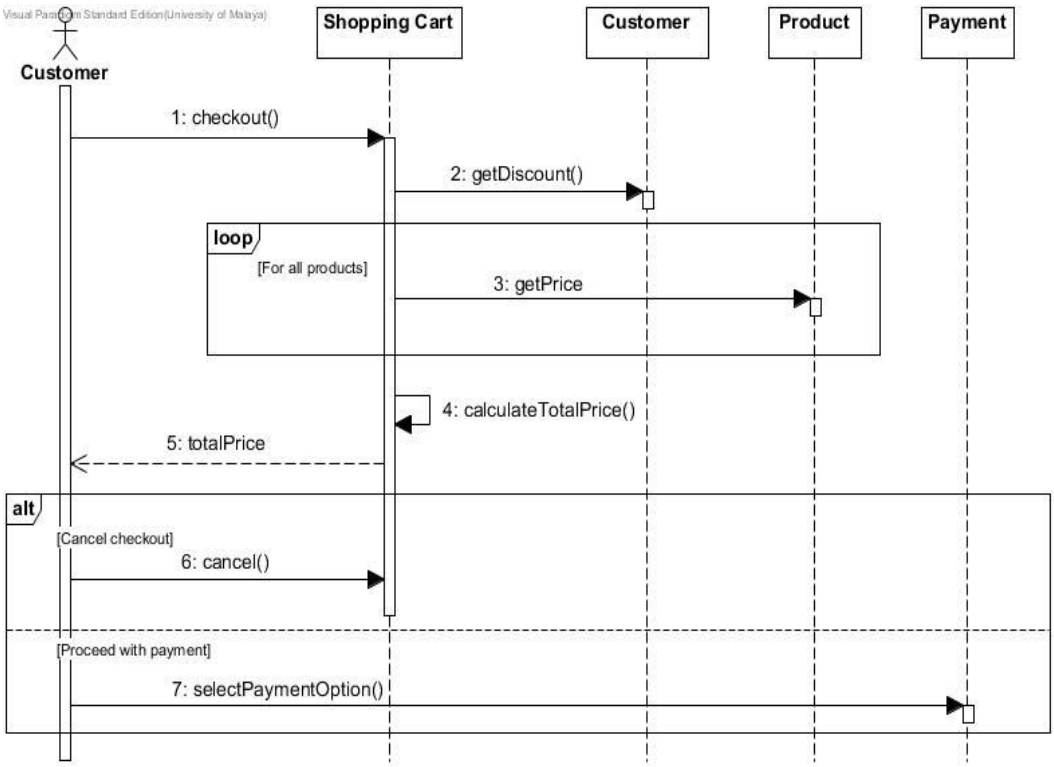
2. Draw a communication diagram based on the following UML sequence diagram.



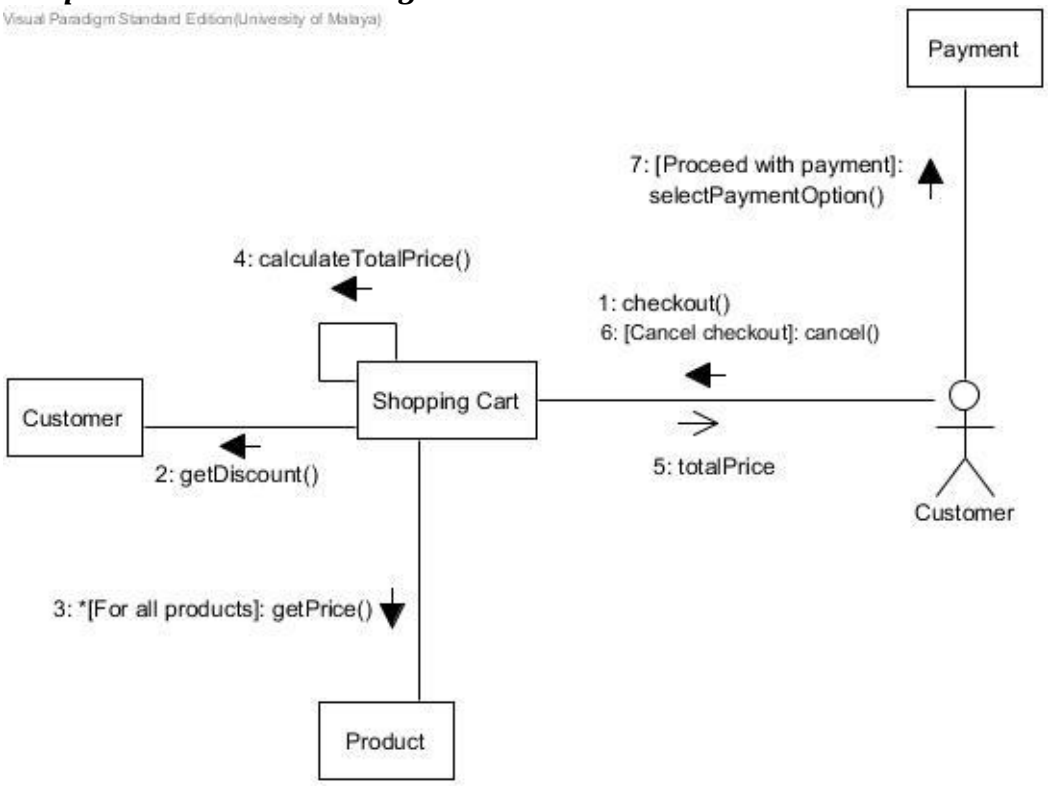
Sample Communication Diagram:



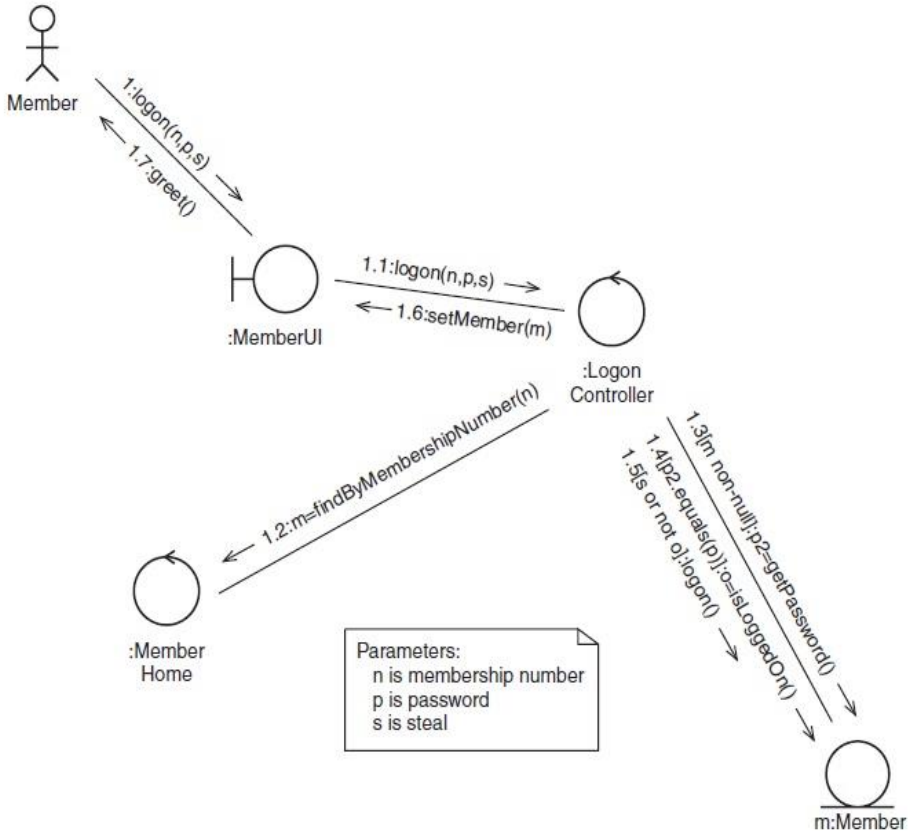
3. Draw a communication diagram based on the following UML sequence diagram.



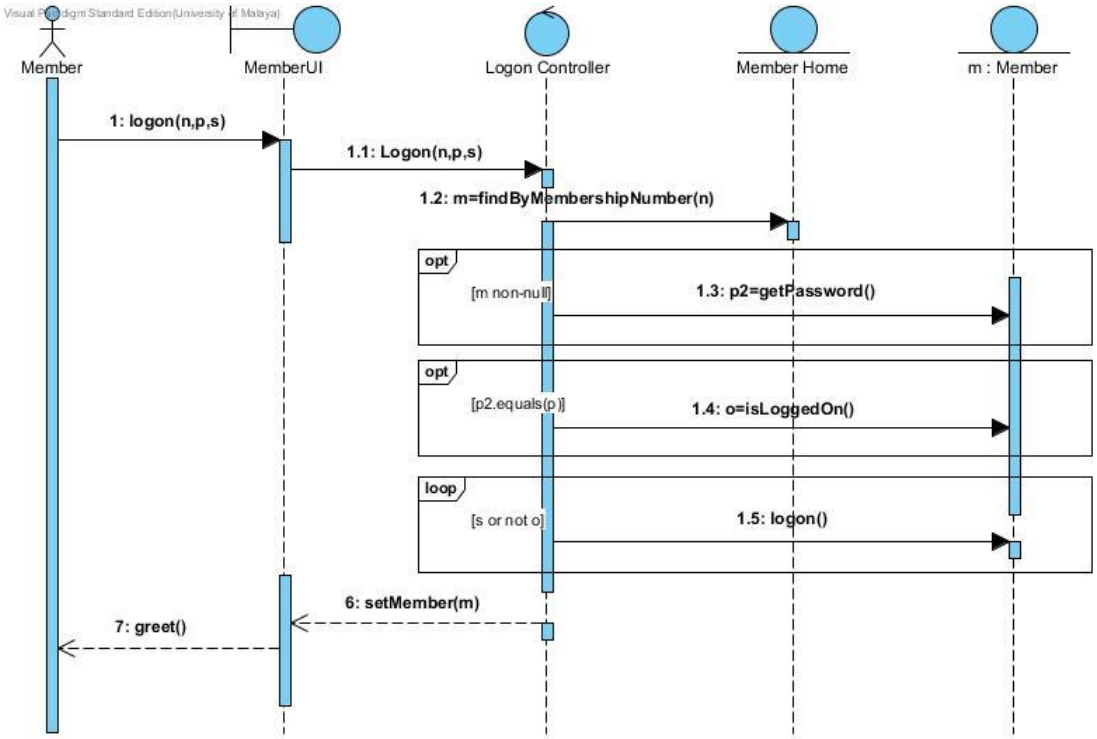
Sample Communication Diagram:



4. **Draw a sequence diagram based on the following UML communication diagram.**

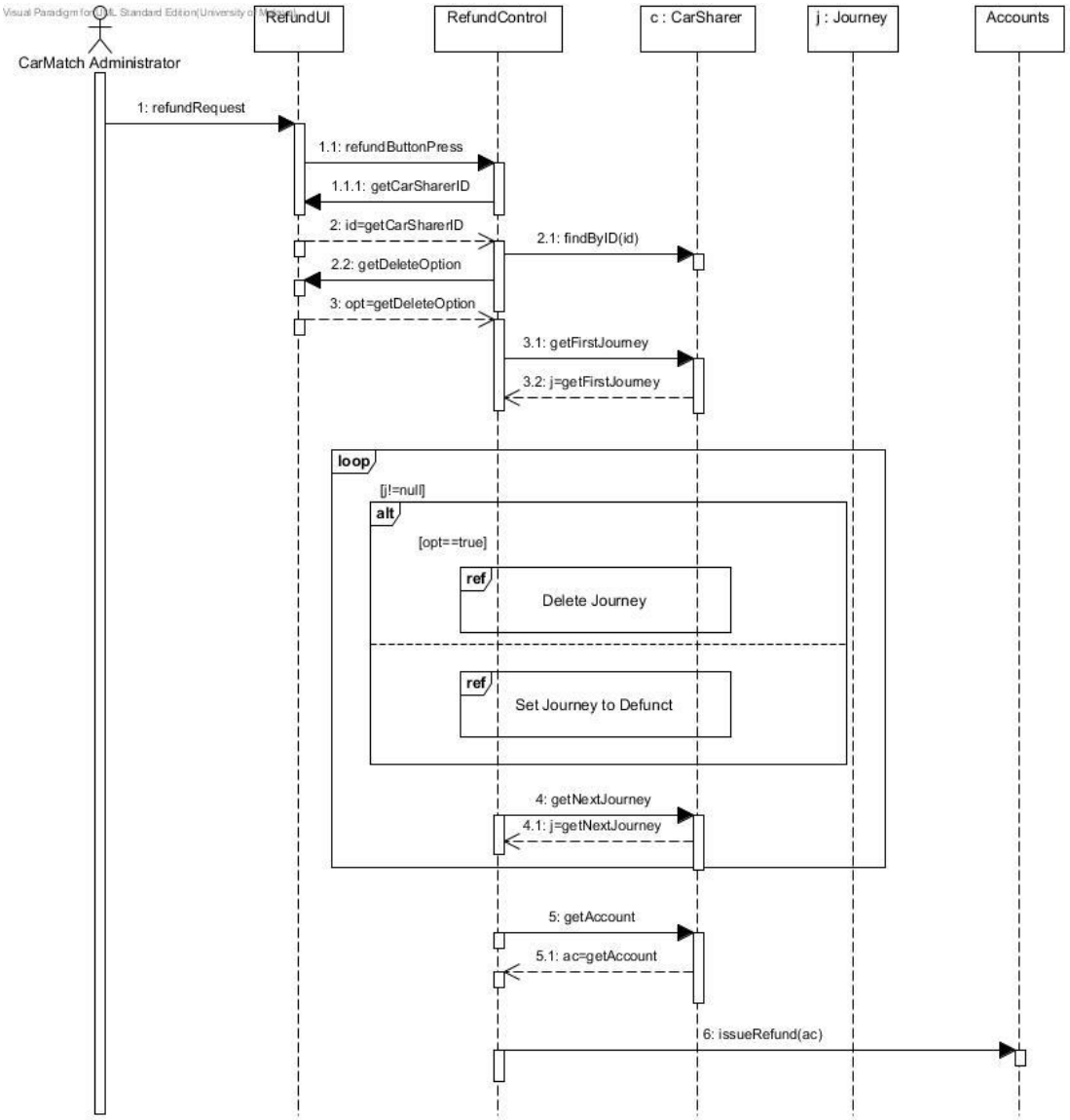


Sample Sequence Diagram:

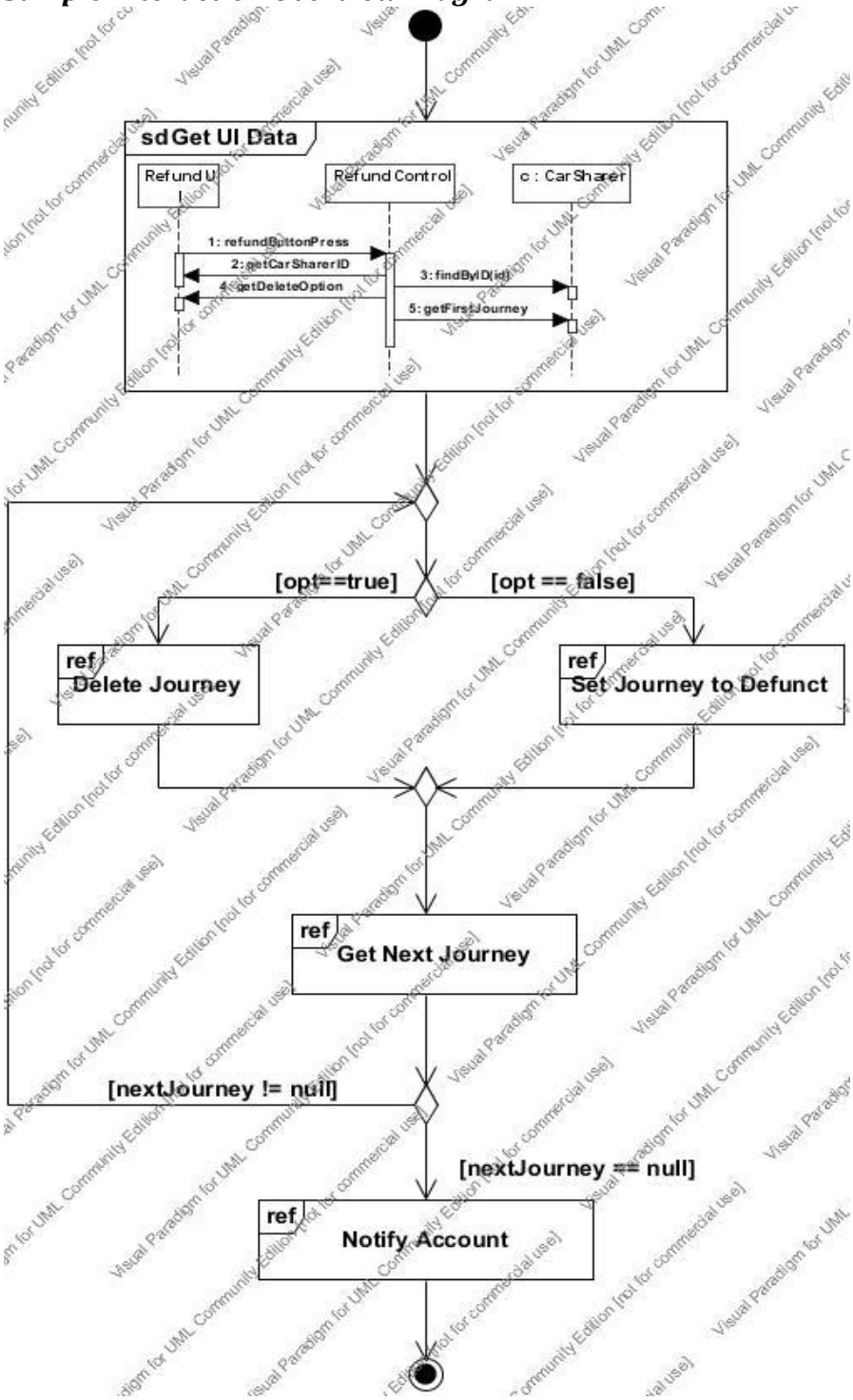


5. Interaction Overview Diagram

Convert the following Sequence Diagram for Refund Membership Fee to an Interaction Overview Diagram:

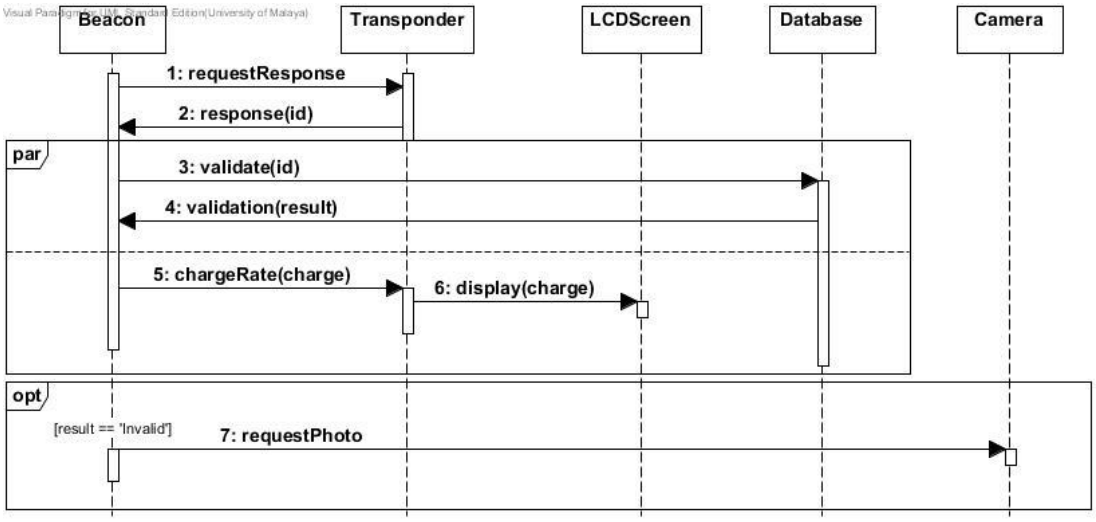


Sample Interaction Overview Diagram:

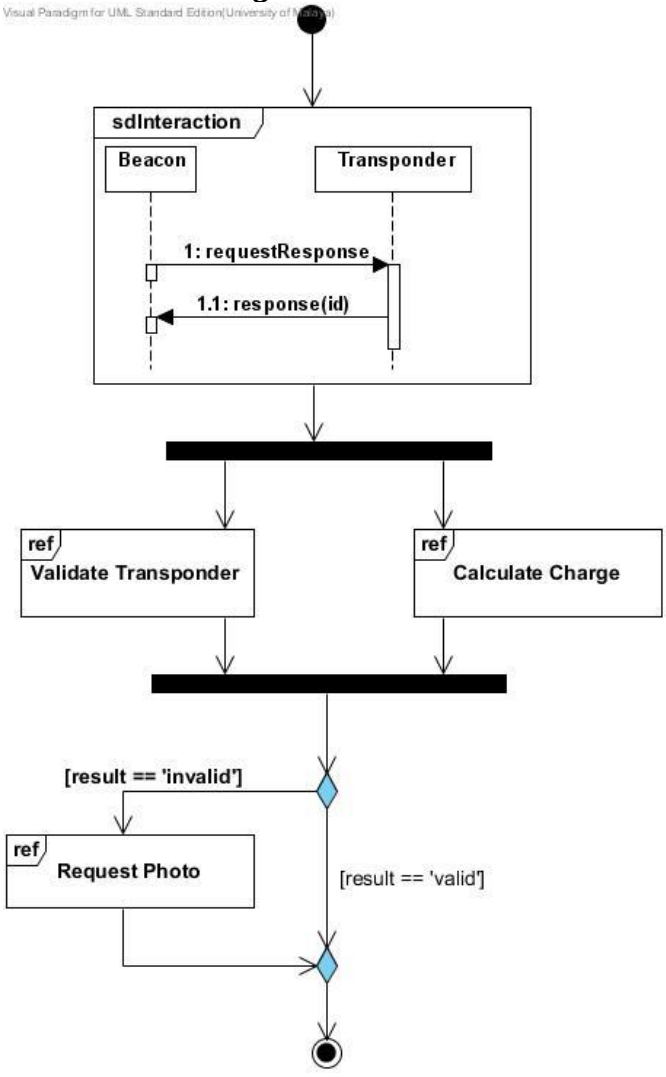


6. Interaction Overview Diagram

Convert the following Sequence Diagram for Vehicle Passes Beacon to an Interaction Overview Diagram:

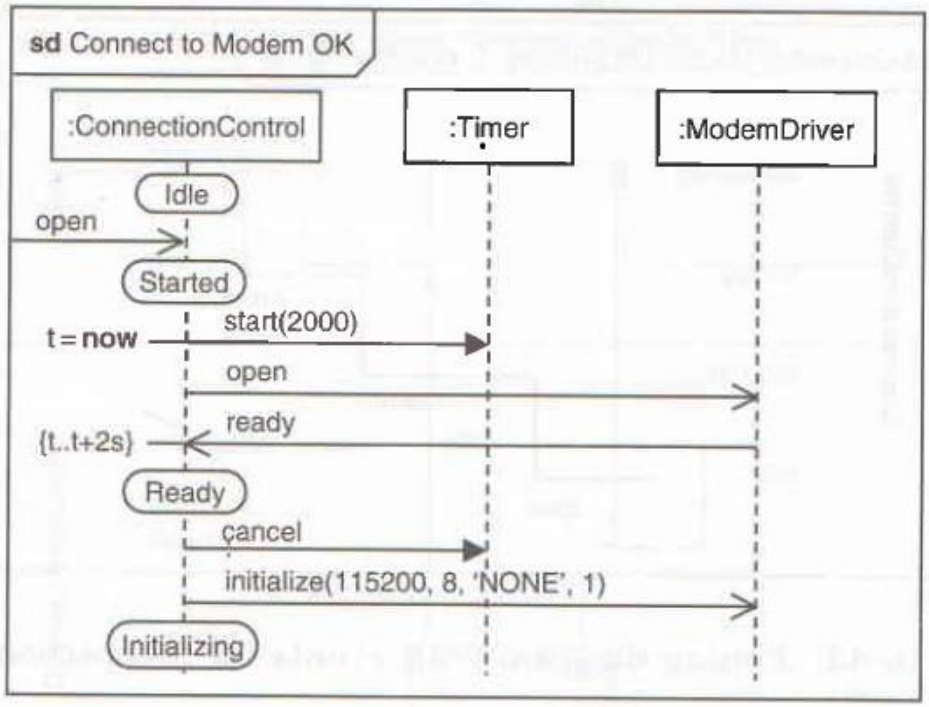


Sample Interaction Overview Diagram:



7. Timing Diagram

Draw a timing diagram based on the following sequence diagram with states and timing constraints.



Sample Timing Diagram: