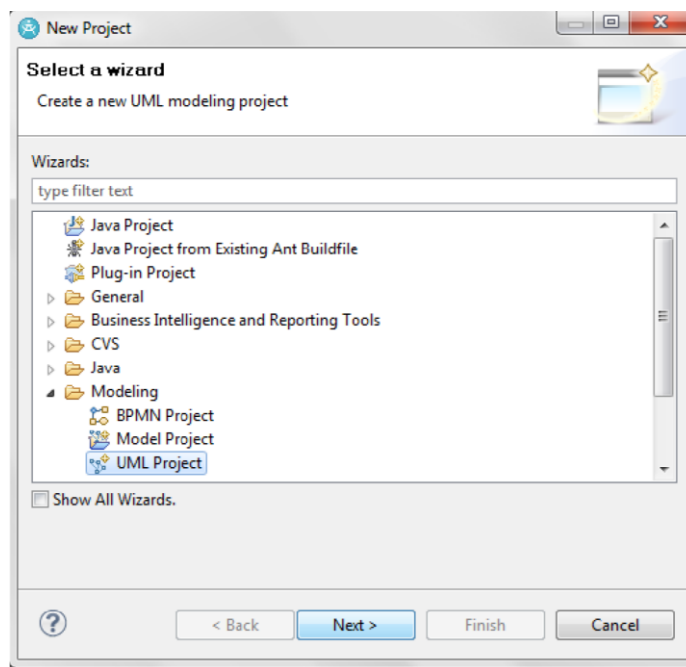


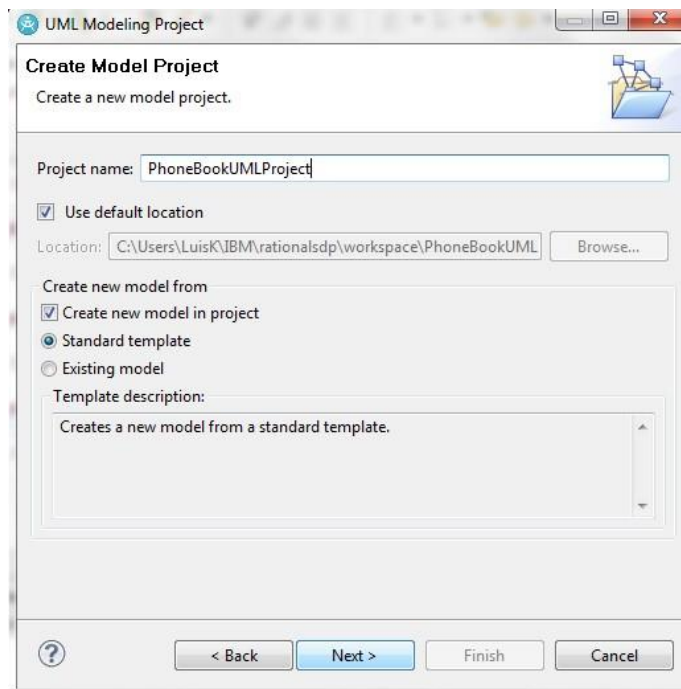
Lab 10 –Sequence and Class Model by Applying GRASP

Creating Sequence Diagram in RSA

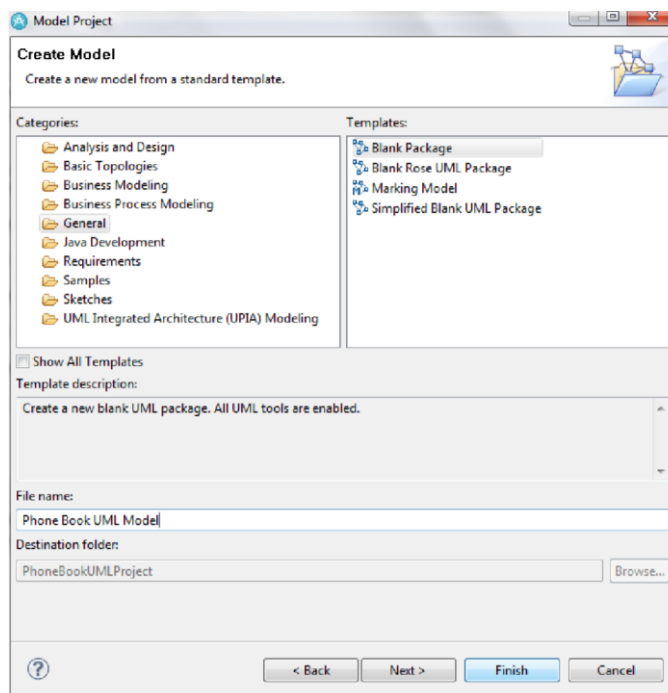
1. Go to **File > New > Project**.
2. Select the **UML Project** wizard. Click **Next**



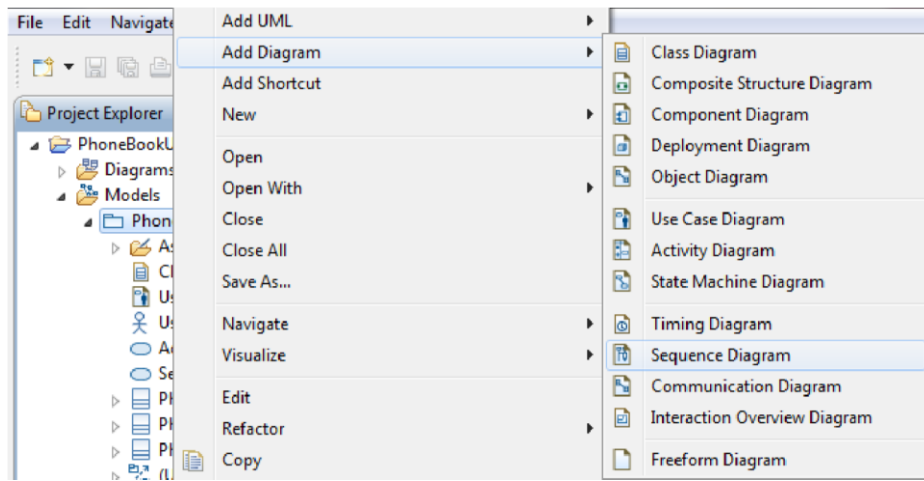
3. Enter a Project Name. Click **Next**.



4. On the Create Model Step, choose category **General** and template **Blank Package** and enter a model name. Click **Finish**.



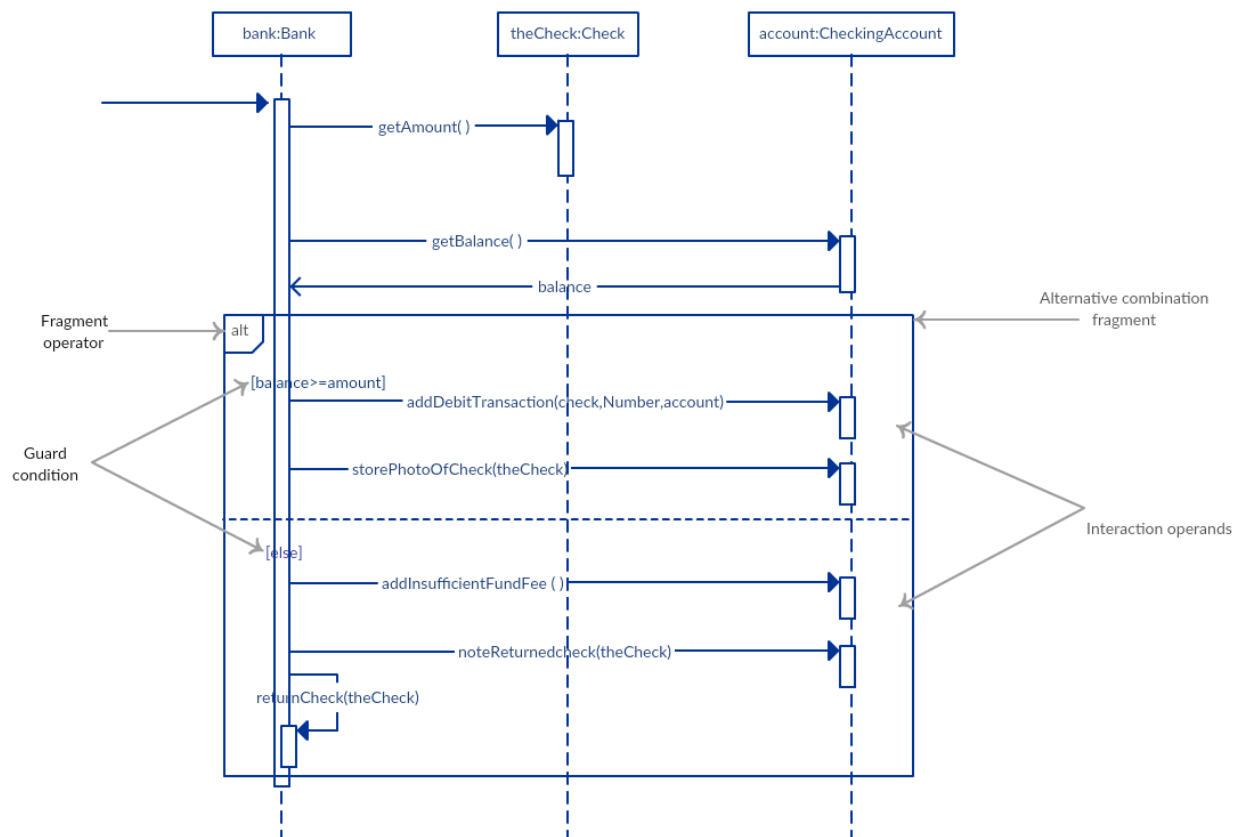
5. Now you can see your UML Project with two subdirectories. The first subdirectory is Diagrams, which will only show the UML diagrams you create organized by the type of diagram. The second subdirectory, Models, will show the diagrams and all the UML objects that you create within the model.
6. Right click the package and select Add Diagram > Sequence Diagram.



7. Enter a name for your diagram. Now you will see a pane where you will be able to add items from the palette to the diagram.

Alternatives

The alternative combination fragment is used when a choice needs to be made between two or more message sequences. It models the “if then else” logic.



Options

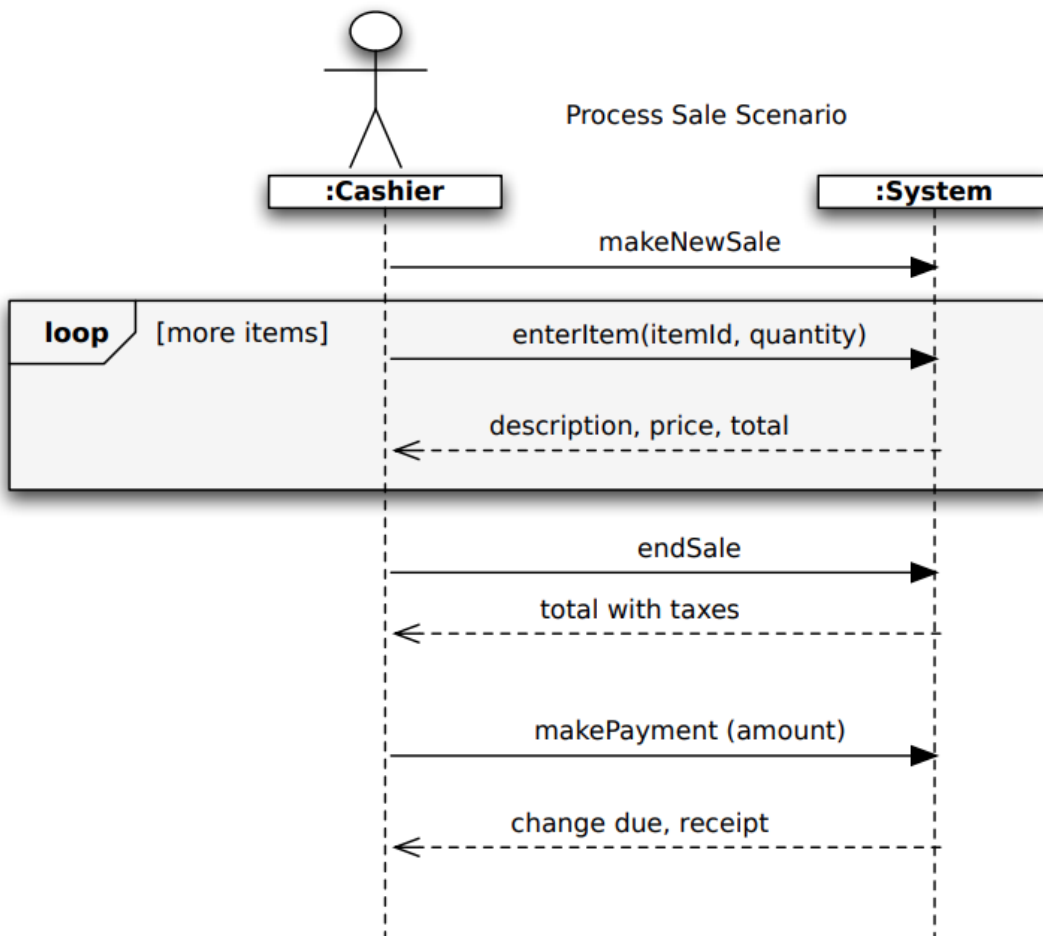
The option combination fragment is used to indicate a sequence that will only occur under a certain condition, otherwise, the sequence won't occur. It models the "if then" statement.

Similar to the alternative fragment, the option fragment is also represented with a rectangular frame where 'opt' is placed inside the name box.

Unlike the alternative fragment, an option fragment is not divided into two or more operands. Option's guard is placed at the top left corner.

Loops

Loop fragment is used to represent a repetitive sequence. Place the words 'loop' in the name box and the guard condition near the top left corner of the frame.



Domain Model for Library Management System

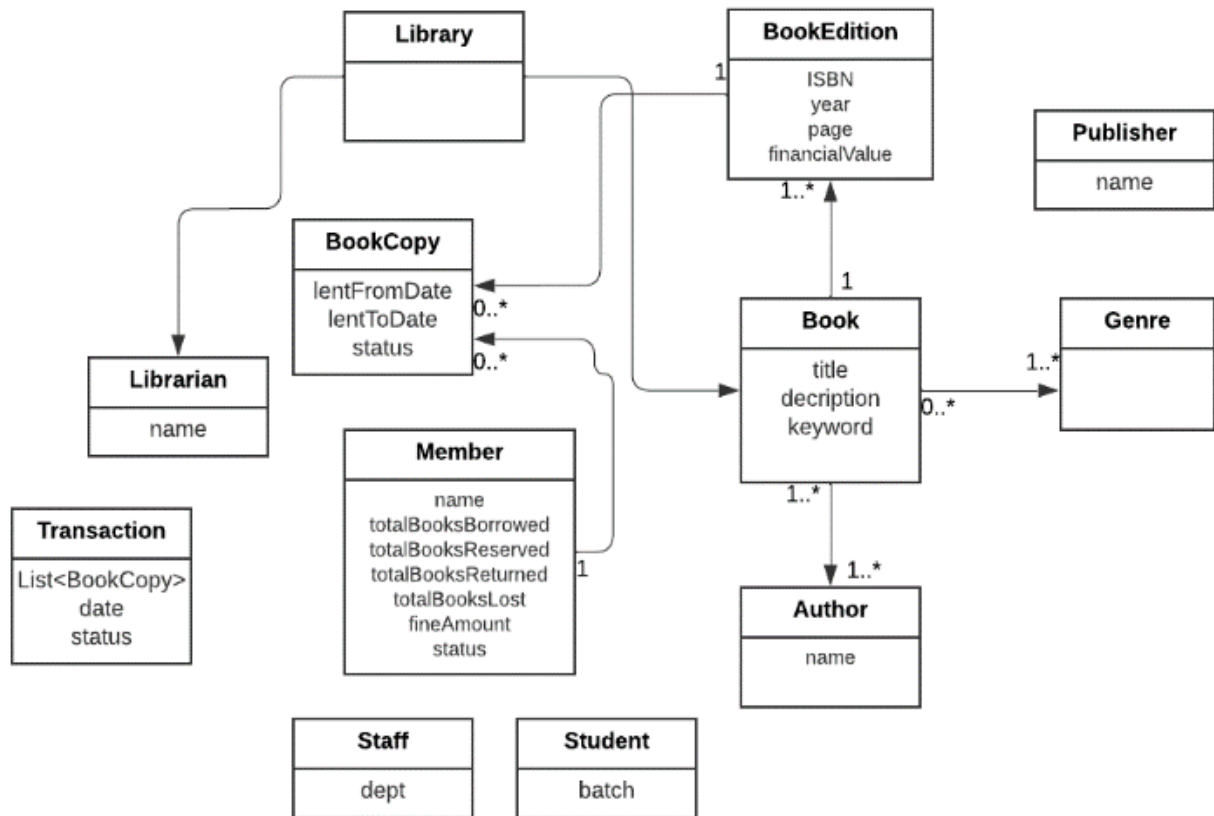
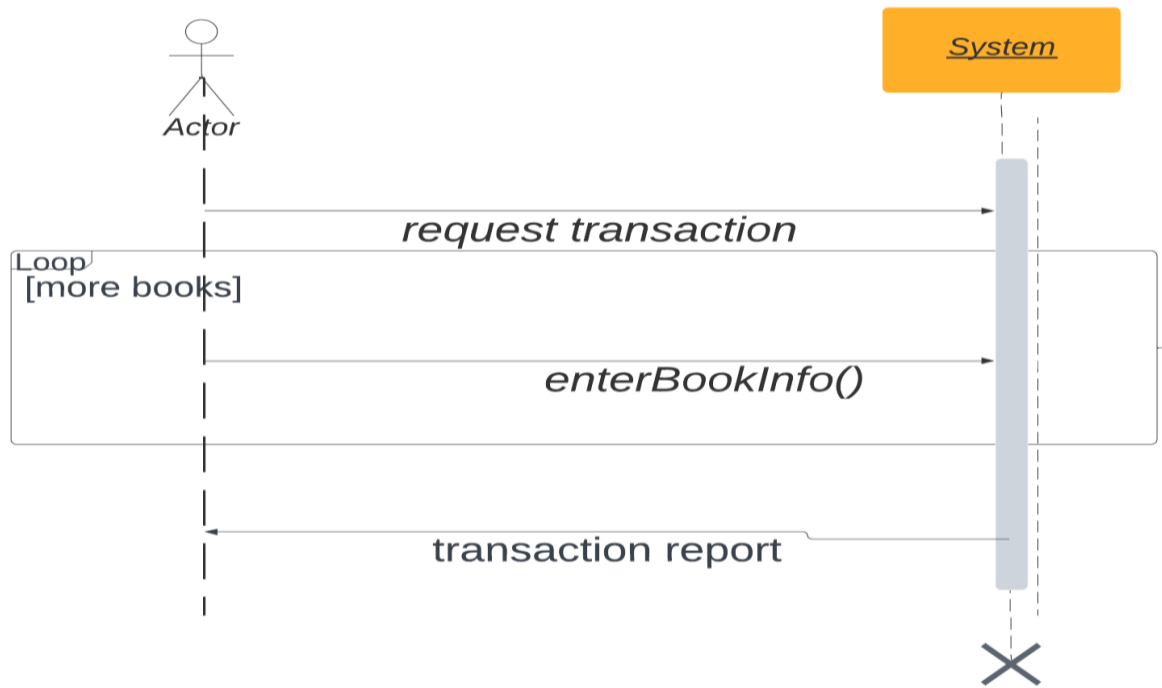


Figure 1-Domain Model

Use Case Name	Request a Transaction
Actor Actions	System Response
1. The memeber requests to borrow books from library	<p>2. The system checks the system to see if the book is available.</p> <p>3. The system will validate whether the member can borrow the book from the library. This is a two-step process of validating membership and also checking the number of books already issued.</p> <p>4. The system also needs to record the transaction in the library management system. For that he adds the member and book details to that transaction.</p> <p>5. The system next needs to update the book's status in the system, so it's clear that it has been borrowed and isn't available until returned.</p> <p>6. The system also needs to update the member's record, to indicate that they have borrowed an additional book.</p>
	2a. If the book is not available, the system will reserve the book for that member
	3a. IF member is not authorized to borrow the book, the system informs the customer

Request a Transaction



TASKS

- Create sequence diagrams with the help of given details above
- Create class diagram of library management system
- Apply GRASP patterns on system design.