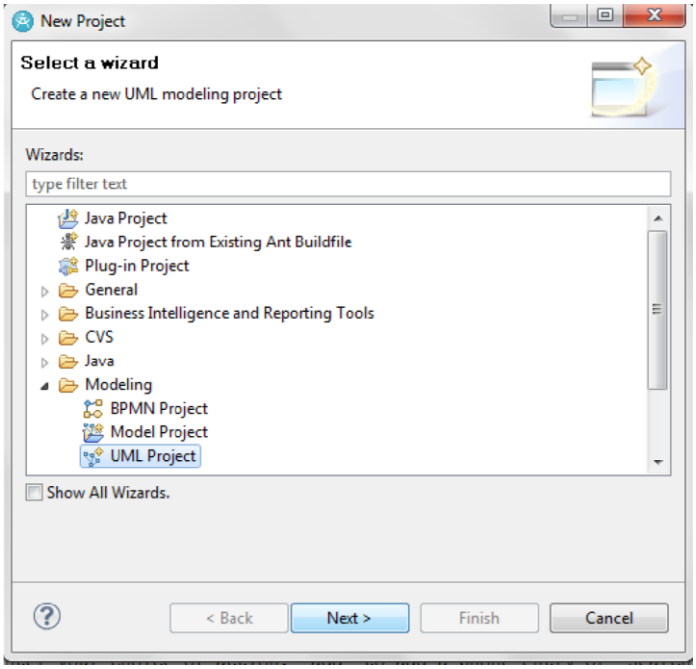
Lab 09 –Sequence and Class Model by Applying GRASP

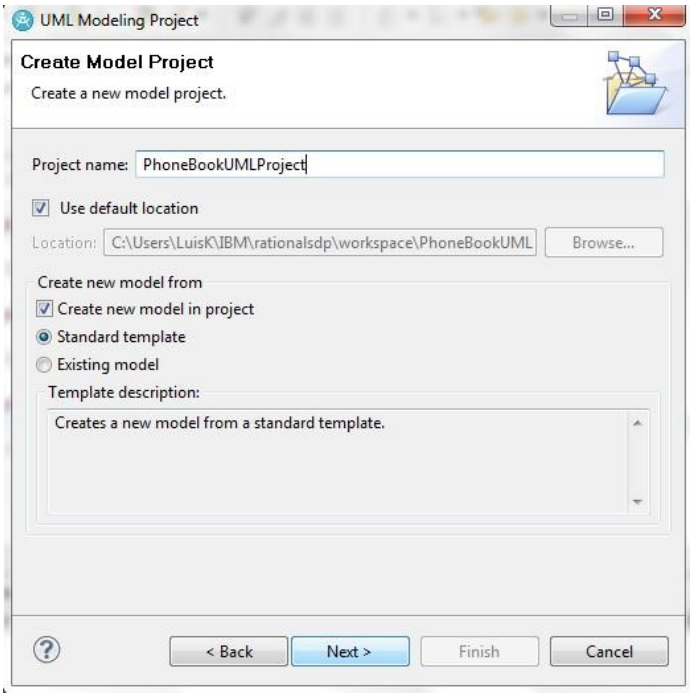
Creating Sequence Diagram in RSA

1. Go to **File** > **New** > **Project**.

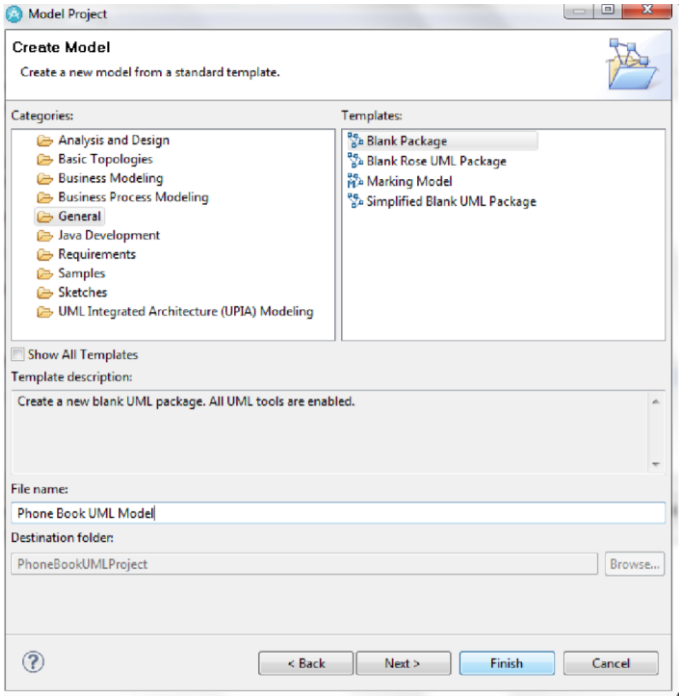
2. Select the **UML Project** wizard. Click **Next**



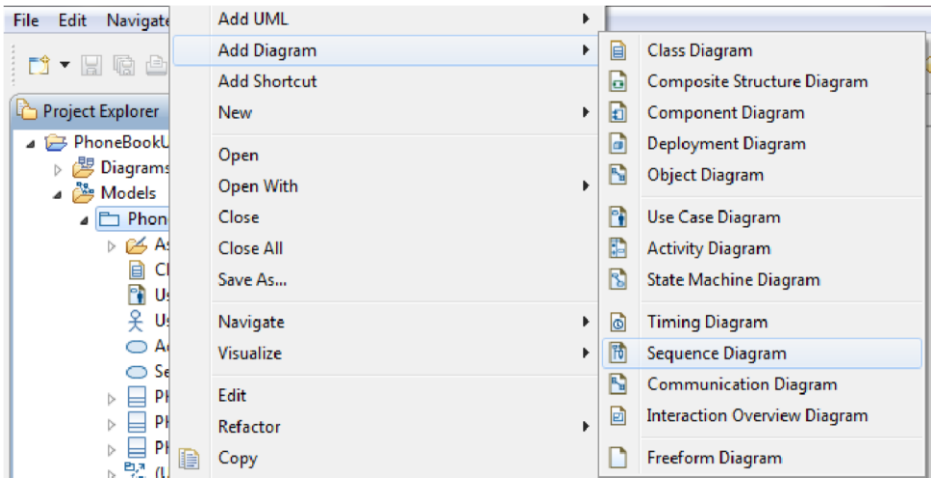
3. Enter a Project Name. Click **Next.**



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



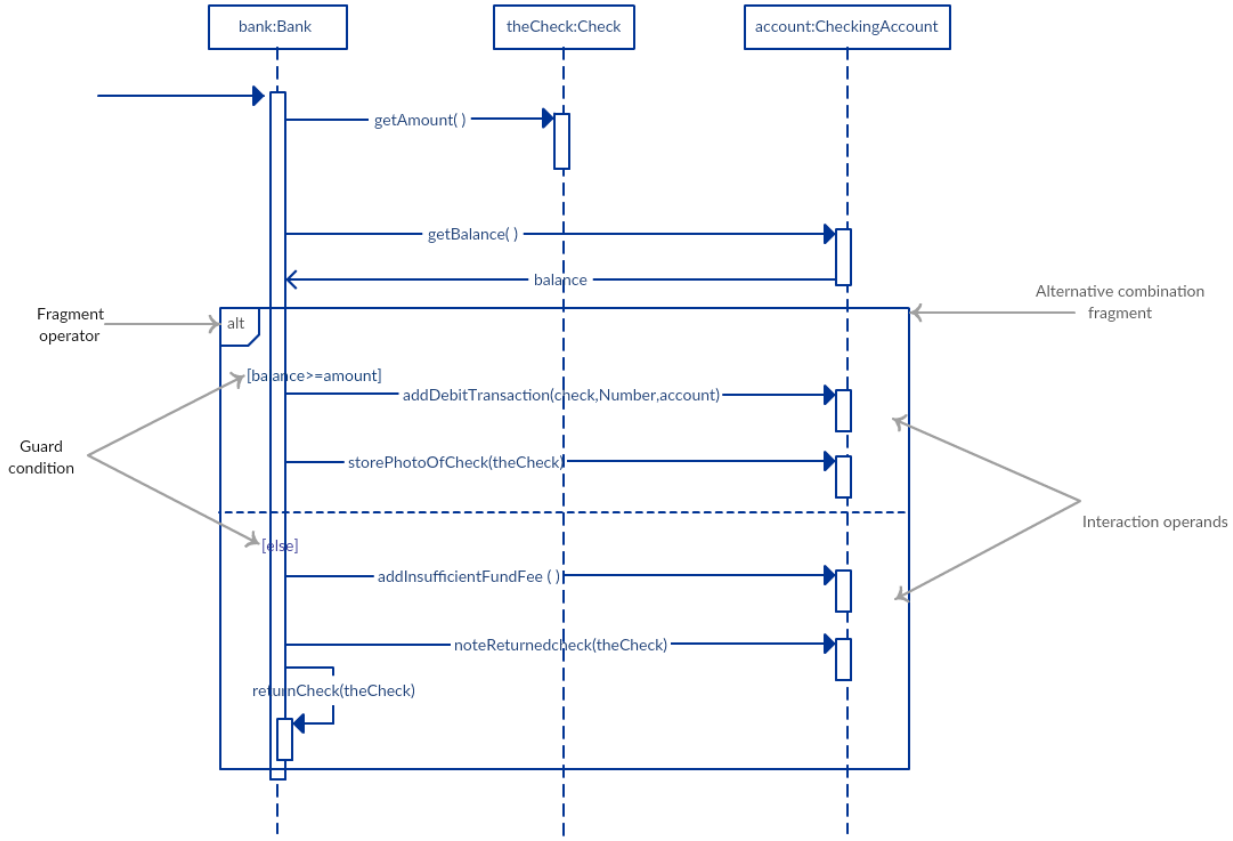
5. Now you can see your UML Project with two subdirectories. The first subdirectory is Diagrams, which will only show the UML diagrams you create organized by the type of diagram. The second subdirectory, Models, will show the diagrams and all the UML objects that you create within the model.
6. Right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

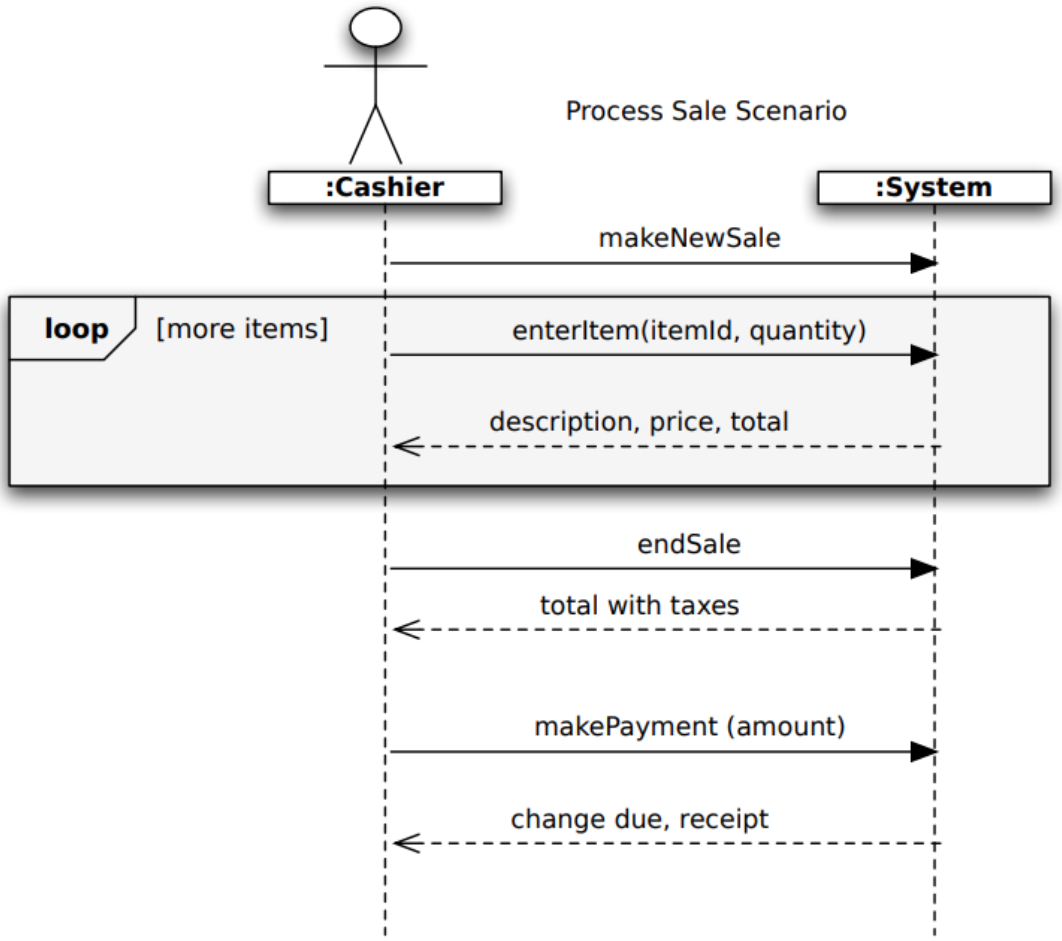
The option combination fragment is used to indicate a sequence that will only occur under a certain condition, otherwise, the sequence won't occur. It models the "if then" statement.

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.



Print-On-Demand service case study

The print-on-demand service provides customers the possibility to print posters, flyers, or books on demand. The customer should be able to select a type of product (poster, flyer, or book), a desired quantity, and a paper type. In case a book has to be printed, additionally the customer can choose between hard cover and soft cover. Finally, the customer needs to provide a PDF file containing the desired content. In order for the customer to be able to place an order, he or she must have an account. The customer can create an account by choosing a username/password combination. Furthermore, his or her address and credit card number can be linked to the account, which is required information when placing an order. Once a customer has provided the information for an order, the system checks if all required information is there, either given in the order (type of product, quantity, etc.), or in the account (Address and payment information). If any information is lacking, the system will inform the customer that it needs to be added before the order can be placed. Once all information is in place, the order is placed, and the credit card information is sent to the bank for approval. If the bank approves the card, the order is finalized. A printing agent is in charge of actually performing the printing. He or she inspects the provided PDF files of finalized orders. If a file does not meet the quality requirements, the customer will be informed about this, and the order is temporarily put on hold until the customer has provided a new PDF file.

Finally, the administrator monitors if at all times, sufficient paper and ink stock is present. Whenever the amount of paper or ink is running low, an order must be placed at the appropriate supplier.

Domain Model for print-on-demand service

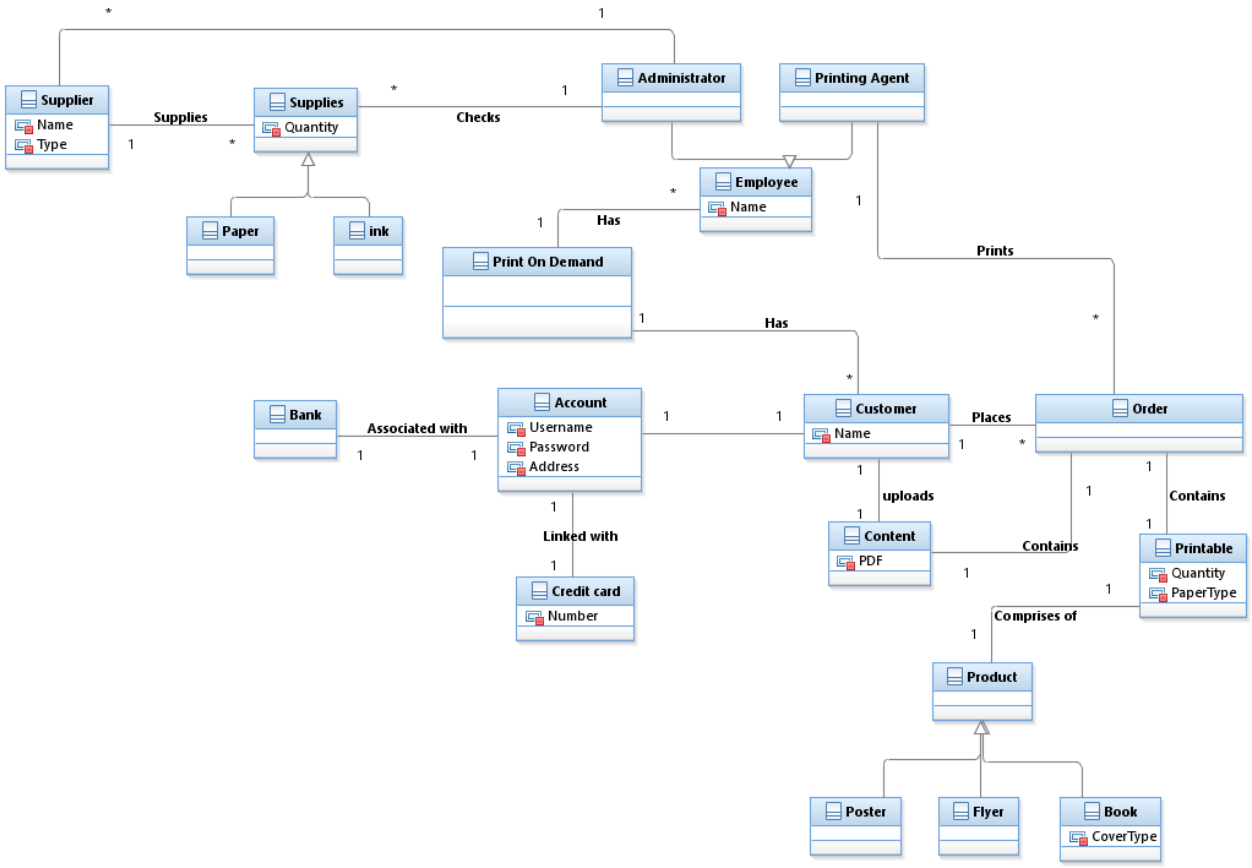


Figure 1-Domain Model

Place Print Order

TASK # 01

Create sequence diagrams with the help of given case study, system sequence and domain model

Create class diagram of Print-On-Demand system

Apply GRASP patterns on system design.

TASK # 02

Generate code from sequence diagrams and show implementation of corresponding functions