CS335 Tutorial:

Sequence Diagram with StarUML

1. **Create a sequence diagram.**

   Right click on **analysisModel** in **Model explorer**, then add **Sequence diagram**.

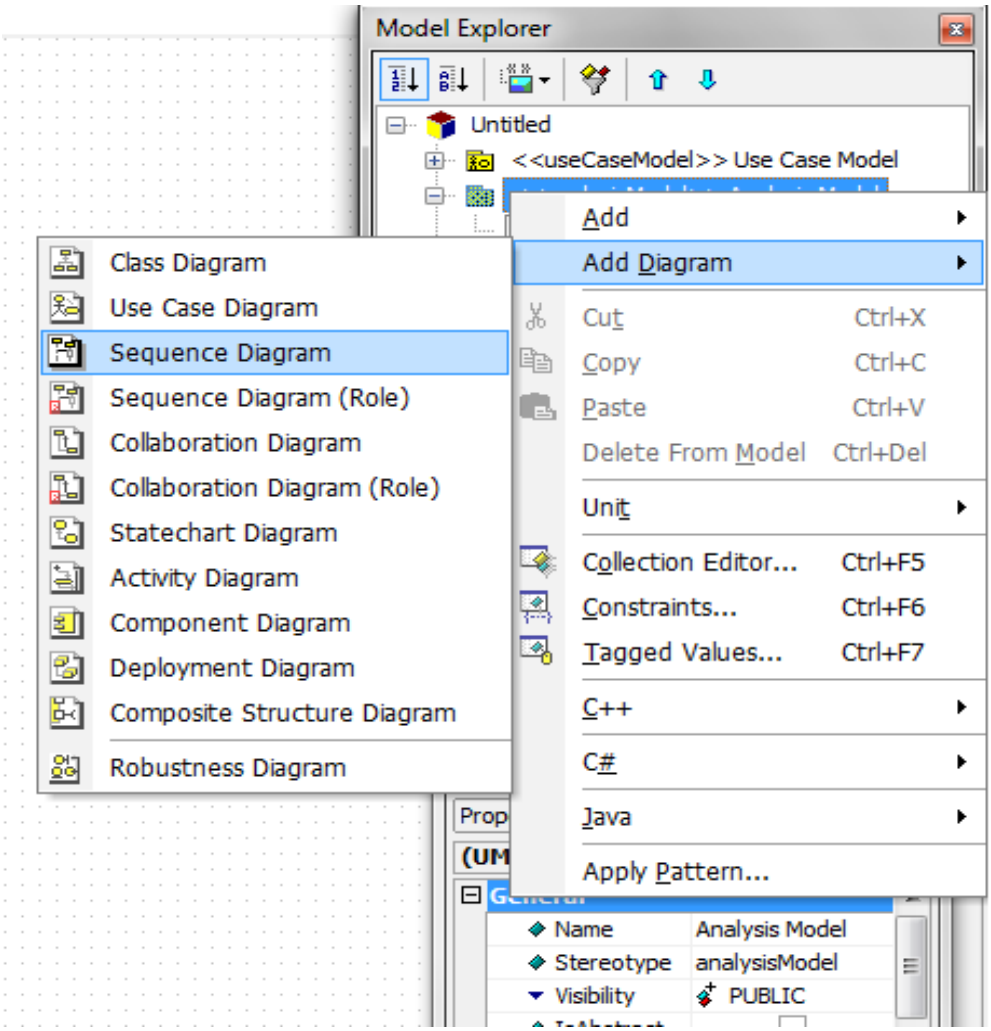

Fig.1 Creating an empty sequence diagram

2. **Create participant and message in the sequence diagram.**

   Chose **Object** to create the participant, and chose **Stimulus** to create the messages between the participants.

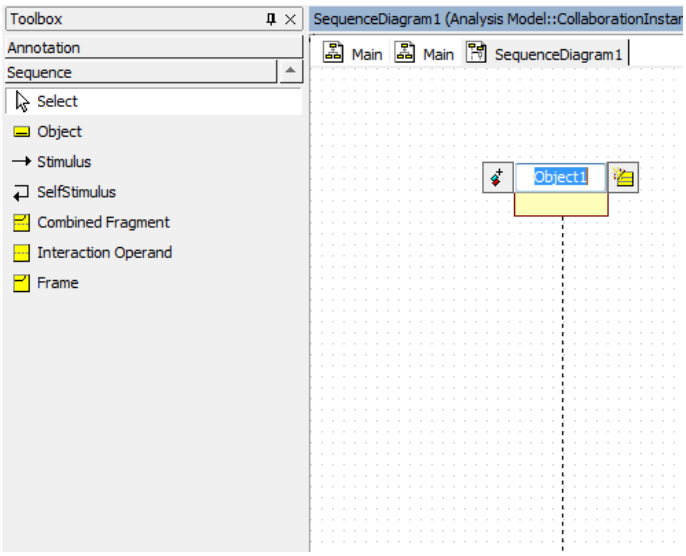

Fig.2 Creating participant and message

Note: the message can have different types, such as:

- CALL message (synchronous),
- SEND message (asynchronous),
- RETURN message
- CREATE / DESTROY message

The type of a message can be chosen in the **Diagram Explorer → Properties → Actionkind.**

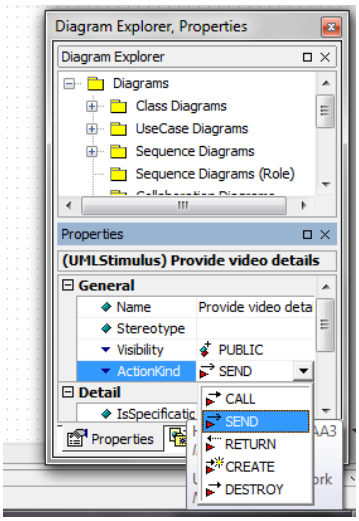

Fig. 4 Choosing message type

Fig.4 gives some examples for different types of message.

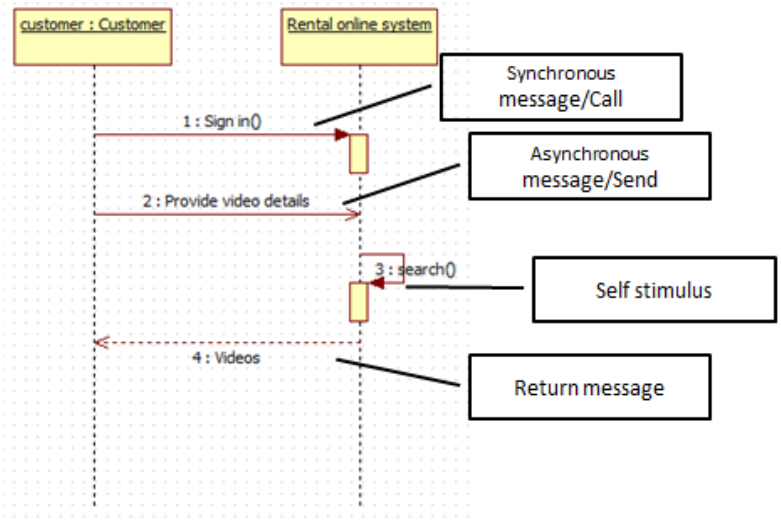

Fig. 4 Different types of message

3. **Adding conditions/alternative messages.**

We can use **Combined Fragment** when we need to model conditional interactions.

For example, to precede an online purchase, the rental online system can have two alternative interactions (depending on the feedback authentication result that returns the banking information of the customer).

- We first draw **Combined Fragment**, then in the **Properties** window choose **alt** as the **InteractionOperator**.

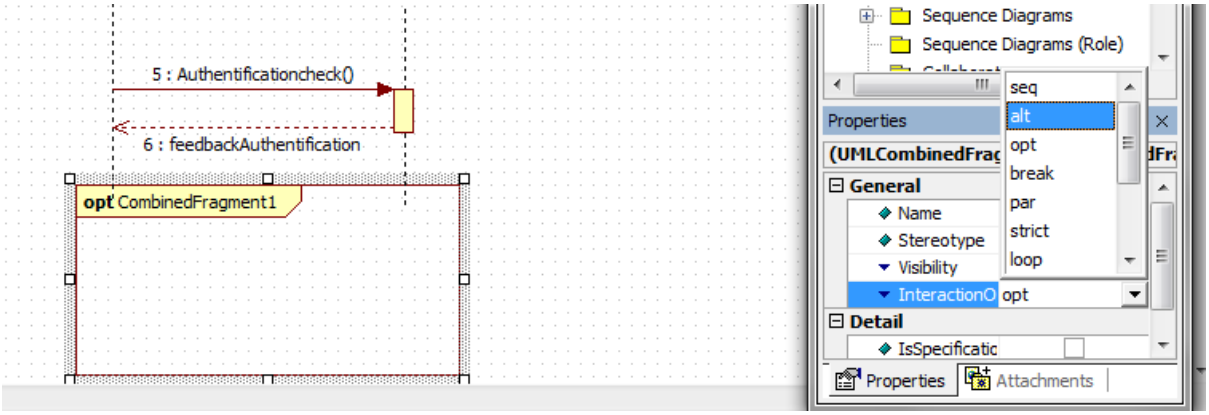

Fig. 5 Modelling alternative messages

- Now we need to add **InteractionOperand** to the **CombinedFragment**. Click on the **InteractionOperand** icon then click on the **Combinedfragment**.

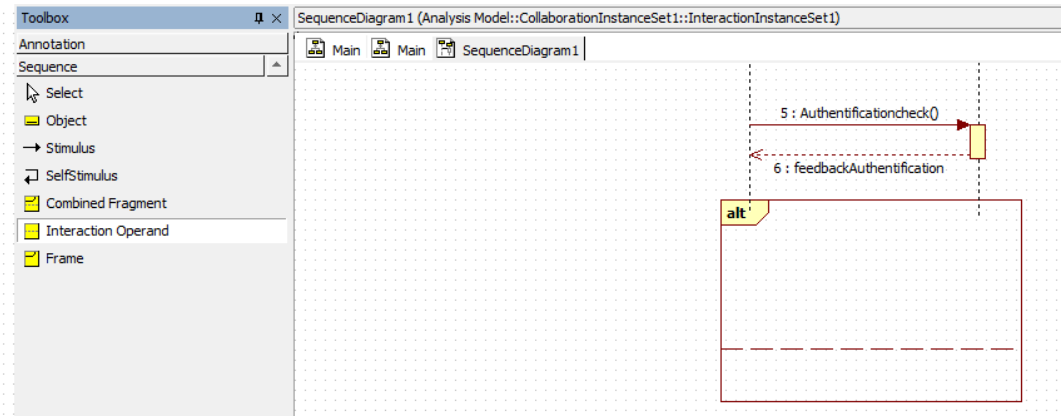

Fig. 6 Adding InteractionOperand

- Select the **first Operand**, change **Guard** condition in the **properties window** to **Approved**. Repeat the task with the **second Operand** and change the Guard to **Denied**.

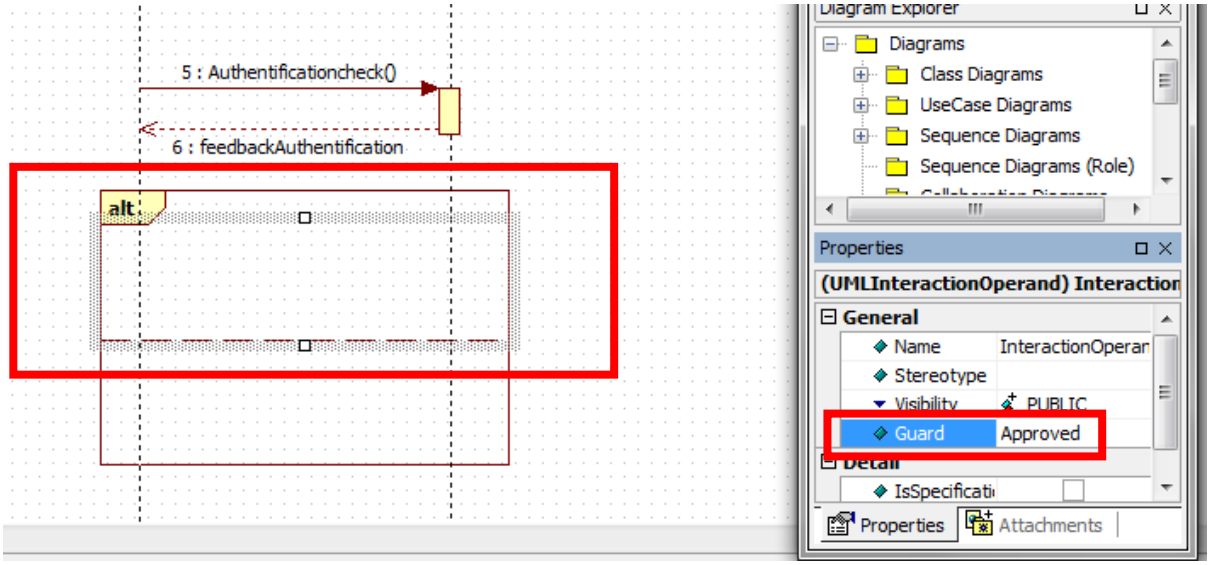

Fig. 7 Adding Guard to each operand

- Then, place the corresponding messages in these operands, for example if authentication is denied, the customer logout the system, otherwise they can place an order.

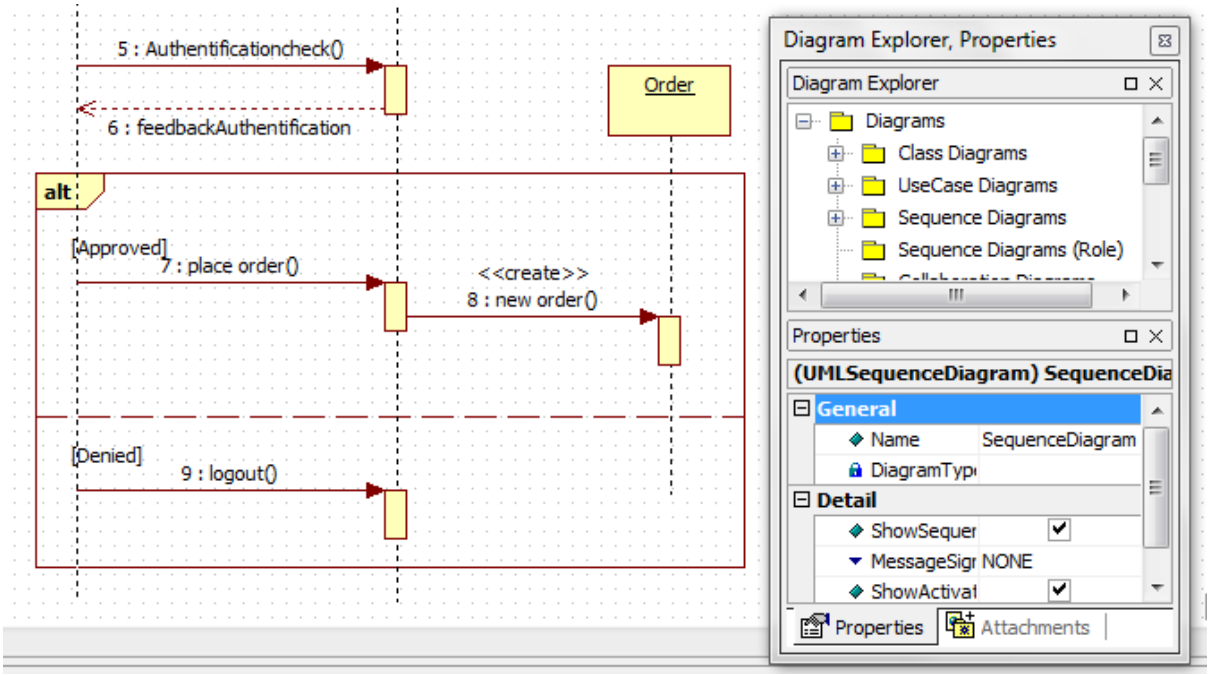

Fig. 8 Concretizing conditional messages

4. **Convert a sequence diagram to a collaborative diagram.**

We can automatically convert a sequence diagram to a collaboration diagram. Open the sequence diagram, select **Model → Convert Diagram → Convert Sequence to Collaboration**.

Fig.9 Converting a sequence diagram to collaboration diagram