COMP3111: Software Engineering

Data Model Class Diagram and Use-case Diagrams

Learning Outcomes

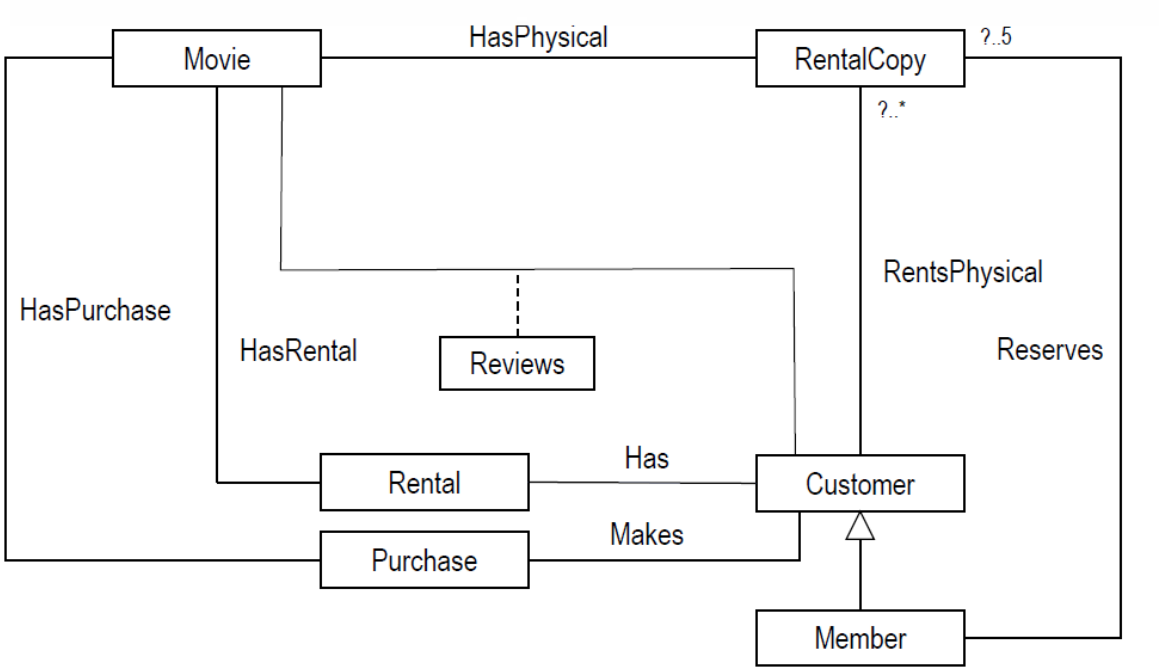
- Be able to draw Data Model Class diagrams
- Be able to draw UML use-case diagrams

Supervised Lab Exercises

Environment: We will be using https://www.draw.io to create our diagrams.

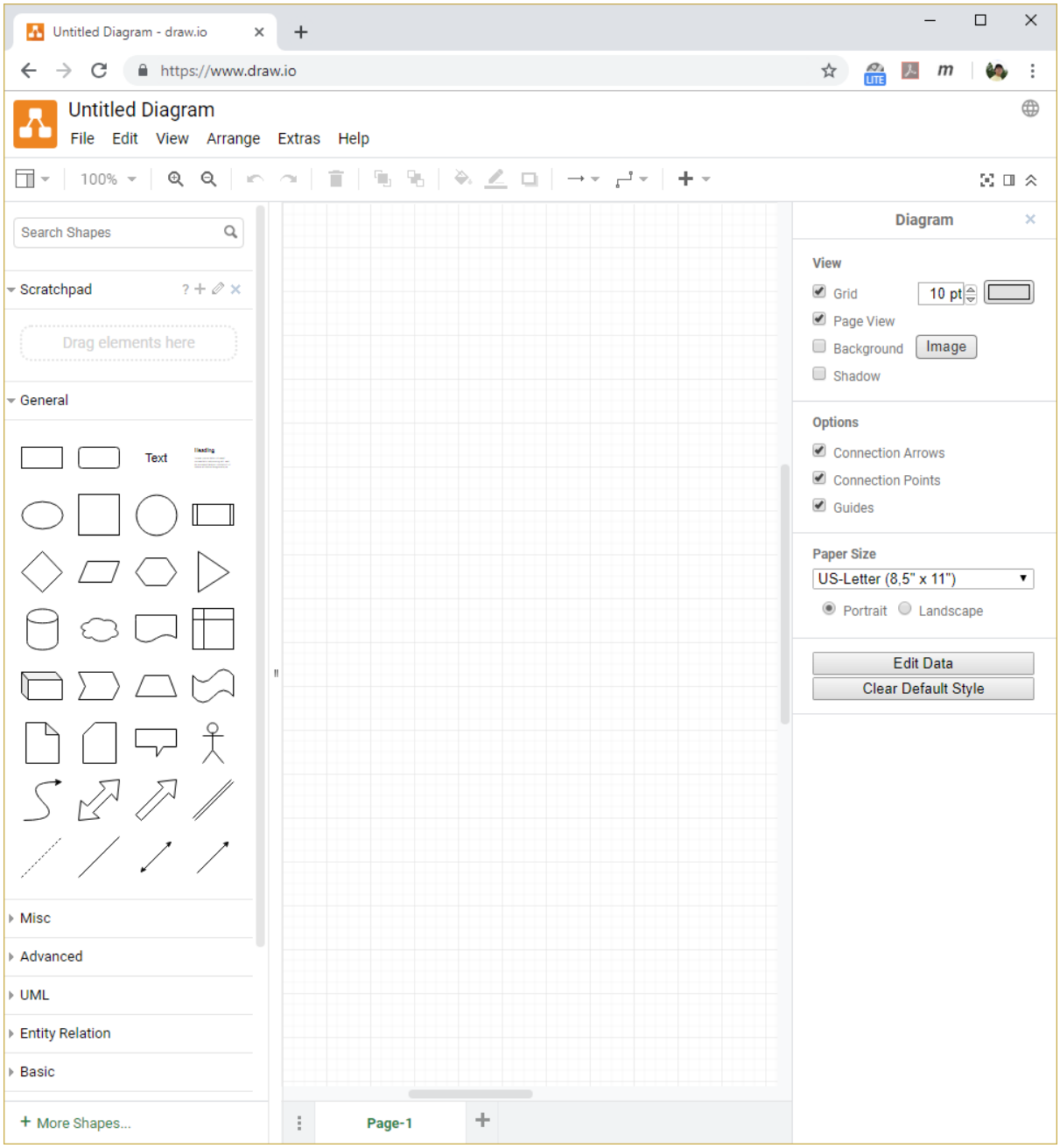
Submission/Demo – Not required.

Exercise 1: Replicate a Data Model Class diagram

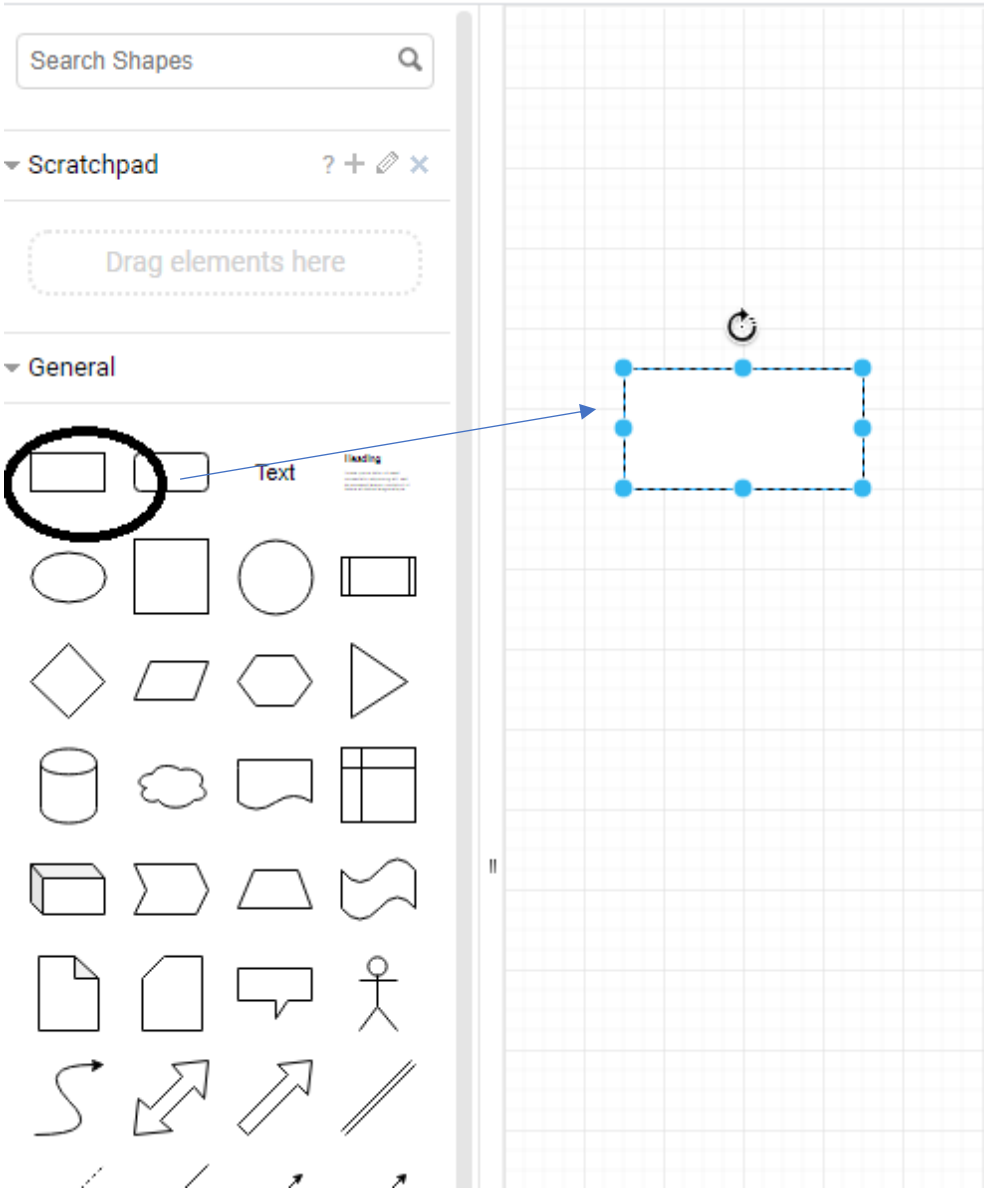


You are required to replicate the above model in draw.io. Most of the steps are straight forward. Perhaps the only thing you need to know is how to get start and where to find the components.

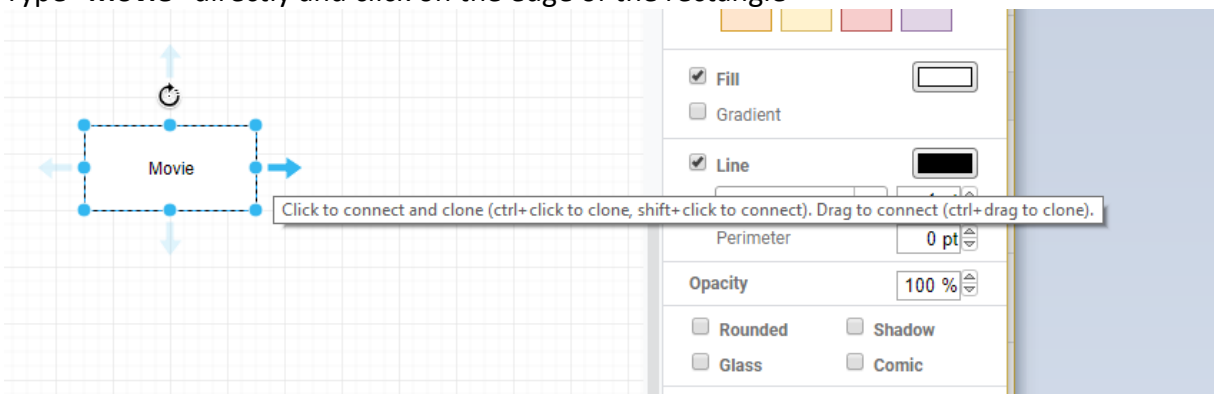
Select an empty diagram to starts with.



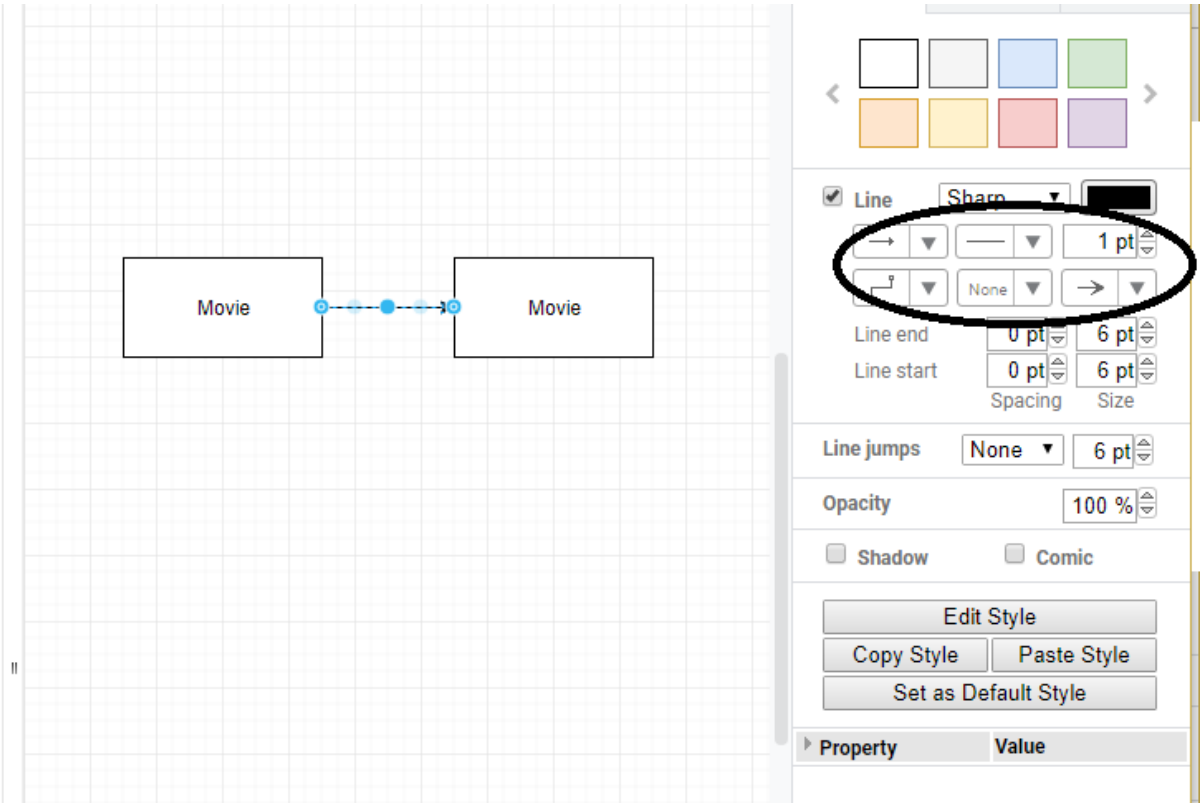
Drag a rectangle from **General** to your canvas.



Type **“Movie”** directly and click on the edge of the rectangle



If you click on the right array, it will clone this box and connect to it. Then click on the line in between to change the arrow type. You can also change the width and colors of the line. For Data model class diagram, we should better make it black and white.



Exercise 2: Draw a data model class diagram

You are given the following scenario. Draw a data model class diagram that represents this scenario. **Note, you don't need to put down any attribute or method inside the classes.** We are more concern about the correctness of the relationships (arrows) and cardinality (numbers).

- There are 2 to 4 players in a UNO game.
- There are many UNO Cards to be played in a UNO game.
- There are different types of UNO cards: Skip cards, +2 cards, Reverse cards, Wild cards, +4 Wild cards, and number cards.
- We don't really care about the function of each card in this exercise as long as we know these card has different functions. We only need to know that
    - A +2 card is a type of a Skip card with more functions.
    - A +4 Wild card is a type of a +2 card with more functions.
    - A +4 Wild card is also a type of Wild card with more functions.
- Each player is holding a set of cards. At the beginning of the game each player has five cards. During the game the numbers of cards they hold can be increased or decreased.

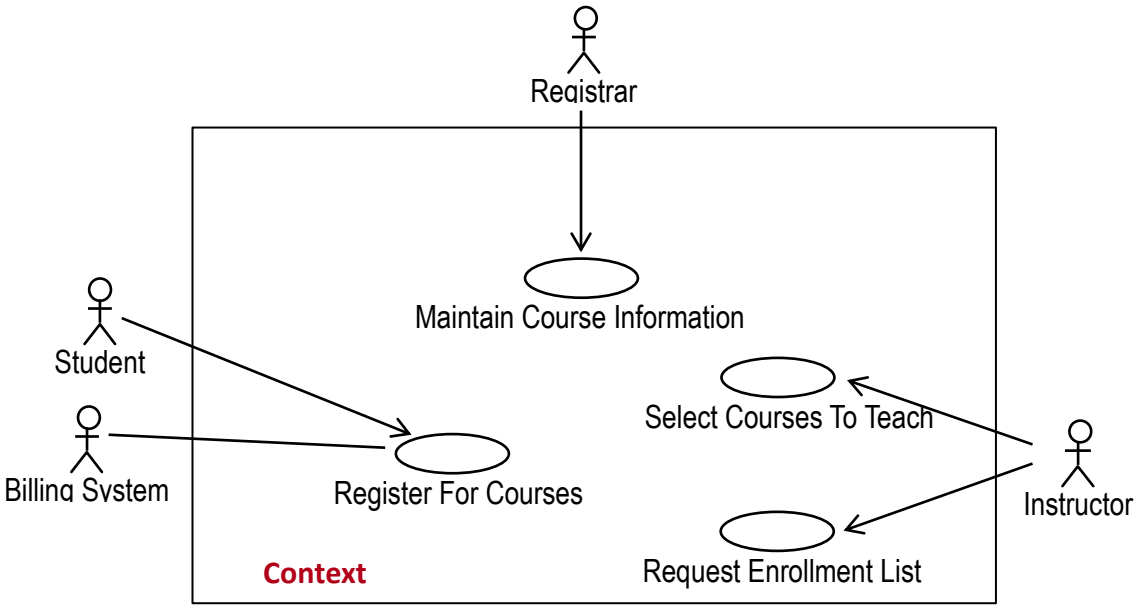
Draw a class diagram that consists of the following concepts:

- Players
- UNO cards

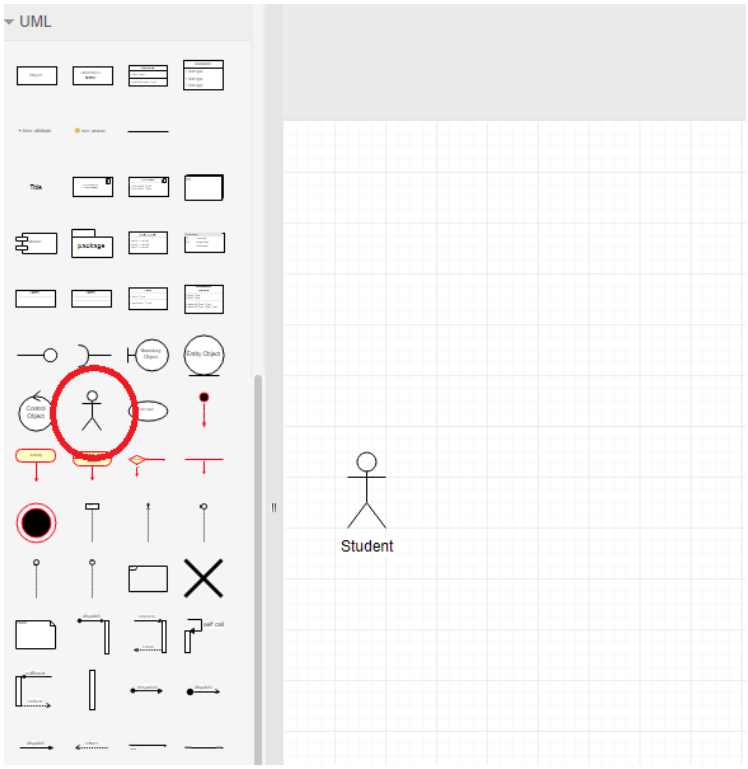
- Skip cards
- +2 cards
- Reverse cards
- Wild cards
- +4 Wild cards
- The UNO game.

Exercise 3: Replicate a UML use case diagram

Our first task is to draw the following diagram



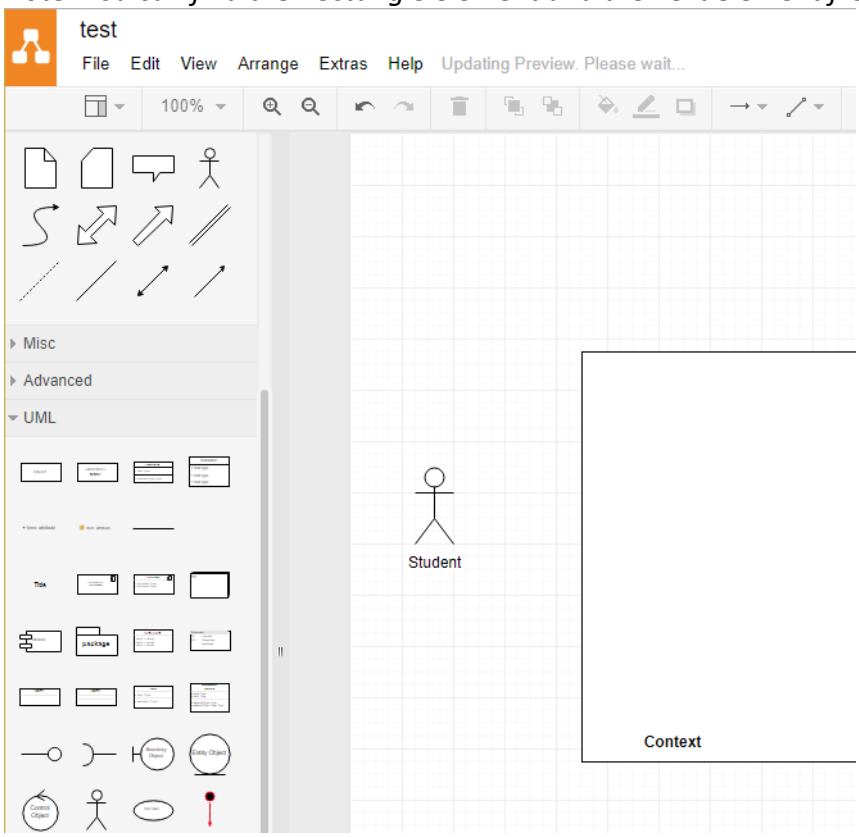
Step 2.1: Create a new document on https://www.draw.io and Drag an Actor element from the left panel into the diagram. Change its label from "Actor" to Student.



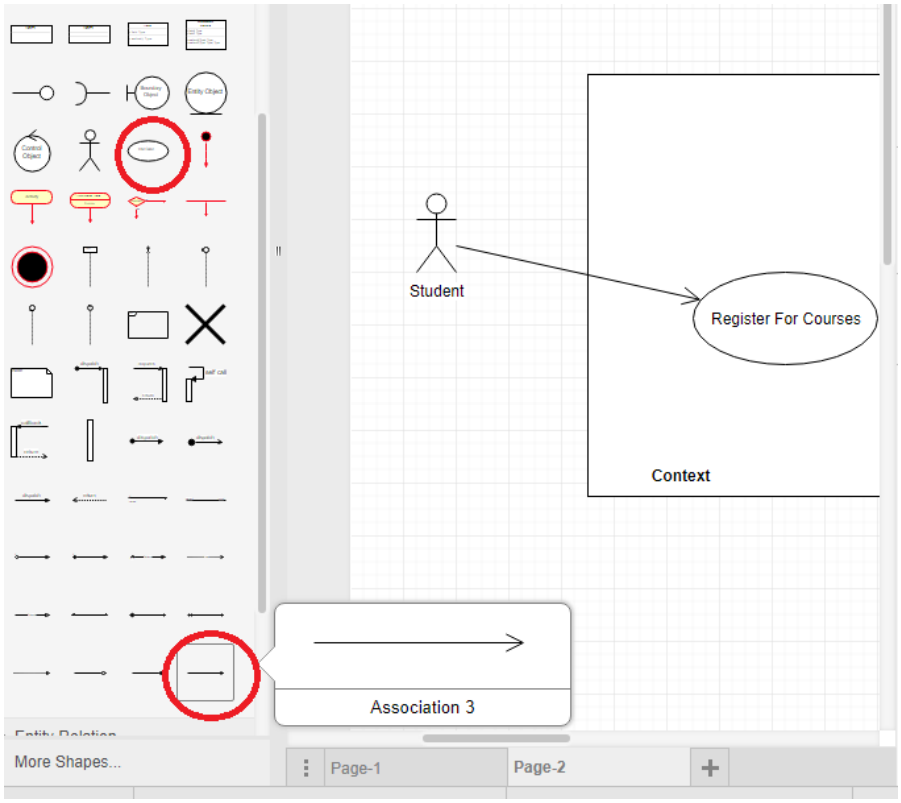
Further explanation: An actor is an entity that interacts with but is not controlled by our system.

Step 2.2: Drag a Rectangle element to the right of the user, and add a Text element that reads “context”.

Note: You can find the Rectangle element and the Text element from the tab “General”

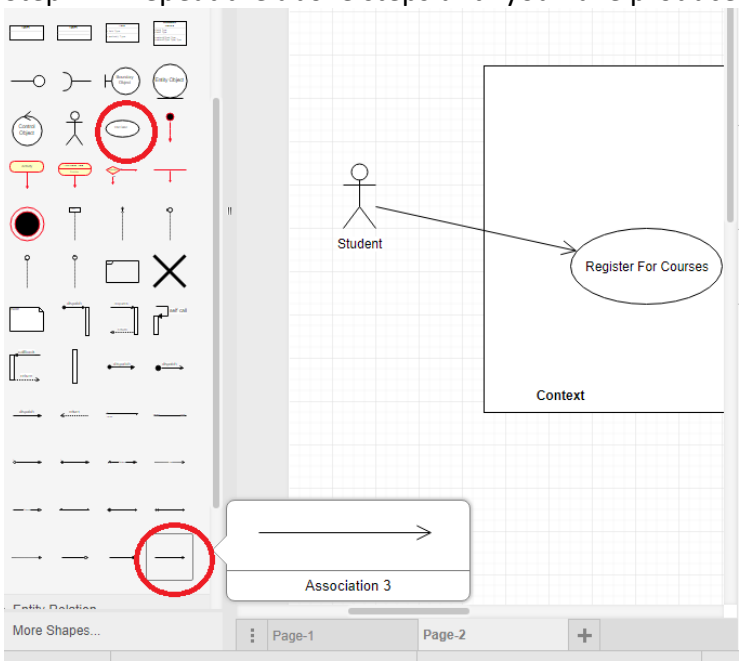


Step 2.3: Drag a Use Case element and name it as “Register For Courses”. Link the actor Student to the use case using an Association 3 element.



Further explanation: The lines indicate the use cases that the user can perform.

Step 2.4: Repeat the above steps until you have produced the following.



Lab Activity and Assessment

Lab Activity

Complete Exercise 1, 2, and 3.

Assessment

No assessment is needed.