School of Computer Science Engineering and Technology

Course- BTech   Type- Core
Course Code- CSET205   Course Name-Software Engineering
Year-2022   Semester- Odd
Date-25/10/2022   Batch- 2021-2025

Lab Assignment No. 8 - UML Activity Diagram

CO Mapping

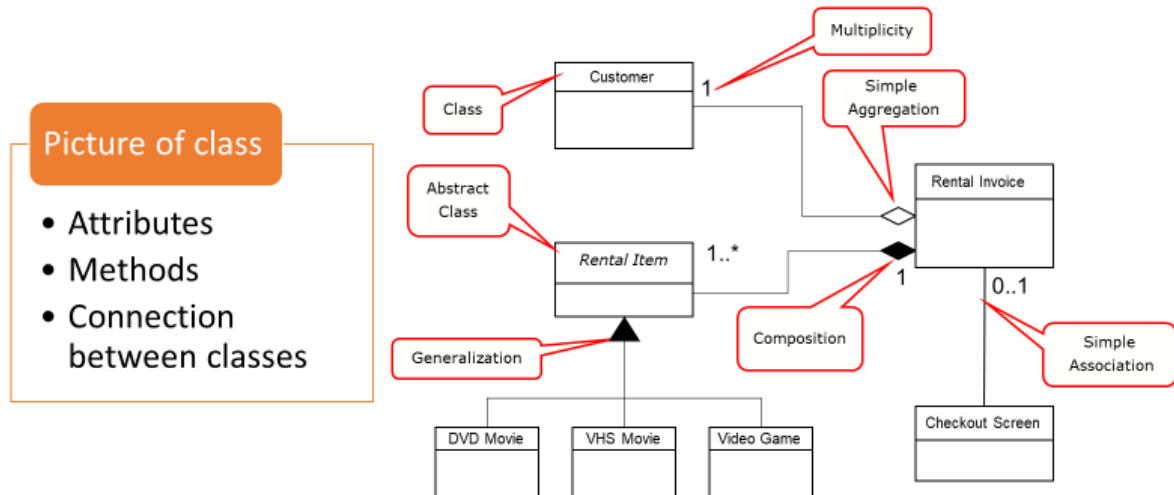| Exp. No.	Name	CO1	CO2	CO3
8	UML Class and Sequence Diagram	√	√	√

The UML use-case diagram and activity diagram denote users' interaction with the functionalities along with the business process flow, respectively. But they miss the details on the data and objects that get invoked during a particular scenario (e.g., register a new student).

The *class diagram* depicts the structure of the system and, therefore, is known as the **structural diagram**. The developers or the team members can understand by looking at the class diagram based on the following:

- Number of classes
    - Member variables and methods in each class
    - Access identifiers for member variables and methods
- Association among the classes
- Multiplicity among the classes

Go through the image below to refresh the concept.

School of Computer Science Engineering and Technology

Video links:

https://www.youtube.com/watch?v=WI0oyCeon2A,

https://www.youtube.com/watch?v=qmqIwAdSLpQ

Similarly, a **sequence diagram** depicts the behaviour, but it also helps to comprehend which objects/classes will be involved in executing a particular scenario (functionality).

Some rules/concepts that are required to be followed for developing a sequence diagram:

- An actor triggers a scenario (e.g., withdraw money from ATM).
- All objects of the classes that will be active for a scenario will be present in the sequence diagram.
- Generally, the messages are passed (as arrows ⟶) in the form of a function call (above arrows) from one object to another.
- Each function returns (dashed arrow ◂ − − ⟩ an acknowledgment or value after execution.
- The lifeline of an object is represented by a vertical line below each actor and object (normally dashed line).
- The focus of control denotes when an object is sending or receiving

messages. Represented by a thin, long rectangular box overlaid onto a lifeline

---

Videos:

https://www.youtube.com/watch?v=XIQKt5Bs7II,

https://www.youtube.com/watch?v=aaAjndV5kBg,
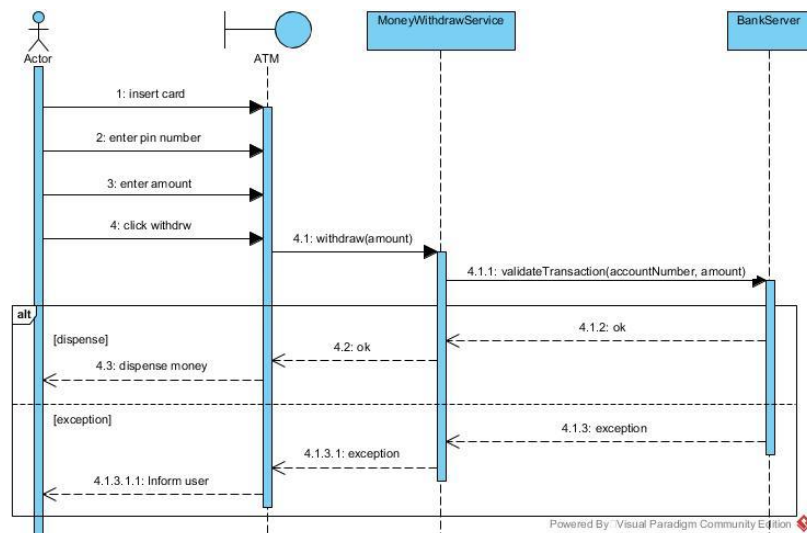
https://www.youtube.com/watch?v=pCK6prSq8aw

Let's summarize these with an example sequence diagram below:

Our requirement analyst team lead wants us to have documentation for clear communication of the system requirements to design and development teams. Hence, to comprehend the system's structure well, we have to construct a **class diagram** for **Online Hotel Booking System** (the same system on which we were working in previous labs). Along with that, to understand the method calls, the team lead wants us to develop a UML **Sequence diagram** for the following services for **Online Hotel Booking System**:

1. Search room
2. Book room
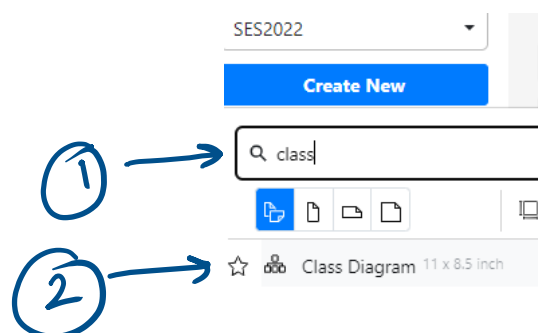
School of Computer Science Engineering and Technology

NOTE: This assignment is about developing UML diagrams. Hence, your UML notations (i.e., start-point, end-point, shapes, associations, etc) must be correct.

Follow the steps and create your diagrams for the above system utilizing the details:

1. Log in to the online version of Visual Paradigm via Google Authorization: https://online.visual-paradigm.com/login.jsp

2. Switch to your previously created project (for past lab) by pressing the drop-down button on the left pane (in the example, the project was SE2022). Did you notice that you can create a new project from here as well?
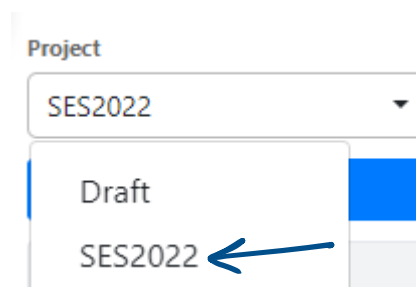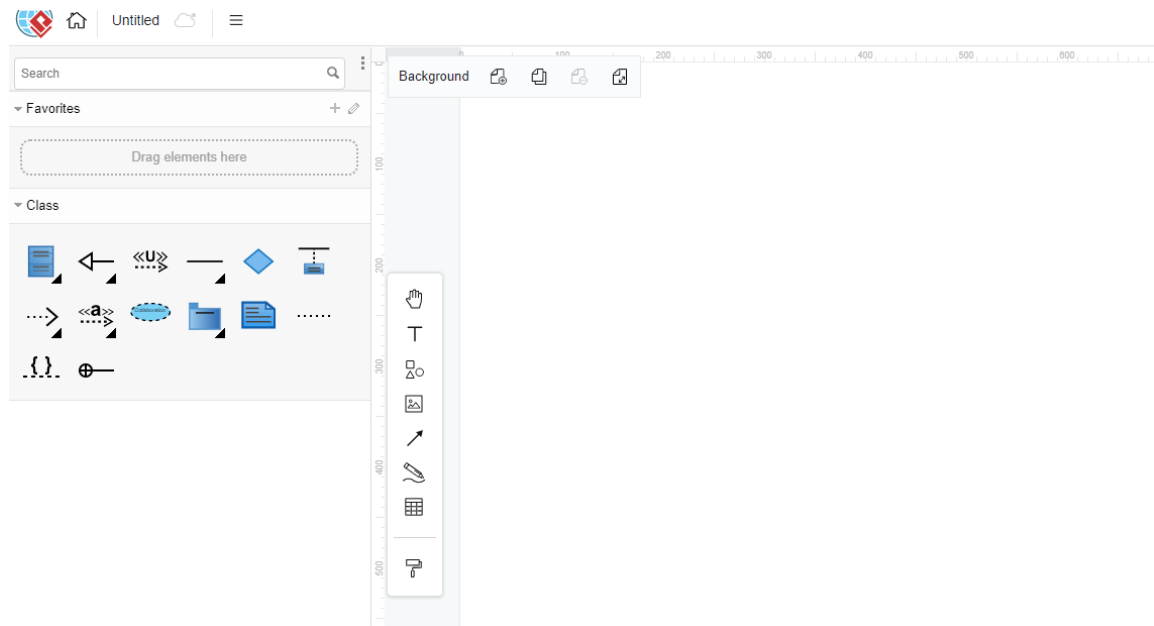

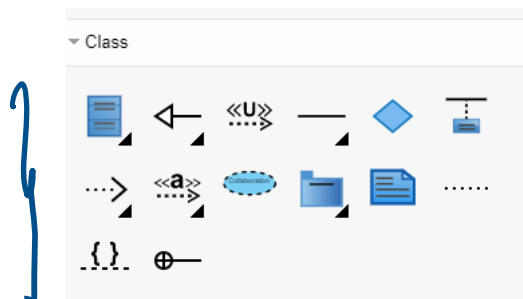3. Click on Create New → type **class** in the search box → select Class Diagram

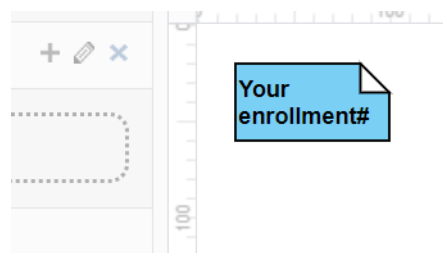# School of Computer Science Engineering and Technology

4. You will see the following screen which is now ready to create the class diagram.

5. Click on the desired class diagram notation(s) to add those on the main screen and create your use case diagram.
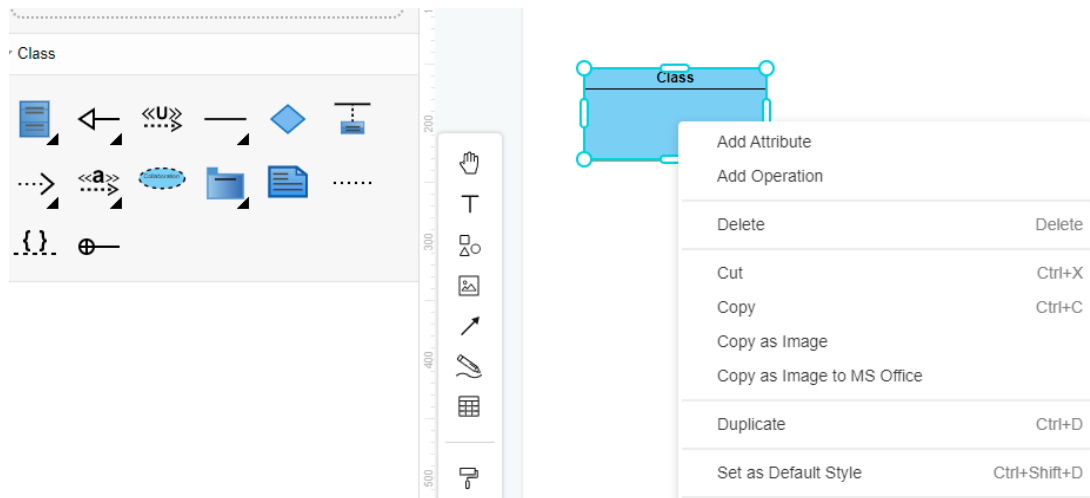

6. Before starting, select and add the Note element on the top left to enter your enrolment number.
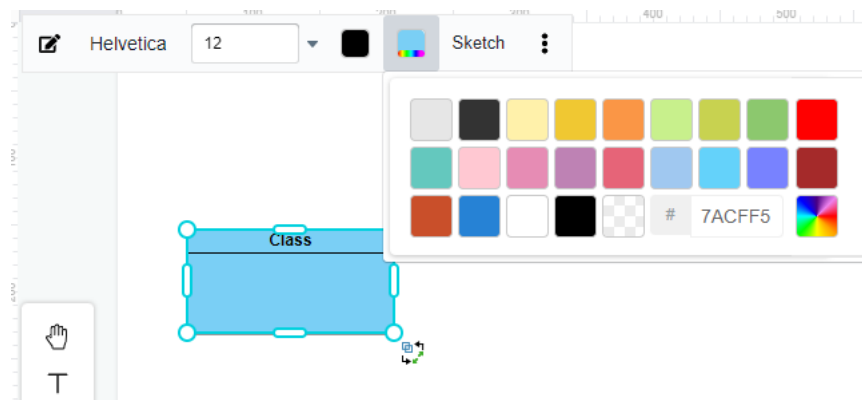
School of Computer Science Engineering and Technology

7. Right-click on the class block to create member variables/attributes and methods/operations.


8. Use the formatting pane on the top to change the style (e.g., color, text) of the notations to make your diagram easy to comprehend by others. You can resize the shape by selecting and then dragging it from corners.


9. Create your diagrams (one class and two sequence). Repeat the earlier steps for creating a sequence diagram (ask your lab instructor if you are confused about how to create that).

10. Save your diagram and while saving select VP online option for storage.
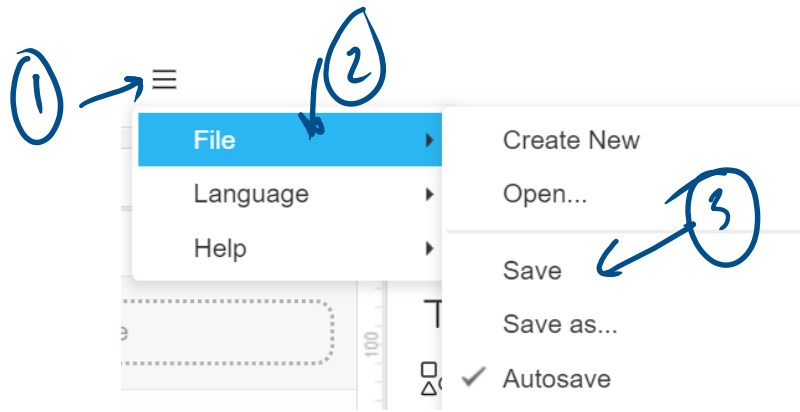
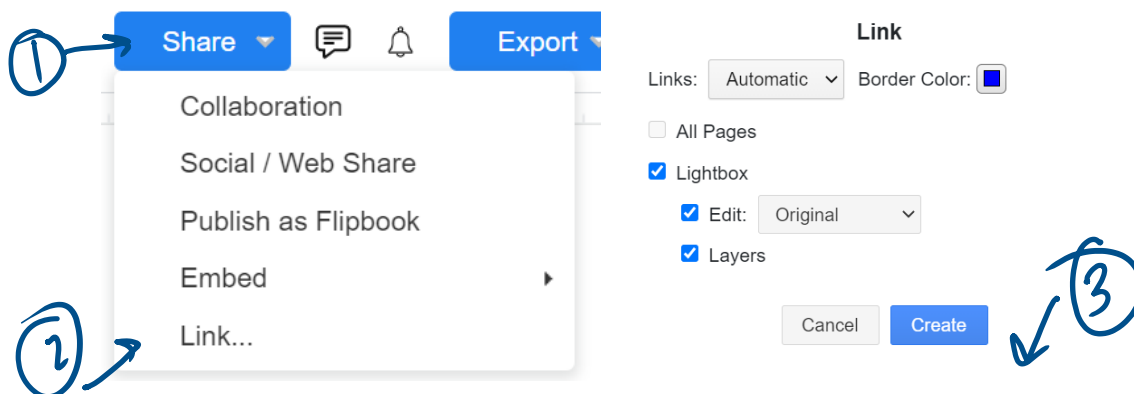11. To save your diagram as an image, click on ***Export → JPEG.*** Save the images in your PC as ***"<enrolment>_lab08_class1", "<enrolment>_lab08_sequence1", "<enrolment>_lab08_sequence2"***
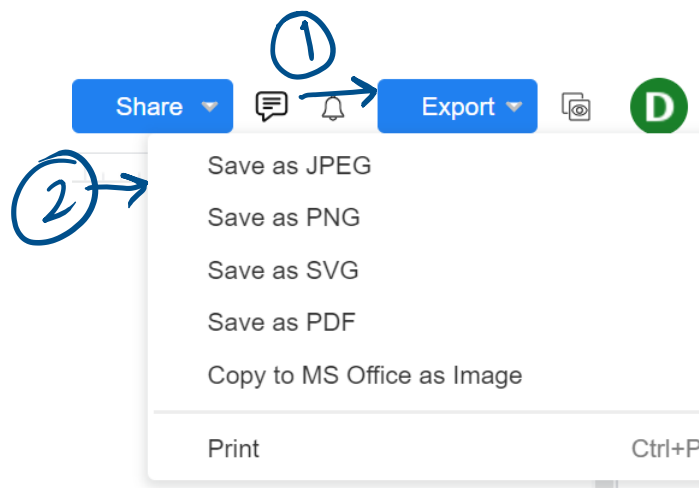
12. Next, click on ***Share → link***. In the next window, click ***create*** button.
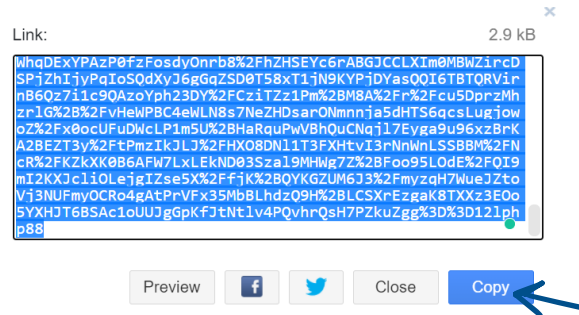
School of Computer Science Engineering and Technology

13. Copy the link by clicking the ***Copy*** button and save it in a text file as

    "<enrolment>_lab07_link1", "<enrolment>_lab07_link2",

    "<enrolment>_lab07_link3" for three diagrams.

Link: 2.9 kB

WhqDExYPAzP0fzFosdyOnrb8%2FhZHSEYc6rABGJCCLXIm0MBWZircD
SPjZhIjyPqIoSQdXyJ6gGqZSD0T58xT1jN9KYPjDYasQQI6TBTQRVir
nB6Qz7i1c9QAzoYph23DY%2FCziTZz1Pm%2BM8A%2Fr%2Fcu5DprzMh
zrlG%2B%2FvHeWPBC4eWLN8s7NeZHDsarONmnnja5dHTS6qcsLugjow
oZ%2Fx0ocUFuDWcLP1m5U%2BHaRquPwVBhQuCNqjl7Eyga9u96xzBrK
A2BEZT3y%2FtPmzIkJLJ%2FHXO8DNl1T3FXHtvI3rNnWnLSSBBM%2FN
cR%2FKZkXK0B6AFW7LxLEkND03Szal9MHWg7Z%2BFoo95LOdE%2FQI9
mI2KXJcliOLejgIZse5X%2FfjK%2BQYKGZUM6J3%2FmyzqH7WueJZto
Vj3NUFmyOCRo4gAtPrVFx35MbBLhdzQ9H%2BLCSXrEzgaK8TXXz3EOo
5YXHJT6BSAc1oUUJgGpKfJtNtlv4PQvhrQsH7PZkuZgg%3D%3D12lph
p88

Preview   **f**   🐦   Close   **Copy**

NOTE: This assignment is about developing UML diagrams. Hence, your UML notations (i.e., shapes, associations, etc) must be correct.

Submit three diagrams (one class diagram and two sequence diagrams) and three links in a text file (total six files) as your lab assignment. Make sure filenames are as suggested above.