BSc (Hons) in Information Technology

Year 2

Lab 1

IT2020 – Software Engineering Semester 1, 2022

This Lab sheets has two parts: Part A and Part B.

Students should try to complete Part A questions within the lab sessions. Part B questions are for self-learning. Students must try Part B questions by themselves.

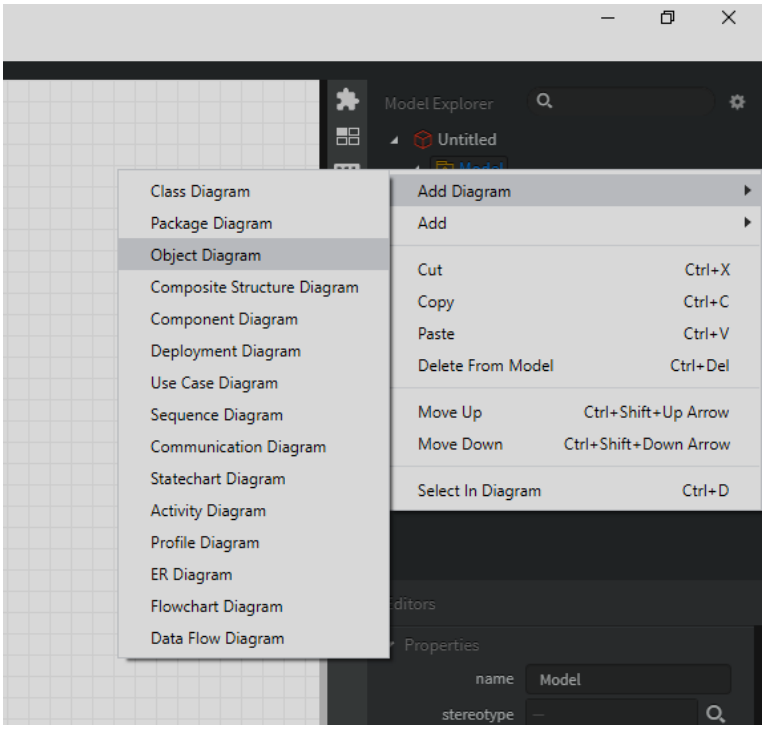
Part A - Practice Exercises

In this Lab we will draw Class Diagrams and Object Diagrams by identifying Classes, Relationships, Multiplicities and Objects appropriately to model the given case study.

Instructions for StarUML:

- Open StarUML software from the Start menu.
- Create a new folder named "SE_Lab1" on desktop or in a removable disk.
- Close all the notifications displayed on the screen.
- Follow these instructions to create an Object Diagram.

Right Click on "Model" in Model Explorer (right side panel) → "Add Diagram" → Select "Object Diagram"



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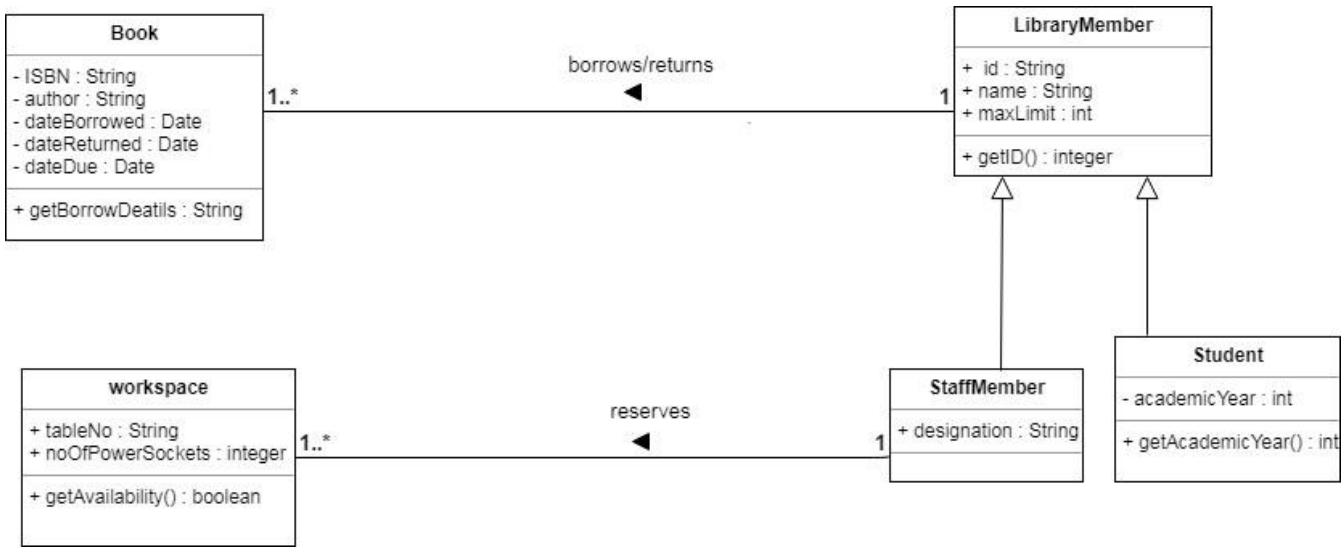
Lab 1

IT2020 – Software Engineering Semester 1, 2022

Activity 1 -

Draw Object Diagrams for the following Class diagram using StarUML. Show Multiplicity and Values for attributes.



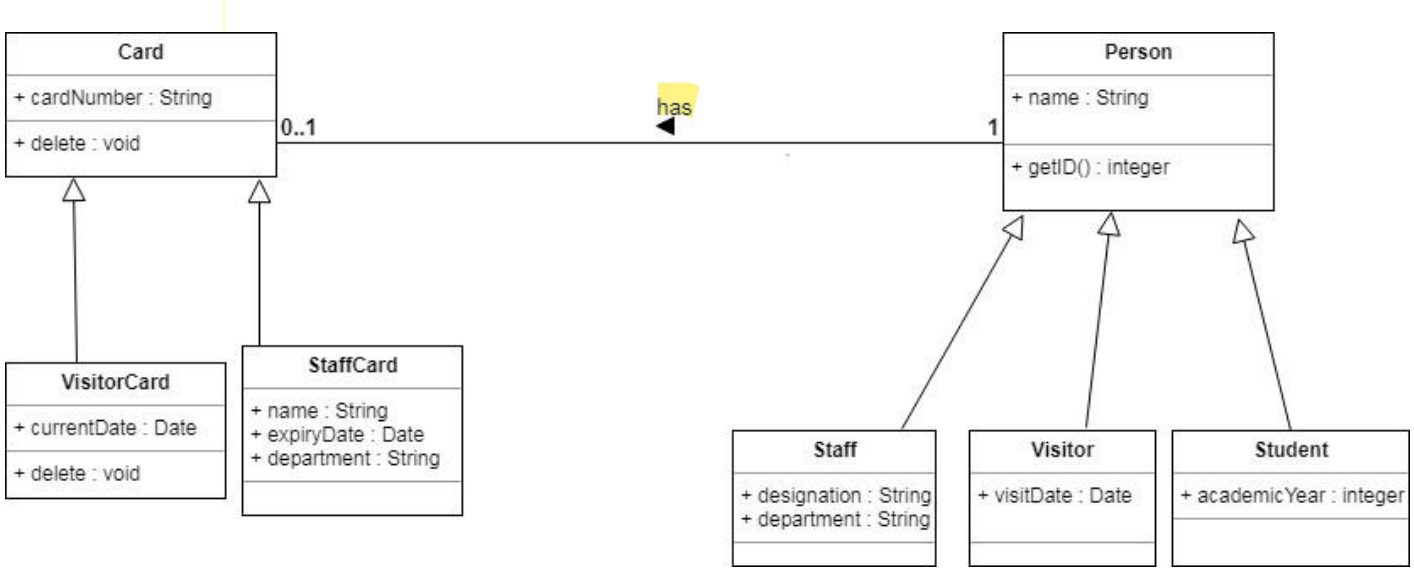
Activity 2

Following is a partial class diagram for a university system. Instantiate the class diagram to capture all the details of the following scenario.

The University issues identity cards (ID) for its staff and visitors to provide access to University facilities. Every staff ID will be valid for a year from the date of issue. It has to be updated every year. However, the 'visitors' cards are issued on daily basis.

Steve is a second year undergraduate student following Bachelor of Information System and Networking in the Faculty of Computing. Mr. Andrew was the first visitor (ID = V001) who came to the university premises on 10th May 2017. He came to the university to meet Dr.George Peterson (ID: ENL1028), the Head of the Engineering Department. Dr. George

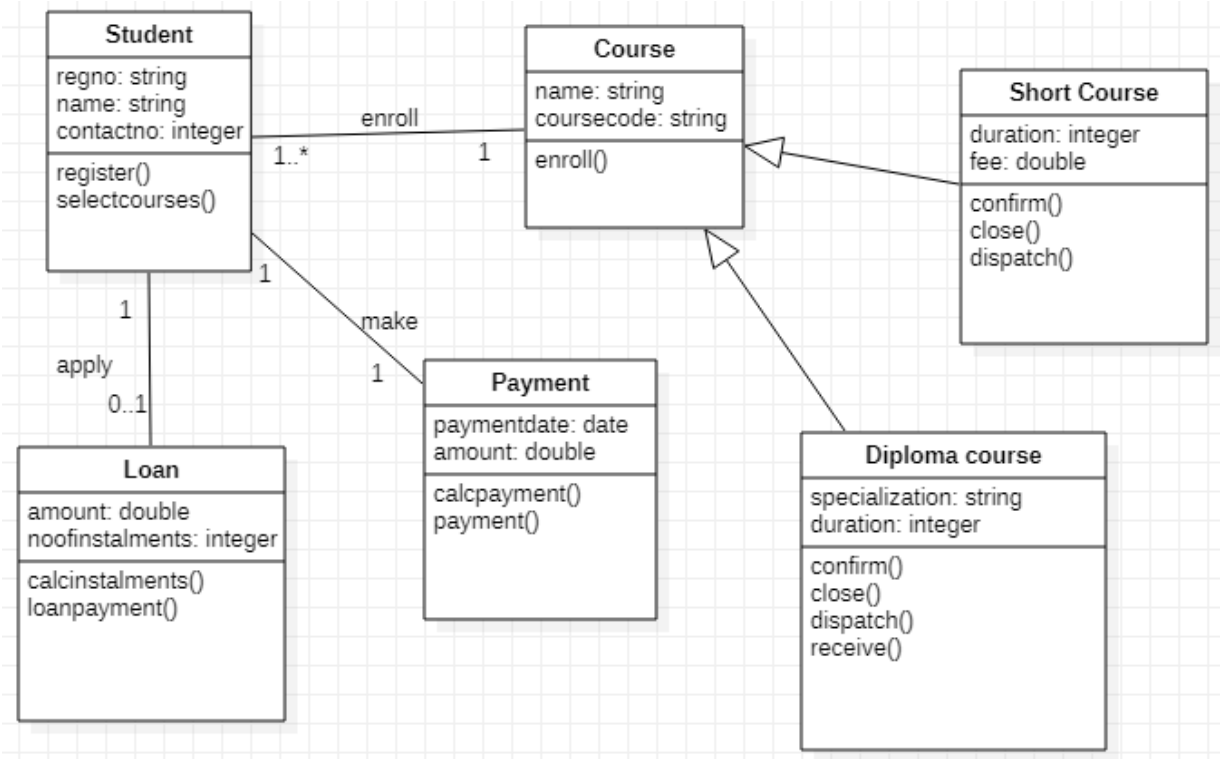
Peterson joined the faculty as a Senior Lecturer on 5th April 2017. Dr. Brandon Curt is a Senior Lecturer attached to the Business Management Department. His ID number is BML2345. He joined the University on 1st of January 2017.



Part B – Self Learning Exercises

Activity 3

Draw Object Diagrams for the following Class diagram using StarUML. Show Multiplicity and Values for attributes.



Activity 4

Draw object diagrams using the following information and the class diagram.

Assistant Lecturer Mrs. Shanthi of the University with ID 095 want to buy few books from the university library on 15th of May 2019. Staff members and students both can borrow 3 books from the library for three days. Mrs. Shanthi is working on table number 12 with 2 power sockets and students are on table 20 with 10 power sockets. She wants to buy books of author

William Shakespeare. Mrs. Shanthi has taken ISBN number ISBN0-4567-3456 and ISBN0-4567-1222 books. She returned the books after 2 days. Student Ayesha with student id DIT/03/456 of year 2 borrowed book ISBN0-4567-1111 of Gosho Aoyama on the same date and retuned on the due date.