OO Analysis & Design Lab Week 8

Instructions

Part A

Please carry out Draw communication Diagram tutorial.

(Tutorial provided in a separate pdf file)

Part B

1. *Open Visual Paradigm for UML*

2. *Create a new project named* **LabWeek8.**

3. *Select model explorer and create a new Analysis Model named* **Library _Domain.**

4. *Using the Domain model for the Library (Figure 3) below carry out the following*
    a) *Create classes in Domain Model by adding class model elements to Analysis model.*
    b) *Create a Use Case called* ***Find Book Titles on Loan by a Patron.***
    c) *Create a collaboration called* ***Find Book Titles on Loan by a Patron.***
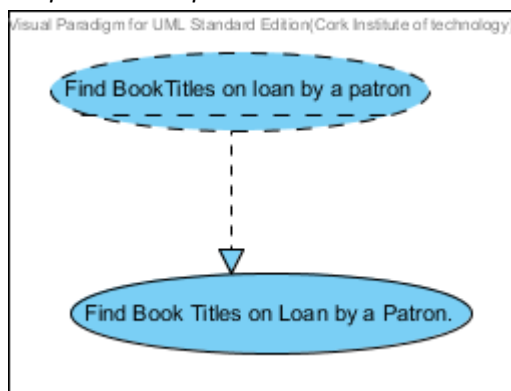   d) *Create a Use case Diagram called* **Library** *Use the model elements you created in previous steps*

Figure 1

e) Create Class Diagram named **Library**

f) Create an object diagram [i] named   **PatronLoans** to represent the following Scenario. A Library Patron has a number of loans. Each loan is for a number of bookCopies. All objects are anonymous. Ensure that Class Diagram supports Object Diagram

g) Consider a situation where a Librarian requires to know all the book titles currently on loan to a library patron. This functional requirement is modelled as the use case

Find book titles on loan by a patron.

     a. What objects would be required to collaborate to allow for this use case to be realised.

     b. What messages would need to be passed between objects you identified in part a to provided required information.

     c. Identify operations that would correspond to these messages.

     d. Allocate operations to the relevant classes you created in Library Domain Model

     e. Draw a communication[ii] diagram to model the use case **Find Book Titles on loan** .

This diagram should be created by right clicking on use case realization Use objects /links / messages . (Figure 2)

Messages are all call messages and lifeline in VP is an object.
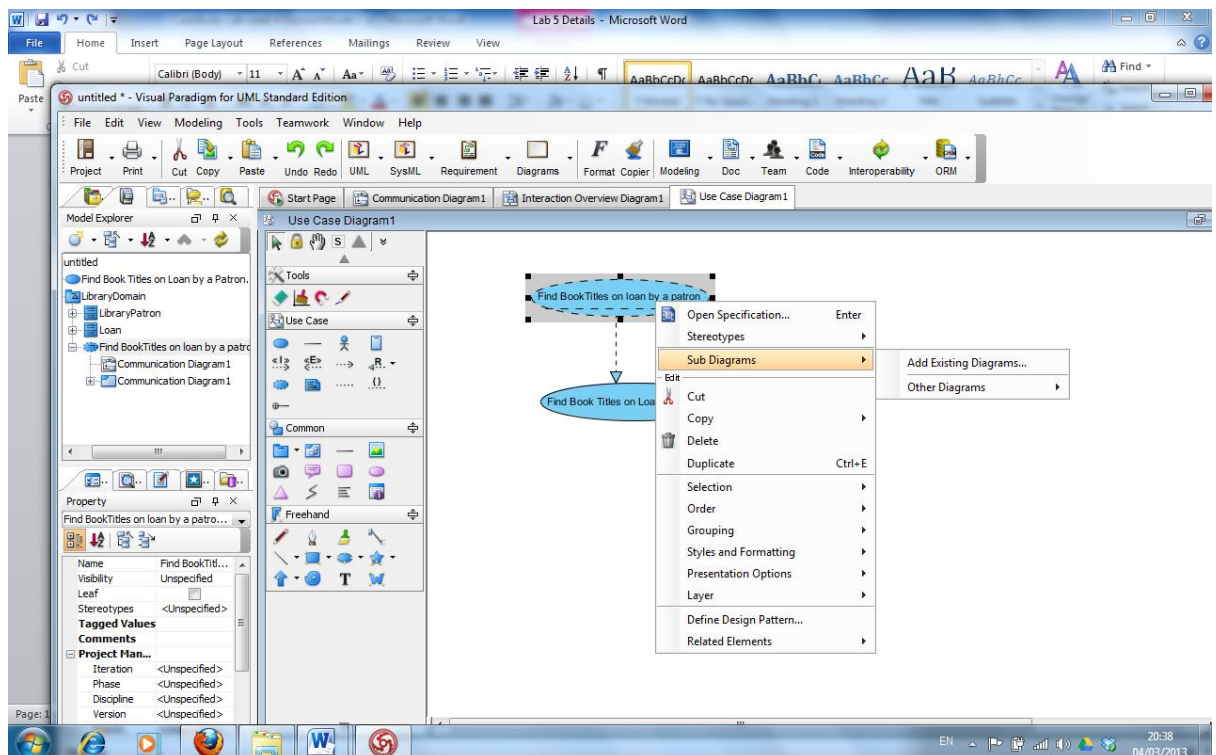
Find Book Titles on Loan by a Patron.

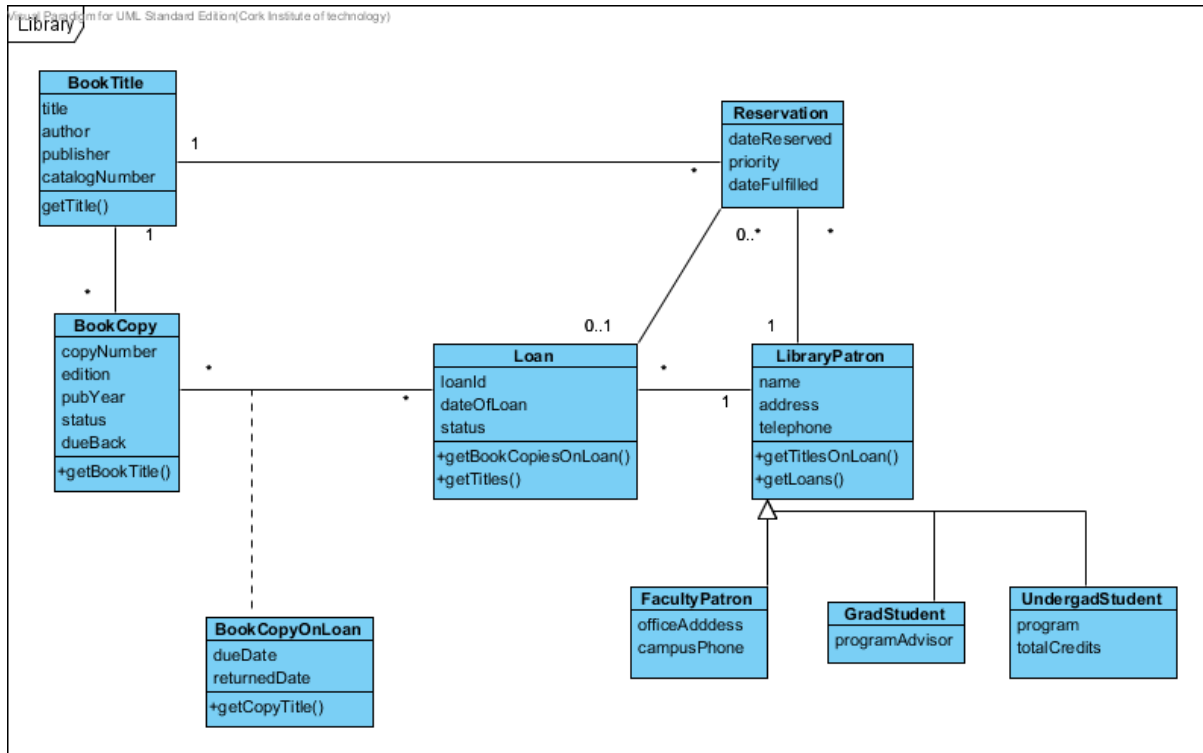**Figure 2**

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Figure 3

Object Diagram

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[i] Object Diagram :

*An object diagram is a graph of instances, including objects and data values. A static object diagram is an instance of a class diagram; it shows a snapshot of the detailed state of a system at a point in time. O*bject diagrams and class diagrams are closely related and use almost identical notation. Both diagrams are meant to visualize static structure of a system. While class diagrams show classes, object diagrams displays instances of classes (objects).Object diagrams are more concrete than class diagrams. They are often used to provide examples or act as test cases for class diagrams. Only aspects of current interest in a model are typically shown on an object diagram.

[ii] Communication diagram:

A communication diagram looks similar to object diagrams, in which a lifeline represent the objects in the interaction and arrows represent the messages that are passed between the lifelines. Arrowheads indicate the direction of the messages, forward or reverse, and sequence numbers indicate the order in which the messages are passed.

Reference

Creating communication diagrams

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