**INSTRUCTIONS**

This is a take home exam which you can do in a day's time. You will use/learn UMLet during this time and create the 3 diagrams as required by the two questions given in this exam. Once you complete your diagrams, you can export them as JPEG files because I will be using those for providing feedback. You will also save separate UMLet files for each diagram. Do not put all the diagrams in a single file. Once done, put the files in a folder, zip it and upload the zipped file as your answer.

Naming convention:

The file names I will be looking for are:

Q1\_USECASE.uxf  
Q1\_USECASE.jpg

Q1\_ACTIVITY.uxf  
Q1\_ACTIVITY.jpg

Q2\_CLASS.uxf  
Q2\_CLASS.jpg

Suppose your name is John Doe and your ID is 007, then the folder that you will create is JohnDoe007, put all your files in this folder, zip the folder and then upload the folder.

**Be very very careful. If you are not going to follow the proper upload instructions, I will not check it.**

**Question 1: Draw the appropriate USE CASE and ACTIVITY diagrams (5 + 5 marks)**

**DESCRIPTION: Handle a patient in a hospital.**

**PRECONDITIONS:**

* The Receptionist is logged into the system.
* The patient who walks into the hospital wants to get checked.

**POSTCONDITIONS:**

* The patient either gets an appointment or is admitted to the hospital.

**BASIC COURSE OF ACTION:**

1. A patient approaches the receptionist.
2. The receptionist checks if the patient is registered and if the patient is inpatient or outpatient.
3. In case of Inpatient, a bed is allotted to the patient.
4. If not registered, the patient is registered and may be checked if the patient requires an appointment or be admitted to the hospital.
5. The receptionist files Insurance claims whenever a patient is admitted to the hospital.
6. Once the Insurance claims have been filed, the receptionist generates fee.
7. The use case ends.

**Question 2: Create class diagram of software that helps the user manage a library. (10 marks)**

Each book has a name, ISBN (International Standard Book Number), a subject, a publisher, a publication date and an author. The Author will have a name, biography and a Birth date. An author can write many books and more than one author may write a book. A library has a name and an address and must contain a catalog to record all the books. When recording the book it should contain all the information given in the book plus a barcode, an RFID, a date to borrow and a return date. The catalog implements a search interface which is also used by the librarian to search a book. An account is used to borrow a book. The account must contain the name, address and the date the account was opened. A single account can borrow at most 6 books.

Define attributes wherever you find necessary and follow proper UML syntax.