Program**: B.Tech**   **Semester: 4th**   **Department:** CSE
Course Code: CS4460   **Course Name:** Object Oriented Systems Development

Q1)   Answer in brief the following questions:
   i.   How do business classes differ from utility classes? Provide one example for each.
   ii.   What is the difference between the operations of a class and its attributes?
   iii.   Give three specialized subclasses for the **Student** class.

Q2)   John is looking for a person as a software developer to develop the Patient Management system for his hospital. In his hospital a referral source refers a patient for using its medical services. The referral source can be a doctor, an emergency medical worker, another hospital, or the patient. A hospital clerk makes an appointment for the patient, consulting the referral source and the hospital schedule for the availability and the suitability of the service. If this is the first time that the patient has been referred to the hospital, the hospital clerk records the basic information about the patient. On the first visit to the hospital, before providing the service, a hospital clerk registers the patient by entering or updating the patient profile and payment information along with demographic information. If the patient is new to the hospital, a hospital ID card is issued to the patient at the end of registration. An ID card is also issued if the old card is lost. Depending on the nature of the medical services, doctors, nurses, and lab technicians, an appropriate service(s) are provided to the patient for which the appointment has been made. Either as a result of the original referral or the decision of in-house medical staff, a patient may be hospitalized. The bed must be available when it is needed. If a patient is hospitalized, some services, like monitoring the patient's progress or the administering of prescribed drugs, are provided without appointment. Other services still need appointment, but the appointments are initiated by medical staff. After providing each service, the cost and the results of each service are recorded in detail, for medical history and billing. When the hospital decides that there are no more services that can be offered to the patient—either because the services are not necessary or not available—the patient is discharged. Regular patient billing is done on a monthly cycle. However, billing for a particular patient may be done on demand. Sources of payment are the insurance company and/or the patient (credit card, cash, or subscription). If the amount is small, usually for co-payments, the patient is asked to pay before or after the service to save billing costs. Charity cases are not billed but recorded.

   1.   Create a use case diagram of the above scenario.
   2.   Crate a table having three columns to summarize classes that you have identified, their responsibilities and also list the use cases that are your sources of information. Format of the table will be as follows:

CLASS	RESPONSIBILITIES	USE CASES

   3.   Create a sequence diagram for *Make Appointment* use case.