CASE - 1

Tom and Sue are starting a bed-and-breakfast (B & B) in a small New England town. They will have three bedrooms for guest. They want a system to manage the reservation and monitor expenses and profits. When a potential customer calls for reservation, they will check the calendar, and if there is a vacancy they will enter the customer name, address, phone number, dates, agreed upon price, credit card number, and room numbers. Reservation must be guaranteed by one day's payment. Reservation will be held without guarantee for an agreed upon time. If not guaranteed by that date, the reservation will be dropped.

Do the following:

- ❑ Requirement Analysis
- ❑design data flow diagram
- ❑ use-case diagram and class diagram

Tom is starting a dental practice in a small town. He will have a dental assistance, a dental hygienist, and a receptionist. He wants a system to manage the appointments. When a patient call for an appointment, the receptionist will check the calendar and will try to schedule the patient as early as possible to fill in vacancies. If the patient happy with the proposed appointment, the receptionist will enter the appointment with the patient name and purpose of appointment. The system will verify the patient name and supply necessary details from the patient records, including the patient's ID number. After each exam or cleaning, the hygienist or receptionist will mark the appointment as completed and comments, and then schedule the patient for the next visit if appropriate. The system will answer queries by patient name and by date. Supporting details from the patient's records are displayed along with appointment information. The receptionist can cancel appointments. The receptionist can print out a notification list for making reminder calls 2 days before appointments. The system includes the patient's phone numbers from the patient records. The receptionist can also print out daily and weekly schedules with all the patients.

The course-marks system enables lectures to enter student marks for a predefined set of courses and students on those courses. Thus, marks can be updated, but the lectures cannot change the basic course information, as the course lists are the responsibility of the system administrator. The system is menu-driven, with the lecturer selecting from a choice of courses and then a choice of operations. The operations include:

a) enter coursework marks
b) enter exam marks
c) compute averages
d) produce letter grades
e) display information (to screen or printer)

The information displayed is always a list of the students together with all the known marks, grades, and averages.

Compute the number of function points in this system, stating carefully the assumptions you are making.

CASE - 2

The Blood Bank Testing Unit. This is one unit within the College Street Red Cross Blood Donor Centre. On the day following a blood donation, the Blood Bank unit tests all blood for blood type and potential viral agents. They send the results of these tests to the Processing Office (another unit of the Centre). For each tested blood unit, they fill out a form which lists the blood unit number, the blood type, the date and the results of the test. If the tests indicate that the blood may be contaminated with a viral agent, the blood unit is destroyed. This is indicated on the test form.

Blood units have a limited shelf life. The Blood Bank receives a list every day of those units which have exceeded their shelf life. These are discarded and the list sent back to the Processing Office with a signed indication of the disposal of the units.

The Blood Bank also distributes blood to various hospitals requesting blood. Requests usually come in for specific blood types. The Blood Bank prepares refrigerated containers of these units and distributes them to the hospital vans when they arrive to pick up their supply. The Blood Bank receives a listing for each hospital and the specific units of blood to supply to the hospital from the Processing Office. The order is printed in triplicate. When the order is filled, the lab technician signs the order and returns a copy to the Processing Office. A copy of it travels with the blood to the requesting hospital. The final copy is kept in the Blood Bank records but discarded after one year.

Do the following:

Functional requirements specification

Design data flow model

Use case diagram and class diagrams.