Makeup test

Question 2   **[35]**

2.1   Read the scenario and diagrams provided below and answer questions that follow:

Each patient has a record with his/her name, date of birth, gender, date of first visit, and date of last visit. Patient records are grouped together under a household. A household has attributes such as name of head of household, address, and telephone number. Each household is also associated with an insurance carrier record. The insurance carrier record contains name of insurance company, address, billing contact person, and telephone number.

In the clinic, each dental staff person also has a record that tracks who works with a patient (dentist, dental hygienist, x-ray technician). Because the system focuses on patient administration records, only minimal information is kept about each dental staff person, such as name, address, and telephone number. Information is maintained about each office visit, such as date, insurance copay amount (amount paid by the patient), paid code, and amount actually paid. Each visit is for a single patient, but, of course, a patient will have many office visits in the system. During each visit, more than one dental staff person may be involved in the visit by doing a procedure. For example, the x-ray technician, dentist, and dental hygienist may all be involved in a single visit. In fact, some dentists are specialists in such things as crown work, and even multiple dentists may be involved with a patient. For each *staff person does procedure in a visit* combination (many-to-many), detailed information is kept about the procedure. This information includes type of procedure, description, tooth involved, the copay amount, the total charge, the amount paid, and the amount insurance denied.

Finally, the system also keeps track of invoices. There are two types of invoices: invoices to insurance companies and invoices to heads of household. Both types of invoices are fairly similar, listing each visit, the procedures involved, the patient copay amount, and the total due. Obviously, the totals for the insurance company are different from the patient amounts owed. Even though an invoice is a report (printed out), it also maintains some information such as date sent, total amount, amount already paid, amount due and also the total received, date received, and total denied. (Insurance companies do not always pay all they are billed.)
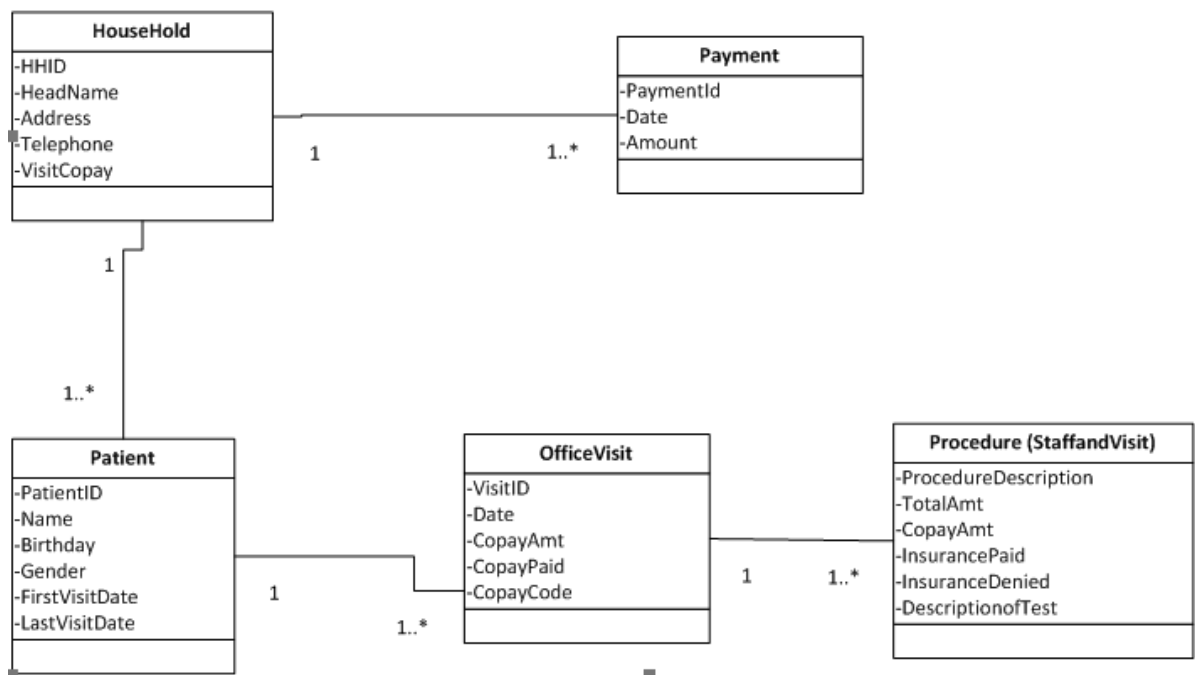
Figure 1: Domain Class Diagram for the dental clinic system

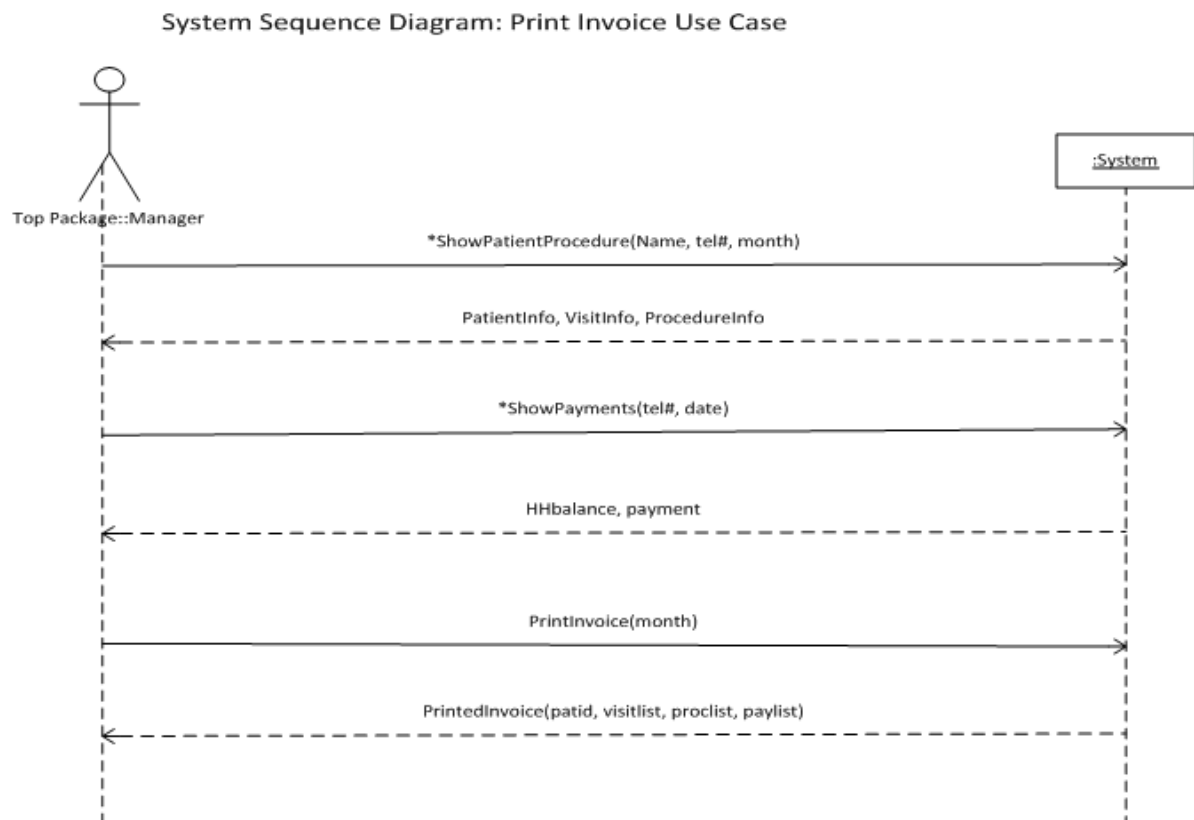System Sequence Diagram: Print Invoice Use Case

Figure 2: System Sequence Diagram (SSD)

2.1.1   Use the domain class diagram, SSD and scenario to develop a complete (view, domain and data access layers) sequence diagram.   (20)

2.1.2   Use you first-cut and sequence diagram to develop a complete design class diagram.   (15)

Print Patient Invoices