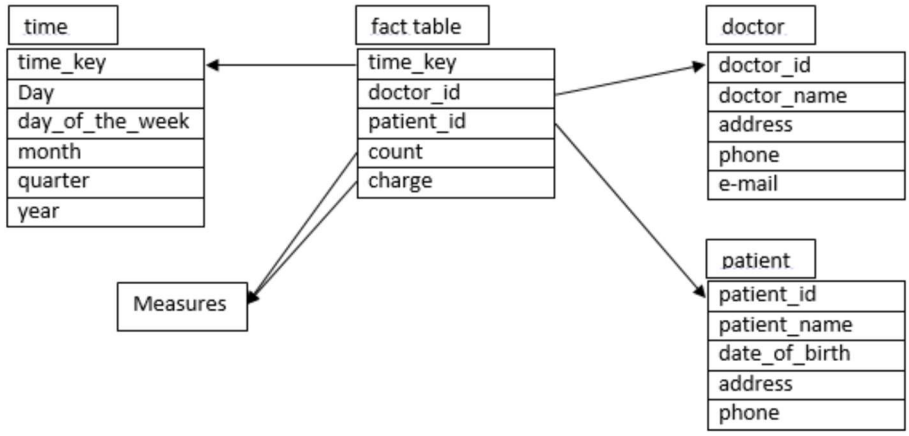
Assignment No 1.

1. Suppose that a data warehouse consists of the three dimensions time, doctor, and patient, and the two measures count and charge, where charge is the fee that a doctor charges a patient for a visit.
    a. Draw a schema diagram for the above data warehouse using one of the schemas. [star, snowflake, fact constellation]
    b. Starting with the base cuboid [day, doctor, patient], what specific OLAP operations should be performed in order to list the total fee collected by each doctor in 2004?
    c. To obtain the same list, write an SQL query assuming the data are stored in a relational database with the schema fee (day, month, year, doctor, hospital, patient, count, charge)

Assignment 01 Solution:

Ans:

a. Ans:



b. Ans:

First, we should use roll-up operation to get the year 2004(rolling-up from day then month to year). After getting that, we need to use slice operation to select (2004). Second, we should use roll-up operation again to get all patients. Then, we need to use slice operation to select (all). Finally, we get list the total fee collected by each doctor in 2004.

So,

1. roll up from day to month to year
2. slice for year = "2004"
3. roll up on patient from individual patient to all
4. slice for patient = "all"
4. get the list of total fee collected by each doctor in 2004

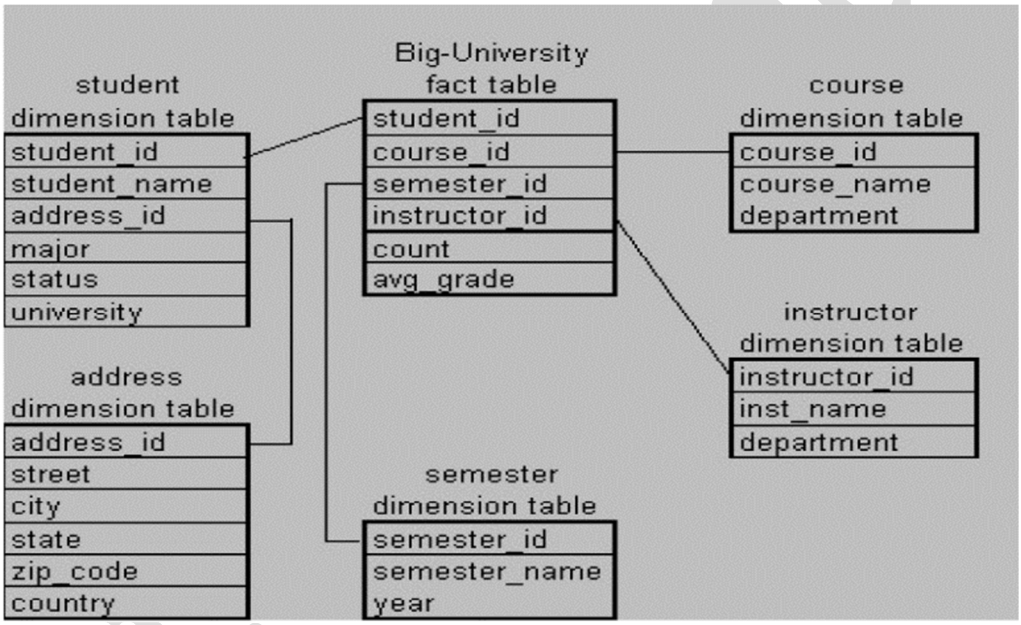
c. Ans

Select doctor, Sum(charge) **From** fee **Where** year = 2004 **Group by** doctor

2. Suppose that a data warehouse for Big-University consists of the following four dimensions: student, course, semester, and instructor, and two measures count and avg_grade. When at the lowest conceptual level (e.g., for a given student, course, semester, and instructor combination), the avg_grade measure stores the actual course grade of the student. At higher conceptual levels, avg_grade stores the average grade for the given combination.
    a. Draw a snowflake schema diagram for the data warehouse
    b. Starting with the base cuboid [student, course, semester, instructor], what specific OLAP operations (e.g., roll-up from semester to year) should one perform in order to list the average grade of CS courses for each Big-University student

Ans:

a. Ans



b. Ans

    i. Roll-up on course from course_id to department.
    ii. Roll-up on student from student_id to university.
    iii. Dice on course, student with department ="CS" and university = "biguniversity"
    iv. Drill-down on student from university to student_name.