Fundamentals of Database System
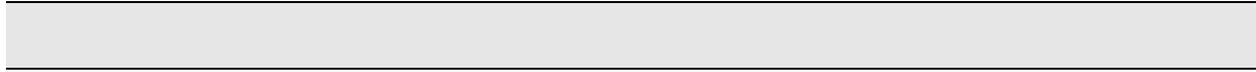
Assignment 1

Submission on:_____

1. Explain Advantages of a DBMS over file processing system.
2. Explain the difference between a weak and strong entity set with an example.
3. Construct E-R diagram for registrar office of university which stores the data about:
   a. Student(sid,name,program)
   b. Course offering(time,secno,room,year,semester)
   c. Instructor (id,name,dept,title)
   d. Course(syllabus,credits,courseno,title)

Each courses offering provides the grades to the student who are enrolled with that course. Give the appropriate mapping constraints.

4. What are the functions of DBA? Explain in detail.
5. Explain the concept of EER model with suitable example.
6. What is data abstraction and data independence? Explain their types.
7. Draw scheme for university databases.

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Assignment 2

1. What is join? List and explain the different types of join.

2. Explain the various types of data models used in DBMS.

3. Explain the fundamental operation in relational algebra.

4. Consider the following relation:

Emp(ename,company_name,salary)

Write SQL Queries:

 i. Find the total salary of each company.

 ii. Find the company name whose salary is less than lowest average salary.

 iii. Find the employee name whose salary is higher than highest average salary of TCS's.

5. Consider the following structure for employee.

Emp(empno,ename,job,mgr,joindate,sal,comm,deptno)

Write SQL Queries for the following:

 i. Change the average salaries for each dept.

 ii. Change the name of emp 'AMAN' to 'ABHIJEET'.

 iii. Display emp details whose name start with 'A'.

 iv. Display the list of emp excluding job title as 'Salesman'.

   v. Display annual salary of all emp.

   vi. Display name and salary for all emp. whose sal is not in the range of $.1000 and 2000.

   vii. Delete all tuples in the emp relation for emp of dept_no='200'.

6. What are aggregate functions in SQL? Explain it.

7. Explain set operators in SQL with example.

8. What are different alter commands in SQL? Explain with example.

9. With example explain select and where clauses.

10. What are views and Trigger? Explain with suitable example.