Assignment - 6

Instruction

- The name should be <roll_no>_assignment<number>.pdf
- Write the questions before the answers.
- Write a justification to your solution.(simple and small)
- Submit .pdf file for Schema Creation and Transaction section and for DB Operation Via Python or Java section you can submit code in Java or Python.
- Write clean and commented code.

Schema Creation

1. Create a University database with name univ_db.
2. Create an Student table with 4 columns(stud_id,stud_name,dept_name,tot_cred) with 10 records and Department table with 4 columns(dept_id,dept_name,building,budget). Choose a unique column as a primary key and also other constraints as per your understanding. **Note :** Domain of dept_name = (”Mtech DS”,”Mtech SOCD”,”Mtech COM” and ”Mtech Geo”).

Transaction

1. Insert/Update the data on the *univ_db* using the following clauses without violating foreign key constraint.Atleast 5 records must be present for each department.
   (a) BEGIN-COMMIT
   (b) BEGIN-ROLLBACK
   (c) BEGIN-SAVEPOINT-COMMIT
2. Why is it necessary to mention COMMIT or ROLLBACK keyword followed by BEGIN keyword ? If you do not use COMMIT or ROLLBACK keyword followed by BEGIN,What error can be generated ?Explain with example scenarios.

DB Operation Via Python or Java

1. Retrieve the top-3 students based on tot_cred.

2. Retrieve the budget in ascending order and display the name of the department with max and min budget.Show the statistics (mean,median,variance) on the department budget with help of python code.

3. Show the details of the departments which have budgets more than the average budget across all departments. First show it without defining any SQL function, then show it by defining a SQL function *avg_budget* that returns the average budget across all departments.

4. Consider the department of M.tech DS and M.tech SOCD is merged and consequently the budget of M.tech SOCD moved to M.tech DS.Write a procedure to handle the update such a way that ACID property holds.