Class Activity 14/10/24

Roll Number 2023101040

1. One INSERT on EMPLOYEE that is acceptable

Insert into EMPLOYEE a tuple with Ssn = '123459876', Fname = 'Michael', Lname = 'Jordan', Bdate = '1975-02-17', Address = '321 Ball Street, Chicago, IL', Sex = 'M', Salary = 50000, Super_ssn = '333445555', Dno = 5.
Result: This insertion is acceptable because the Ssn is unique, and the Dno exists in the DEPARTMENT table, satisfying all constraints.

2. One INSERT that violates key constraint

Insert into EMPLOYEE a tuple with Ssn = '999887777', Fname = 'Alex', Lname = 'Doe' (where Ssn = '999887777' already exists).
Result: This insertion is unacceptable because it violates the primary key constraint on Ssn, which requires uniqueness.

3. One INSERT that violates referential integrity constraints

Insert into EMPLOYEE a tuple with Ssn = '123459876', Fname = 'Jane', Lname = 'Doe', and Dno = '99' (where no department has Dno = '99').
Result: This insertion is unacceptable because it violates the referential integrity constraint, as Dno = 99 does not exist in the DEPARTMENT table.

4. One DELETE on EMPLOYEE that is acceptable

Deleting an employee without violating any constraints isn't possible for any employee in the current dataset because they are all involved in relationships that would cause violations in either WORKS_ON, DEPENDENT, or DEPARTMENT.

5. One DELETE on EMPLOYEE that violates referential integrity constraints

Delete the EMPLOYEE tuple with Ssn = '333445555' (who has dependents and works on multiple projects, and is a manager).
Result: This deletion is unacceptable because there are tuples in the DEPENDENT, DEPARTMENT, and WORKS_ON tables that refer to this Ssn. Deleting the employee would violate referential integrity.

6. One UPDATE on EMPLOYEE that is acceptable

Update the Salary of EMPLOYEE with Ssn = '123456789' to 60000.
Result: This update is acceptable, as it does not violate any key or foreign key constraints.

7. One UPDATE on EMPLOYEE that violates referential integrity constraints

Update the Dno of EMPLOYEE with Ssn = '123456789' to 61 (where Dno = 61 does not exist in DEPARTMENT).

Result: This update is not acceptable, as it violates the referential integrity constraint between EMPLOYEE.Dno and DEPARTMENT.Dnumber.

8. One UPDATE on EMPLOYEE that violates primary key constraint

Update the Ssn of EMPLOYEE from '123456789' to '999887777' (where Ssn = '999887777' already exists).
Result: This update is unacceptable because it violates the primary key constraint on Ssn, which requires uniqueness.

9. One INSERT on DEPARTMENT that is acceptable

Insert into DEPARTMENT a tuple with Dnumber = '6', Dname = 'Human Resources', Mgr_ssn = '123456789', Mgr_start_date = '2020-01-01'.
Result: This insertion is acceptable, as the Dnumber is unique and the Mgr_ssn exists in the EMPLOYEE table, meeting all constraints.

10.One INSERT on DEPARTMENT that is NOT acceptable

Insert into DEPARTMENT a tuple with Dnumber = '5', Dname = 'Marketing' (where Dnumber = '5' already exists).
Result: This insertion is unacceptable because it violates the primary key constraint on Dnumber, which must be unique in the DEPARTMENT table.

11. One DELETE on PROJECT that is acceptable

it is not possible to delete any project from the PROJECT table because every project is being referenced in the WORKS_ON table.

12. One DELETE on PROJECT that is NOT acceptable

Delete the PROJECT tuple with Pnumber = '10' (which is referenced in WORKS_ON).
Result: This deletion is not acceptable, as it violates referential integrity constraints, because WORKS_ON tuples are referencing this project.

13. One UPDATE on WORKS_ON that is acceptable

Update the Hours field in WORKS_ON for Essn = '123456789' and Pno = '1' to 40.
Result: This update is acceptable, as it does not violate any constraints.

14. One UPDATE on WORKS_ON that is NOT acceptable

Update the Pno in WORKS_ON for any employee from 3 to 50 (where Pno = '50' does not exist in PROJECT).
Result: This update is not acceptable, as it violates the referential integrity constraint between WORKS_ON.Pno and PROJECT.Pnumber.