Team-50 [HW-3]
Integrity Constraints

1. Insert <'Robert', 'F', 'Scott', 99988777, '1972-06-21', '2365 Newcastle Rd, Bellaire, TX', M, 58000, '888665555', 1> into EMPLOYEE.

CASE I : Ssn number is 999887777.
This insertion **violates the Key Integrity Constraint** because another tuple with the same Ssn number value already existed in EMPLOYEE relation and so it is rejected.

CASE II : Domain for Ssn number is 9 digits.
This insertion **violates the Domain Integrity Constraint** because other tuples have 9 digit Ssn number value in EMPLOYEE relation whereas this has 8 digits, and so it is rejected.

CASE III : No such constraints and Ssn number is 99988777.
This insertion is **acceptable** and inserts exactly one tuple.

2. Insert <'ProductA', 4, 'Bellaire', 5> into PROJECT.
This insertion is **acceptable** and doesn't violate any constraint. Exactly one tuple is inserted.

3. Insert <'Production', 4, '943775543', '2007-10-01'> into DEPARTMENT.
This insertion **violates the Key Constraint** because another tuple with the same Dnumber value already exists (i.e. Administration) in DEPARTMENT relation and so it is rejected.

4. Insert <'999887777', NULL, NULL> into WORKS_ON.

This insertion **violates Entity Integrity Constraints** for NULL cannot be the value of a primary key, in this case Pno.

5. Insert <'678678678', 'John', 'M', '1990-12-12', 'spouse'> into DEPENDENT.

This insertion aims to link an employee with a dependent, but it breaches **Referential Integrity** because the Essn mentioned in the record doesn't correspond to an entry in the EMPLOYEE table.

6. Delete the WORKS_ON tuples with Pno = 1.

This deletion is **acceptable** and deletes exactly two tuples.

7. Delete the EMPLOYEE tuple with Ssn = '987654321'.

This deletion **violates Referential Integrity Constraints** because this tuple is referenced by several tuples from EMPLOYEE, DEPARTMENT, WORKS_ON and DEPENDENT relation.

Possible solution involves setting all corresponding foreign keys to NULL **OR** cascading the DELETE.

8. Delete the PROJECT tuple with Plocation = 'Stafford'.

This update breaches the **Referential Integrity Constraints** as the project's Pnumber is referenced by tuples in the WORKS_ON table.

Possible solution involves setting all corresponding foreign keys to NULL **OR** cascading the DELETE.

9. Modify the Mgr_ssn and Mgr_start_date of the DEPARTMENT tuple with Dnumber = 5 to '123456789' and '2007-13-01', respectively.

This update breached **Domain Integrity Constraints** due to presence of an invalid start date (MM=13) in the updated data.

10. Modify the Super_ssn attribute of the EMPLOYEE tuple with Ssn = '999887777' to '333445555'.
This is a **valid modification** that amends the "Super_ssn" attribute for the employee.

11. Modify the Hours attribute of the WORKS_ON tuple with Essn = '999887777' and Pno = 4 to '5.0
This update would yield an error as no tuple corresponding to the specified Essn and Pno combination exists. Even if such a tuple were present, it would invoke **Referential Integrity** because there is no project with a Pnumber of 4 in the database.