**🔶 1. Table Schema Using NOT NULL and UNIQUE Constraints**

**CREATE TABLE employees (**

**emp\_id INT NOT NULL UNIQUE,**

**name VARCHAR(50) NOT NULL,**

**email VARCHAR(100) UNIQUE,**

**department VARCHAR(50) NOT NULL**

**);**

**🔍 Explanation of Constraints Used:**

* **NOT NULL: Ensures the column cannot have NULL values.**
  + **Used for: emp\_id, name, and department**
* **UNIQUE: Ensures all values in the column are different (no duplicates).**
  + **Used for: emp\_id and email**

**🔶 2. Inserting 10 Dummy Records**

**INSERT INTO employees (emp\_id, name, email, department) VALUES**

**(101, 'Ali Khan', 'ali.khan@example.com', 'HR'),**

**(102, 'Sara Ahmed', 'sara.ahmed@example.com', 'IT'),**

**(103, 'Bilal Raza', 'bilal.raza@example.com', 'Finance'),**

**(104, 'Ayesha Noor', 'ayesha.noor@example.com', 'IT'),**

**(105, 'Imran Shah', 'imran.shah@example.com', 'Marketing'),**

**(106, 'Zainab Tariq', 'zainab.tariq@example.com', 'Finance'),**

**(107, 'Hassan Javed', 'hassan.javed@example.com', 'HR'),**

**(108, 'Nida Farooq', 'nida.farooq@example.com', 'IT'),**

**(109, 'Usman Latif', 'usman.latif@example.com', 'Marketing'),**

**(110, 'Farah Naz', 'farah.naz@example.com', 'Finance');**

**🔎 Explanation of the Insert Query:**

* **Inserts data into each column explicitly.**
* **emp\_id is unique and not null.**
* **name and department are required (not null).**
* **email is unique (e.g., no two users share the same email).**

**✅ 3. Testing the Constraints**

**A. Trying to Insert NULL in a NOT NULL Column**

**INSERT INTO employees (emp\_id, name, email, department)**

**VALUES (111, NULL, 'new.email@example.com', 'HR');**

**🛑 This will fail: Because name is NOT NULL.**

**B. Trying to Insert Duplicate emp\_id or email**

**INSERT INTO employees (emp\_id, name, email, department)**

**VALUES (101, 'Same ID', 'same.email@example.com', 'IT');**

**🛑 This will fail: Because emp\_id 101 already exists (violates UNIQUE constraint).**

**INSERT INTO employees (emp\_id, name, email, department)**

**VALUES (112, 'Duplicate Email', 'ali.khan@example.com', 'Finance');**

**🛑 This will also fail: Email is already used (violates UNIQUE constraint).**

**📌 Summary of Concepts**

| **Constraint** | **Purpose** | **Column(s) Used** |
| --- | --- | --- |
| **NOT NULL** | **Disallows NULL values** | **emp\_id, name, department** |
| **UNIQUE** | **Disallows duplicate values** | **emp\_id, email** |