SQL Constraints Exercise Sheet

1. NOT NULL Constraint

Create Table

```
CREATE TABLE Employees (
    EmpID INT NOT NULL,
    Name VARCHAR(50) NOT NULL,
    Department VARCHAR(30),
    PRIMARY KEY (EmpID)
);
```

Exercise

1. Try inserting a record without `EmpID`.
2. Try inserting a record without `Name`.

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2. CHECK Constraint (Single Column)

Create Table

```
CREATE TABLE Products (
    ProductID INT NOT NULL,
    ProductName VARCHAR(50) NOT NULL,
    Price DECIMAL(10, 2) CHECK (Price > 0),
    PRIMARY KEY (ProductID)
);
```

Exercise

1. Insert a product with a negative price.
2. Insert a product with price = 0.
3. Insert a valid product.

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3. CHECK Constraint (Multiple Columns)

Create Table

```
CREATE TABLE Students (
    StudentID INT NOT NULL,
    Name VARCHAR(50) NOT NULL,
    Age INT CHECK (Age >= 18),
    Marks INT CHECK (Marks BETWEEN 0 AND 100),
    PRIMARY KEY (StudentID)
);
```

Exercise

1. Insert a student with Age < 18.
2. Insert a student with Marks = 105.
3. Insert a valid student.

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4. DEFAULT Constraint

Create Table

```
CREATE TABLE Orders (
    OrderID INT PRIMARY KEY,
    OrderStatus VARCHAR(20) DEFAULT 'Pending',
    CreatedDate DATE DEFAULT CURRENT_DATE
);
```

Exercise

1. Insert a record without `OrderStatus` and `CreatedDate`.
2. View the default values.

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5. NULLIF() and IFNULL() Functions

Data Setup

```
CREATE TABLE Customers (
    ID INT PRIMARY KEY,
    Name VARCHAR(50),
    City VARCHAR(50),
    Salary DECIMAL(10, 2)
);

INSERT INTO Customers VALUES
(1, 'Ramesh', 'Delhi', 5000),
(2, 'Anil', 'Anil', NULL),
(3, 'Sunita', NULL, 7000);
```

Exercise

1. Use `NULLIF(Name, City)` to check for identical values.
2. Use `IFNULL(Salary, 5500)` to replace NULL salary.

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6. ALTER Table – Add & Drop Constraints

Create Table

```
CREATE TABLE Vehicles (
    VehicleID INT PRIMARY KEY,
    Model VARCHAR(50),
```

```
    Year INT
);
```

Exercise

1. Add a `CHECK` constraint to ensure `Year >= 2000`.

```
ALTER TABLE Vehicles ADD CONSTRAINT chk_year CHECK (Year >= 2000);
```

2. Try inserting a vehicle with Year = 1995.
3. Drop the constraint:

```
ALTER TABLE Vehicles DROP CONSTRAINT chk_year;
```

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s 7. UNIQUE Constraint

Create Table

```
CREATE TABLE Users (
    UserID INT PRIMARY KEY,
    Username VARCHAR(50) UNIQUE,
    Email VARCHAR(100) UNIQUE
);
```

Exercise

1. Try inserting two users with the same `Username` or `Email`.