**1. Selecting All Columns of All Rows**

SELECT \* FROM employees;

✅ This retrieves **all columns and all rows** from the employees table.

**2. Selecting Specific Columns of All Rows**

SELECT employee\_id, first\_name, last\_name FROM employees;

✅ This retrieves only the employee\_id, first\_name, and last\_name columns for **all rows**.

**3. Arithmetic Expressions**

SELECT first\_name, salary, salary \* 1.10 AS increased\_salary FROM employees;

✅ This calculates a 10% **increase** in salary using an arithmetic expression.

**4. Null Values**

SELECT first\_name, commission\_pct FROM employees WHERE commission\_pct IS NULL;

✅ This finds employees whose commission\_pct column is **NULL** (i.e., no value assigned).

**5. Column Aliases**

SELECT first\_name AS 'First Name', last\_name AS 'Last Name' FROM employees;

✅ AS is used to give **aliases (custom names)** to the columns in the result.

**6. Concatenation Operator**

SELECT CONCAT(first\_name, ' ', last\_name) AS full\_name FROM employees;

✅ CONCAT() joins first\_name and last\_name with a space to create a **full name**.

**7. Literal Character Strings**

SELECT first\_name, 'Welcome to the Company!' AS message FROM employees;

✅ Adds a **fixed string** message for each row without pulling it from the table.

**8. Eliminating Duplicate Rows**

SELECT DISTINCT department\_id FROM employees;

✅ DISTINCT removes **duplicate** department\_id values from the result.

**Complete Layout**

**✅ Step 1: Create Database**

CREATE DATABASE company\_db;

**✅ Step 2: Create employees Table**

CREATE TABLE employees (

employee\_id INT PRIMARY KEY,

first\_name VARCHAR(50),

last\_name VARCHAR(50),

department\_id INT,

salary DECIMAL(10,2),

commission\_pct DECIMAL(4,2),

hire\_date DATE

);

**✅ Step 3: Insert 20 Dummy Records**

INSERT INTO employees (employee\_id, first\_name, last\_name, department\_id, salary, commission\_pct, hire\_date) VALUES

(1101, 'Ali', 'Mushtaq', 101, 55000.00, 0.20, '2025-02-12'),

(102, 'Jane', 'Smith', 20, 60000.00, NULL, '2019-02-20'),

(103, 'Alice', 'Johnson', 10, 70000.00, 0.15, '2018-05-10'),

(104, 'Bob', 'Brown', 30, 45000.00, NULL, '2021-07-25'),

(105, 'Charlie', 'Davis', 40, 80000.00, 0.12, '2017-03-30'),

(106, 'Diana', 'Miller', 20, 52000.00, NULL, '2022-06-18'),

(107, 'Edward', 'Wilson', 10, 47000.00, 0.10, '2020-10-10'),

(108, 'Fiona', 'Taylor', 30, 59000.00, 0.08, '2016-12-12'),

(109, 'George', 'Anderson', 40, 68000.00, NULL, '2015-04-01'),

(110, 'Helen', 'Thomas', 20, 72000.00, 0.18, '2023-01-10'),

(111, 'Ivy', 'Moore', 10, 55000.00, NULL, '2020-08-22'),

(112, 'Jack', 'Martin', 20, 63000.00, 0.20, '2019-09-14'),

(113, 'Karen', 'Lee', 30, 48000.00, NULL, '2021-11-02'),

(114, 'Leo', 'Clark', 40, 74000.00, 0.10, '2018-06-06'),

(115, 'Mona', 'Hall', 10, 46000.00, NULL, '2017-02-28'),

(116, 'Nina', 'Allen', 30, 69000.00, 0.05, '2016-08-17'),

(117, 'Oscar', 'Young', 20, 52000.00, NULL, '2022-04-04'),

(118, 'Paul', 'Hernandez', 40, 75000.00, 0.15, '2020-10-10'),

(119, 'Quincy', 'King', 10, 61000.00, NULL, '2023-02-01'),

(120, 'Rachel', 'Wright', 30, 58000.00, 0.07, '2021-05-15');

**🧪 Concepts You Can Practice with These Records**

| **Concept** | **Example** |
| --- | --- |
| **All Rows/Columns** | SELECT \* FROM employees; |
| **Specific Columns** | SELECT first\_name, salary FROM employees; |
| **Arithmetic** | SELECT salary \* 1.10 FROM employees; |
| **NULL Values** | SELECT \* FROM employees WHERE commission\_pct IS NULL; |
| **Aliases** | SELECT salary AS 'Monthly Salary' FROM employees; |
| **Concatenation** | SELECT CONCAT(first\_name, ' ', last\_name) FROM employees; |
| **Literals** | SELECT first\_name, 'Welcome!' AS message FROM employees; |
| **DISTINCT** | SELECT DISTINCT department\_id FROM employees; |