MS SQL Sample data

1. store_db

customers

```
CREATE TABLE Customers (

   customer_id INT IDENTITY(100,1) PRIMARY KEY,

   customer_name VARCHAR(100) NOT NULL,

   email VARCHAR(100) UNIQUE

);


INSERT INTO Customers (customer_name, email)

VALUES

('Raju', 'raju@example.com'),

('Sham', 'sham@example.com'),

('Baburao', 'baburao@example.com');
```

Orders

```
CREATE TABLE Orders (

   order_id INT IDENTITY(500,1) PRIMARY KEY,

   order_date DATE NOT NULL,

   total_amount DECIMAL(10, 2),

   customer_id INT,

   FOREIGN KEY (customer_id) REFERENCES Customers(customer_id)

);
```

INSERT INTO Orders (order_date, total_amount, customer_id)

VALUES

('2025-09-15', 1500.00, 100), -- This links to Raju (customer_id 100)

('2025-09-28', 800.00, 101), -- This links to Sham (customer_id 101)

('2025-10-05', 2200.00, 100), -- This links to Raju (customer_id 100)

('2025-10-12', 500.00, 102), -- This links to Baburao (customer_id 102)

('2025-10-17', 1200.00, 101); -- New order for Sham (customer_id 101)

==

Institute

Table Creation

- ### courses
  - Create Table

    ```
    CREATE TABLE courses (
      course_id INT IDENTITY(1,1) PRIMARY KEY,
      course_name VARCHAR(100) NOT NULL,
      course_fee NUMERIC(10, 2) NOT NULL
    );
    ```

  - Data

    ```
    INSERT INTO courses (course_name, course_fee)
    VALUES
    ('Mathematics', 500.00),
    ('Physics', 600.00),
    ('Chemistry', 700.00);
    ```

- ### students
  - Create Table

    ```
    CREATE TABLE students (
       student_id INT IDENTITY(1,1) PRIMARY KEY,
       student_name VARCHAR(100) NOT NULL
    );
    ```

- Data

  INSERT INTO Students (student_name) VALUES
  ('Raju'),
  ('Sham'),
  ('Baburao'),
  ('Alex');

- enrollment
  - Create Table

    ```
    CREATE TABLE enrollment (
      enrollment_id INT IDENTITY(1,1) PRIMARY KEY,
      student_id INT NOT NULL,
      course_id INT NOT NULL,
      enrollment_date DATE NOT NULL,

      FOREIGN KEY (student_id) REFERENCES students(student_id),
      FOREIGN KEY (course_id) REFERENCES courses(course_id)
    );
    ```

  - Data

    ```
    INSERT INTO enrollment (student_id, course_id, enrollment_date)
    VALUES
    (1, 1, '2025-01-01'), -- Raju enrolled in Mathematics
    (1, 2, '2025-01-15'), -- Raju enrolled in Physics
    (2, 1, '2025-02-01'), -- Sham enrolled in Mathematics
    (2, 3, '2025-02-15'), -- Sham enrolled in Chemistry
    (3, 3, '2025-03-25'); -- Alex enrolled in Chemistry
    ```

SHOW DATA

```
SELECT s.student_name, c.course_name, e.enrollment_date, c.course_fee

FROM enrollment e

INNER JOIN students s ON e.student_id = s.student_id

INNER JOIN courses c ON e.course_id = c.course_id
```

```
SELECT c.course_name, COUNT(s.student_id), SUM(c.course_fee)

FROM enrollment e

INNER JOIN students s ON e.student_id = s.student_id

INNER JOIN courses c ON e.course_id = c.course_id

GROUP BY c.course_name
```

===

TASK E-StoreDB

- customers

```
CREATE TABLE customers (
   cust_id INT IDENTITY(1,1) PRIMARY KEY,
   cust_name VARCHAR(100) NOT NULL
);

INSERT INTO customers (cust_name)
VALUES
   ('Raju'), ('Sham'), ('Paul'), ('Alex'),('Baburao') ;
```

- orders

```
CREATE TABLE orders (
   ord_id INT IDENTITY(1,1) PRIMARY KEY,
   ord_date DATE NOT NULL,
   cust_id INT NOT NULL,
   FOREIGN KEY (cust_id) REFERENCES customers(cust_id) ON DELETE CASCADE
);

INSERT INTO orders (ord_date, cust_id)
VALUES
   ('2025-01-01', 1),  -- Raju first order
   ('2025-02-01', 2),  -- Sham first order
   ('2025-03-01', 3),  -- Paul first order
```

```
    ('2025-04-04', 2);  -- Sham second order
```

- ## products

```
CREATE TABLE products (
    p_id INT IDENTITY(1,1) PRIMARY KEY,
    p_name VARCHAR(100) NOT NULL,
    price NUMERIC NOT NULL
);

INSERT INTO products (p_name, price)
VALUES
    ('Laptop', 55000.00),
    ('Mouse', 500),
    ('Keyboard', 800.00),
    ('Cable', 250.00),
     ('Monitor', 12000.00);
```

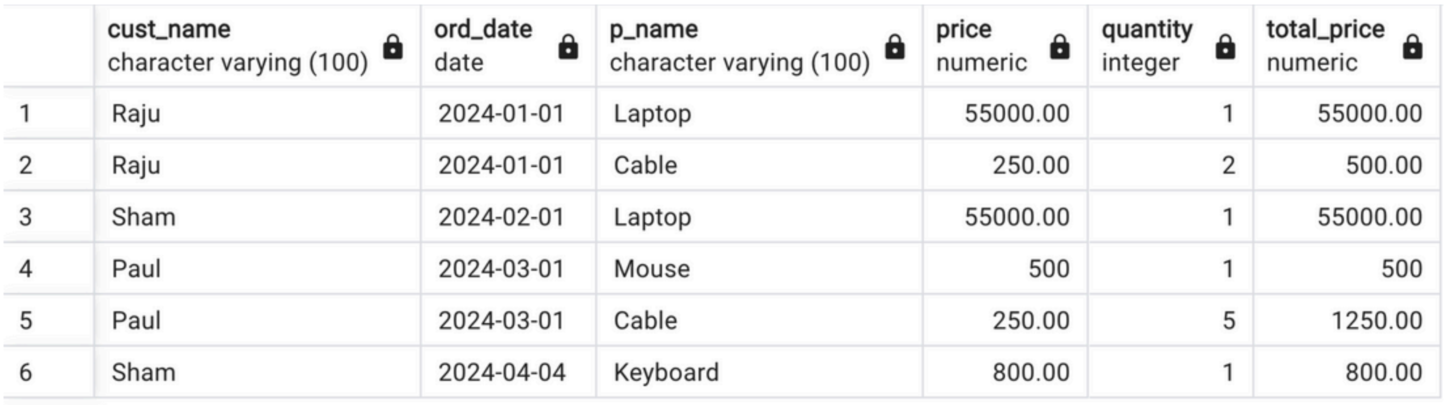
- ## order_items

```
CREATE TABLE order_items (
    item_id INT IDENTITY(1,1) PRIMARY KEY,
    ord_id INT NOT NULL,
    p_id INT NOT NULL,
    quantity INT NOT NULL,
    FOREIGN KEY (ord_id) REFERENCES orders(ord_id),
    FOREIGN KEY (p_id) REFERENCES products(p_id)
);

INSERT INTO order_items (ord_id, p_id, quantity)
VALUES
    (1, 1, 1),  -- Raju ordered 1 Laptop
    (1, 4, 2),  -- Raju ordered 2 Cables
    (2, 1, 1),  -- Sham ordered 1 Laptop
    (3, 2, 1),  -- Paul ordered 1 Mouse
    (3, 4, 5),  -- Paul ordered 5 Cables
    (4, 3, 1);  -- Sham ordered 1 Keyboard
```

==

To see overall report



	cust_name character varying (100)	ord_date date	p_name character varying (100)	price numeric	quantity integer	total_price numeric
1	Raju	2024-01-01	Laptop	55000.00	1	55000.00
2	Raju	2024-01-01	Cable	250.00	2	500.00
3	Sham	2024-02-01	Laptop	55000.00	1	55000.00
4	Paul	2024-03-01	Mouse	500	1	500
5	Paul	2024-03-01	Cable	250.00	5	1250.00
6	Sham	2024-04-04	Keyboard	800.00	1	800.00

```
SELECT
    c.cust_name,
    o.ord_date,
    p.p_name,
    p.price,
    oi.quantity,
    (oi.quantity*p.price) AS total_price
FROM order_items oi
    JOIN
        products p ON oi.p_id=p.p_id
    JOIN
        orders o ON o.ord_id=oi.ord_id
    JOIN
        customers c ON o.cust_id=c.cust_id;
```

All Queries

```
-- Database

CREATE DATABASE test;


-- Select a Database

USE test;


-- To check the selected/current Database

SELECT db_name();


-- To Delete/Drop Database

DROP DATABASE test;


-- Creating Table

CREATE TABLE users (

  id INT,

  name VARCHAR(100),

  city VARCHAR(100)

);


-- Checking Table Created

EXEC sp_help 'users';


-- Inserting sample data

INSERT INTO users(id, name, city)
```

```
  VALUES (101, 'Raju', 'Delh');


-- Inserting multiple data

INSERT INTO users

  VALUES (102, 'Sham', 'Bhopal'), (103, 'Baburao', 'Mumbai');


-- READ Data

SELECT * FROM users; -- All Data

SELECT name FROM users; -- Only name column

SELECT * FROM users WHERE name='Raju' -- Only show data for Raju


-- UPDATE Data

UPDATE users SET city='London' WHERE name='Sham'


-- DELETE Data

DELETE FROM users WHERE name='Baburao'


-- Employee Table using IDENTITY, Primary Key, Unique key, Default

CREATE TABLE employees (

   emp_id INT IDENTITY(1,1) PRIMARY KEY,

   fname VARCHAR(50) NOT NULL,

   lname VARCHAR(50) NOT NULL,

   email VARCHAR(100) NOT NULL UNIQUE,

   dept VARCHAR(50),

   salary DECIMAL(10,2) DEFAULT 30000.00,

   hire_date DATE NOT NULL DEFAULT GETDATE()
);

-- Inserting employee data
INSERT INTO employees (fname, lname, email, dept, salary, hire_date)
VALUES
('Raj', 'Sharma', 'raj.sharma@example.com', 'IT', 50000.00, '2020-01-15'),
('Priya', 'Singh', 'priya.singh@example.com', 'HR', 45000.00, '2019-03-22'),
('Arjun', 'Verma', 'arjun.verma@example.com', 'IT', 55000.00, '2021-06-01'),
('Suman', 'Patel', 'suman.patel@example.com', 'Finance', 60000.00, '2018-07-30'),
('Kavita', 'Rao', 'kavita.rao@example.com', 'HR', 47000.00, '2020-11-10'),
('Amit', 'Gupta', 'amit.gupta@example.com', 'Marketing', 52000.00, '2020-09-25'),
('Neha', 'Desai', 'neha.desai@example.com', 'IT', 48000.00, '2019-05-18'),
('Rahul', 'Kumar', 'rahul.kumar@example.com', 'IT', 53000.00, '2021-02-14'),
('Anjali', 'Mehta', 'anjali.mehta@example.com', 'Finance', 61000.00, '2018-12-03'),
('Vijay', 'Nair', 'vijay.nair@example.com', 'Marketing', 50000.00, '2020-04-19');

-- CLAUSES DISTINCT | TOP | LIKE | ORDER BY
SELECT DISTINCT dept FROM employees; -- To only show dept
SELECT TOP 3 * from employees; -- Top 3 rows
SELECT * FROM employees ORDER BY fname; -- Sorting data based on first name

-- LIKE --
SELECT * FROM employees WHERE hire_date LIKE '%2020%' -- 2020 present in column
SELECT * FROM employees WHERE fname LIKE 'A%' -- Name start with A
SELECT * FROM employees WHERE fname LIKE '%a' -- Name end with a
SELECT * FROM employees WHERE fname LIKE '____' -- Name with 4 letters
```

```sql
-- Relational Operators --

SELECT * FROM employees WHERE salary > 50000;

SELECT * FROM employees WHERE salary != 50000;


-- Logical Operators --

SELECT * FROM employees WHERE dept='IT' AND salary>50000;

SELECT * FROM employees WHERE dept='IT' OR salary=50000;


-- IN, NOT IN, BETWEEN ----

SELECT * FROM employees WHERE dept IN ('HR', 'Marketing');

SELECT * FROM employees WHERE dept NOT IN ('HR', 'Marketing');

SELECT * FROM employees WHERE salary BETWEEN 50000 AND 60000;


-- Aggregate Functions COUNT, MIN, MAX, AVG, SUM --

SELECT COUNT(salary) FROM employees;

SELECT SUM(salary) FROM employees;

SELECT MIN(salary) FROM employees;

SELECT MAX(salary) FROM employees;

SELECT AVG(salary) FROM employees;


-- GROUP BY -------------

SELECT dept FROM employees GROUP BY dept;

SELECT dept, COUNT(emp_id) FROM employees GROUP BY dept;


-- String Functions
```

```sql
SELECT CONCAT('Hello', 'BUDDY');

SELECT CONCAT_WS('-', 'One', 'Two', 'Three')

SELECT SUBSTRING('Hey Buddy', 1, 4);

SELECT REPLACE('Hey Buddy', 'Hey', 'Hello')

SELECT REVERSE('Hello World');

SELECT LEN('Hello World');

SELECT UPPER('Hello World');

SELECT LOWER('Hello World');

SELECT CHARINDEX('OM','ThOMAS');

SELECT TRIM('  Alright!  ');


-- Exercise

SELECT CONCAT_WS(':', emp_id, fname, lname, dept) FROM employees

SELECT CONCAT_WS(':', emp_id, CONCAT_WS(' ', fname, lname), dept) FROM employees

SELECT CONCAT_WS(':', emp_id, fname, UPPER(dept)) FROM employees WHERE emp_id=4

SELECT CONCAT(LEFT(dept,1), emp_id), fname FROM employees


SELECT LEFT(dept, 1) FROM employees

SELECT RIGHT(dept, 1) FROM employees

SELECT * FROM employees WHERE fname LIKE 'A%'


SELECT CONCAT(fname, lname) FROM employees;

SELECT CONCAT_WS('-', fname, lname) FROM employees;



---------------- ALTER Table ------------------------
```

```
-- Adding new Column to a table

ALTER TABLE employees ADD city VARCHAR(50);

SELECT * FROM employees;

-- Dropping Column from a table

ALTER TABLE employees DROP COLUMN city;

-- Renaming Column name

EXEC sp_rename 'employees.first_name', 'fname', 'COLUMN';

-- Modify Column datatype

Alter table employees

   Alter column fname VARCHAR(60);

-- Modify Column to add a Default Constraint

ALTER TABLE employees

ADD CONSTRAINT default_dept DEFAULT 'Trainee' FOR dept;



----- CHECK CONSTRAINT -----------------------------

create table contacts(

   name varchar(50),

   mobile varchar(20) UNIQUE CHECK (Len(mobile)>=10)

)

insert into contacts values ('raju', '123456780')

-- Check our constraint

EXEC sp_help 'contacts';
```

```
------------- CASE -------------------------------

SELECT fname, salary,

CASE

        WHEN salary >=50000 Then 'High'

        ELSE 'Low'

END as sal_stat

FROM employees


------------ Relationship -----------

CREATE TABLE customers (

   cust_id INT IDENTITY(1,1) PRIMARY KEY,

   cust_name VARCHAR(100) NOT NULL

);


CREATE TABLE orders (

   ord_id INT IDENTITY(1,1) PRIMARY KEY,

   ord_date DATE NOT NULL,

   price DECIMAL(10, 2) NOT NULL,

   cust_id INT NOT NULL,

   FOREIGN KEY (cust_id) REFERENCES customers(cust_id)

);


INSERT INTO customers (cust_name)

VALUES

   ('Raju'), ('Sham'), ('Paul'), ('Alex');
```

```
INSERT INTO orders (ord_date, cust_id, price)

VALUES

   ('2024-01-01', 1, 250.00),

   ('2024-01-15', 1, 300.00),

   ('2024-02-01', 2, 150.00),

   ('2024-03-01', 3, 450.00),

   ('2024-04-04', 2, 550.00);


select * from customers;

select * from orders;



-- JOINs ---------

---- CROSS JOIN ------

SELECT * FROM customers

CROSS JOIN orders;


---- INNER JOIN -------

SELECT * FROM customers

INNER JOIN orders

ON customers.cust_id=orders.cust_id;


SELECT cust_name FROM customers

INNER JOIN orders

ON customers.cust_id=orders.cust_id GROUP BY cust_name; -- Customer names who made
atleast one order
```

```
---- LEFT JOIN -------

SELECT * FROM customers

LEFT JOIN orders

ON customers.cust_id=orders.cust_id;


---- RIGHT JOIN -------

SELECT * FROM customers

RIGHT JOIN orders

ON customers.cust_id=orders.cust_id;




SELECT

   c.cust_id,

   c.cust_name,

   o.ord_id,

   o.ord_date,

   o.price

FROM

   customers c

FULL JOIN

   orders o ON c.cust_id = o.cust_id;
```