

DATABASE SEMESTER PROJECT

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Submitted To:

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Abstract:

sports

The purpose of this project is to store records of Manufacturing_ Equipment, Raw_ Materials, Finished_ Products, Customers, Employees, Orders, Maintenance_ Task in

factory.

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Introduction:

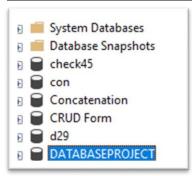
In a sports factory, various components come together to ensure smooth operations. The Manufacturing Equipment is used to produce goods, while Raw Materials are the essential inputs required for production. The Finished Products are the end result of the manufacturing process. The factory also has a team of Employees who work together to achieve the desired outcomes. The Customers place Orders for the products, and the factory ensures timely delivery. Additionally, the factory has a Maintenance Task team that takes care of the equipment to prevent breakdowns

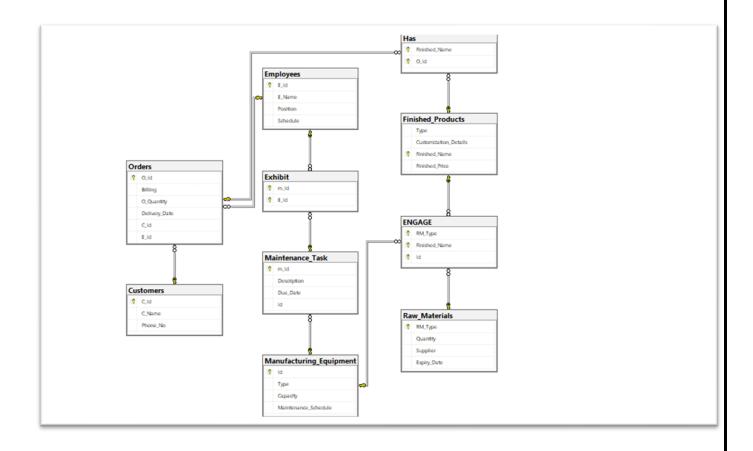
Aim and objective:

The aim and objective of this system is to save the record of Manufacturing Equipment, Raw Materials, Finished Products, Customers, Employees, Orders, and Maintenance Tasks so we are working on the need for an effective database that can help us to store and retrieve any kind of data whenever needed. This will be a web-based system or software that enables us to manage the functioning of a sports factory efficiently. It creates a systematic and standardized record of

- Manufacturing Equipment
- Raw Materials
- Finished Products
- Customers
- Employees
- Orders
- Maintenance Tasks

Project Database Diagram:

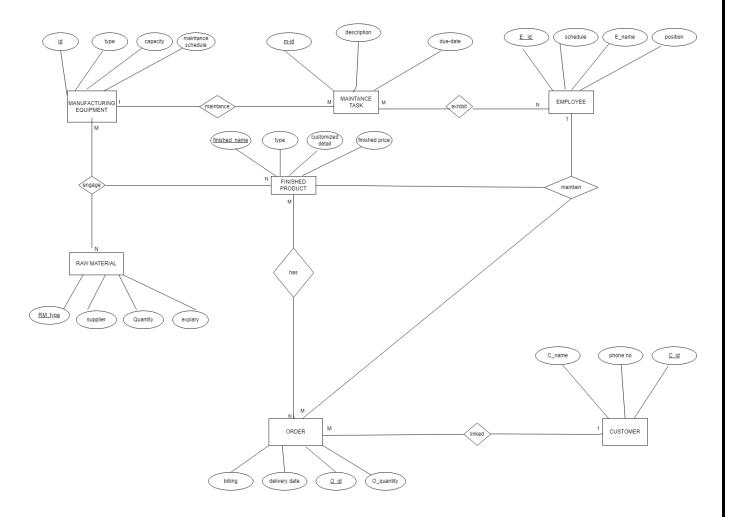




Relational Schema:

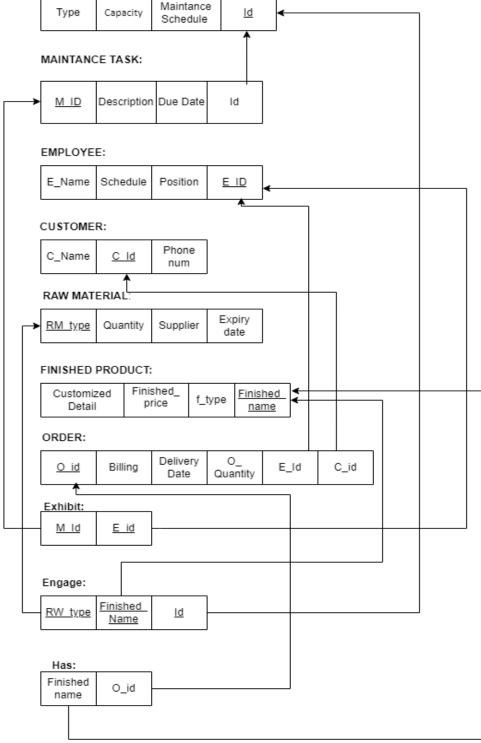
- 1. Manufacturing Equipment (Type, Capacity, Maintenance, Schedule Id)
- 2. Raw Materials (RM-Type, Quantity, Supplier, Expiry Date)
- 3. Finished Products (Type, Customization Details, Finished_ Name ,Finished price)
- 4. Orders (Billing, O-Quantity, Delivery Date, C_ Id, E_ Id O-Id)
- 5. Customers (C- Name, C-id, phone -no)
- 6. Maintenance Task (m-id, Description, Due Date)
- 7. Employees (E-Name, Position, Schedule, E-Id)
- 8. Exhibit (m_ Id ,E_ Id)
- 9. Has (Finished_ Name, O_ Id)
- 10.ENGAGE (RM_ Type, Finished_ Name, Id)¹

E-R Diagram:



Relational Model:

MANUFACTURING EQUIPMENT: Type Capacity Maintance



The query for Creating Database

CREATE DATABASE DATABASEPROJECT:

Queries for Creating Tables:

```
CREATE TABLE Manufacturing_Equipment
    Id INT PRIMARY KEY,
    Type VARCHAR(100) NOT NULL,
    Capacity VARCHAR(100) NOT NULL,
   Maintenance Schedule DATE NOT NULL
CREATE TABLE Raw Materials
    RM_Type VARCHAR(100) PRIMARY KEY,
   Quantity INT NOT NULL,
    Supplier VARCHAR(100) NOT NULL,
    Expiry Date DATE NOT NULL
CREATE TABLE Finished_Products
   Type VARCHAR(100) NOT NULL,
   Customization_Details TEXT,
   Finished_Name VARCHAR(100) PRIMARY
    Finished_Price DECIMAL(10, 2) NOT
NULL
CREATE TABLE Customers
   C_Id INT PRIMARY KEY ,
   C Name VARCHAR(100) NOT NULL,
   Phone No VARCHAR(15) NOT NULL
CREATE TABLE Employees (
    E Id INT PRIMARY KEY,
    E Name VARCHAR(100) NOT NULL,
   Position VARCHAR(100) NOT NULL,
    Schedule DATE NOT NULL
CREATE TABLE Orders
    O Id INT PRIMARY KEY,
   Billing DECIMAL(10, 2) NOT NULL,
    O Quantity INT NOT NULL,
```

```
Delivery_Date DATE NOT NULL,
    C Id INT,
    E Id INT,
    FOREIGN KEY (C_Id) REFERENCES Customers(
    FOREIGN KEY (E_Id) REFERENCES
    m_Id INT PRIMARY KEY,
    Description TEXT NOT NULL,
    Due_Date DATE NOT NULL,
    FOREIGN KEY (Id) REFERENCES
Manufacturing_Equipment (Id)
CREATE TABLE Exhibit
    m_Id INT,
    E_Id INT,
    PRIMARY KEY (m_Id, E_Id),
    FOREIGN KEY (m_Id) REFERENCES
Maintenance Task(m Id),
    FOREIGN KEY (E Id) REFERENCES
Employees(E Id)
CREATE TABLE Has
    Finished Name VARCHAR(100),
    O_Id INT,
    PRIMARY KEY (Finished Name, O Id),
    FOREIGN KEY (Finished Name) REFERENCES
Finished Products(Finished Name),
    FOREIGN KEY (0_Id) REFERENCES Orders(0_Id)
CREATE TABLE ENGAGE
( RM Type VARCHAR(100) ,
  Finished_Name VARCHAR(100) ,
   Id INT,
   PRIMARY KEY (Id,RM_Type, Finished_Name ),
   FOREIGN KEY (Id) REFERENCES
Manufacturing_Equipment(Id),
   FOREIGN KEY (RM_Type) REFERENCES
Raw_Materials(RM_Type),
    FOREIGN KEY (Finished_Name) REFERENCES
Finished Products(Finished Name)
   );
```

Inserting values in Tables:

```
INSERT INTO Manufacturing_Equipment (Id, Type, Capacity, Maintenance_Schedule) VALUES
INSERT INTO Manufacturing_Equipment (Id, Type, Capacit
(1, 'Machine Type A', '100 units/day', '2024-06-10'),
(2, 'Machine Type B', '200 units/day', '2024-06-11'),
(3, 'Machine Type C', '150 units/day', '2024-06-12'),
(4, 'Machine Type D', '120 units/day', '2024-06-13'),
(5, 'Machine Type E', '180 units/day', '2024-06-14'),
(6, 'Machine Type F', '90 units/day', '2024-06-15'),
(7, 'Machine Type G', '110 units/day', '2024-06-16'),
(8, 'Machine Type H', '170 units/day', '2024-06-17'),
(9, 'Machine Type J', '160 units/day', '2024-06-19');
 (10, 'Machine Type J', '160 units/day', '2024-06-19');
INSERT INTO Raw Materials (RM Type, Quantity, Supplier, Expiry Date) VALUES
('Material Type A', 1000, 'Supplier A', '2024-06-20'),
('Material Type B', 2000, 'Supplier B', '2024-06-21'),
('Material Type C', 1500, 'Supplier C', '2024-06-22'),
('Material Type D', 1200, 'Supplier D', '2024-06-23'),
('Material Type D', 1200, 'Supplier D', '2024-06-23'), ('Material Type E', 1800, 'Supplier E', '2024-06-24'), ('Material Type F', 900, 'Supplier F', '2024-06-25'), ('Material Type G', 1100, 'Supplier G', '2024-06-26'), ('Material Type H', 1700, 'Supplier H', '2024-06-27'), ('Material Type I', 1300, 'Supplier I', '2024-06-28'), ('Material Type I', 1600, 'Supplier I', '2024-06-28'),
('Material Type J', 1600, 'Supplier J', '2024-06-29');
SELECT* FROM Raw_Materials ;
-- Finished Products
INSERT INTO Finished_Products (Type, Customization_Details, Finished_Name, Finished_Price)
VALUES
 ('Product Type A', 'Customization A', 'Product A', 49.99),
('Product Type B', 'Customization B', 'Product B', 59.99), ('Product Type C', 'Customization C', 'Product C', 69.99),
 ('Product Type D', 'Customization D', 'Product D', 79.99),
 ('Product Type E', 'Customization E', 'Product E', 89.99),
('Product Type F', 'Customization F', 'Product F', 99.99), ('Product Type G', 'Customization G', 'Product G', 109.99),
('Product Type H', 'Customization H', 'Product H', 119.99), ('Product Type I', 'Customization I', 'Product I', 129.99), ('Product Type J', 'Customization J', 'Product J', 139.99);
-- Customers
INSERT INTO Customers (C Id, C Name, Phone No) VALUES
(1, 'John Doe', '123-456-7890'),
(2, 'Jane Smith', '234-567-8901'),
(3, 'Alice Johnson', '345-678-9012'),
(4, 'Robert Brown', '456-789-0123'),
(4, 'Robert Brown', '456-789-0123'),

(5, 'Michael Davis', '567-890-1234'),

(6, 'Linda Martinez', '678-901-2345'),

(7, 'David Wilson', '789-012-3456'),

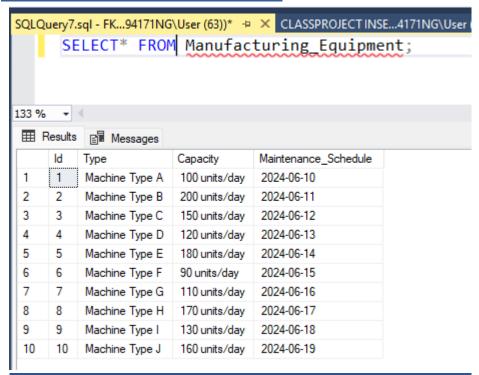
(8, 'Maria Garcia', '890-123-4567'),
 (9, 'James Anderson', '901-234-5678')
(10, 'Patricia Thomas', '012-345-6789');
-- Employees
INSERT INTO Employees (E_Id, E_Name, Position, Schedule) VALUES
(1, 'Jack Miller', 'Technician', '2024-06-10'),
(2, 'Emma Harris', 'Operator', '2024-06-11'),
(3, 'Olivia Clark', 'Supervisor', '2024-06-12'),
```

```
(4, 'Liam Lewis', 'Engineer', '2024-06-13'), (5, 'Noah Walker', 'Manager', '2024-06-14'),
(6, 'Sophia Young', 'Technician', '2024-06-15'),
(7, 'Lucas King', 'Operator', '2024-06-16'),
(8, 'Mason Wright', 'Supervisor', '2024-06-17'), (9, 'Amelia Scott', 'Engineer', '2024-06-18'), (10, 'Ethan Green', 'Manager', '2024-06-19');
-- Orders
INSERT INTO Orders (O Id, Billing, O Quantity, Delivery Date, C Id, E Id) VALUES
(1, 499.90, 10, '2024-06-20', 1, 1),
(2, 799.90, 10, '2024-06-21', 2, 2),
(3, 299.95, 5, '2024-06-22', 3, 3),
(4, 599.90, 10, '2024-06-23', 4, 4),
(5, 1199.90, 10, '2024-06-24', 5, 5),
(6, 239.92, 8, '2024-06-25', 6, 6),
(7, 899.85, 15, '2024-06-26', 7, 7),
(8, 179.94, 6, '2024-06-27', 8, 8),
(9, 149.95, 5, '2024-06-28', 9, 9),
(10, 299.90, 10, '2024-06-29', 10, 10);
-- Maintenance Task
INSERT INTO Maintenance_Task (m_Id, Description, Due_Date, Id) VALUES
(1, 'Task 1', '2024-06-20', 1),
(2, 'Task 2', '2024-06-21', 2),
(3, 'Task 3', '2024-06-22', 3),
(4, 'Task 4', '2024-06-23', 4),
(5, 'Task 5', '2024-06-24', 5),
(6, 'Task 6', '2024-06-25', 6),
(7, 'Task 7', '2024-06-26', 7),
(8, 'Task 8', '2024-06-27', 8),
(9, 'Task 9', '2024-06-28', 9),
(10, 'Task 10', '2024-06-29', 10);
-- Exhibit
INSERT INTO Exhibit (m_Id, E_Id) VALUES
(1, 1),
(2, 2),
(3, 3),
(4, 4),
(5, 5),
(6, 6),
(7, 7),
(8, 8),
(9, 9),
(10, 10);
SELECT* FROM Exhibit;
-- Has
INSERT INTO Has (Finished_Name, O_Id) VALUES
('Product A', 1),
('Product B', 2),
('Product C', 3),
('Product D', 4),
('Product E', 5),
('Product F', 6),
('Product G', 7),
('Product H', 8),
('Product I', 9),
```

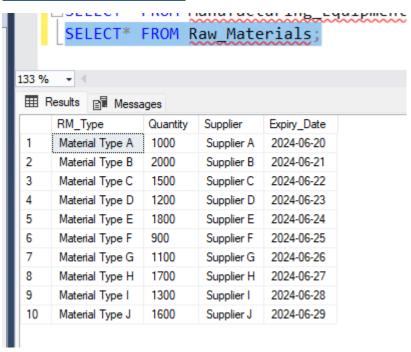
```
('Product J', 10);

-- ENGAGE
INSERT INTO ENGAGE (RM_Type, Finished_Name, Id) VALUES
('Material Type A', 'Product A', 1),
('Material Type B', 'Product B', 2),
('Material Type C', 'Product C', 3),
('Material Type D', 'Product D', 4),
('Material Type E', 'Product E', 5),
('Material Type F', 'Product F', 6),
('Material Type G', 'Product G', 7),
('Material Type H', 'Product H', 8),
('Material Type I', 'Product I', 9),
('Material Type J', 'Product J', 10);
SELECT* FROM ENGAGE;
```

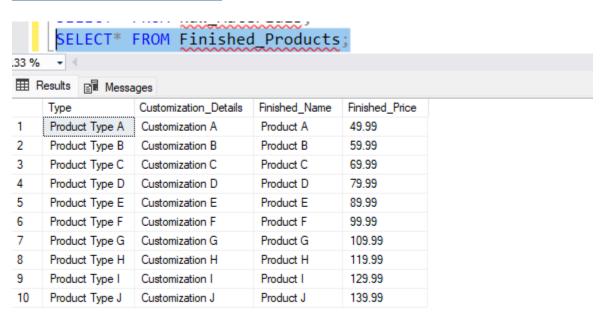
Queries to display Tables after Inserting Values in it: Manufacturing_ Equipment Table:



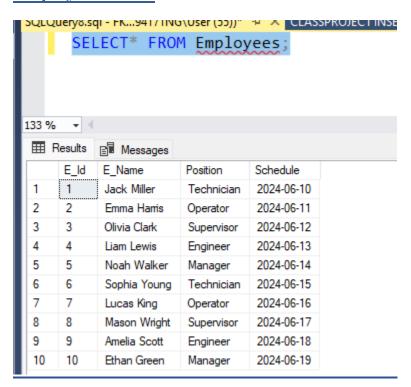
Raw Materials Table:



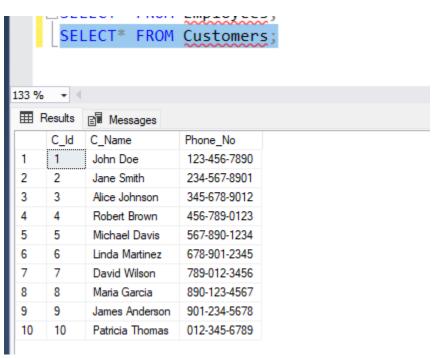
Finished_ Products Table:



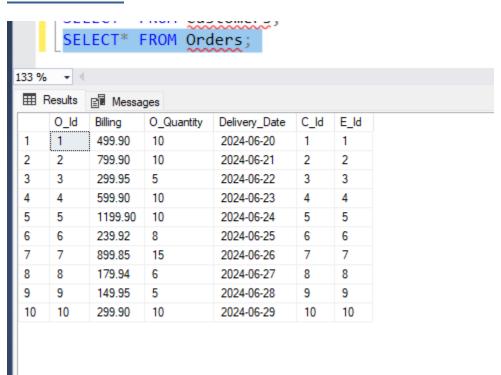
Employees Table:



Customer Table:



Orders Table:



Maintenance_ Task Table:

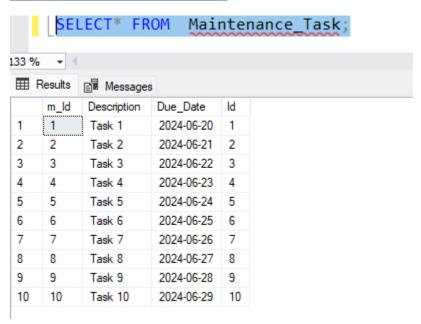
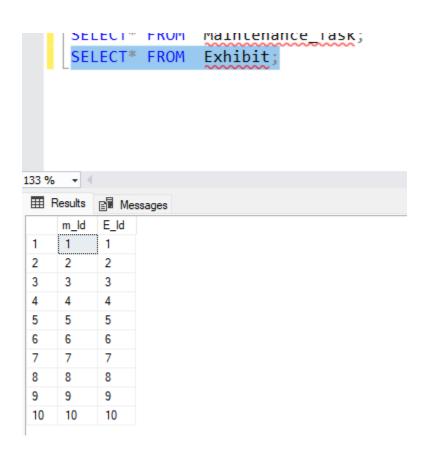
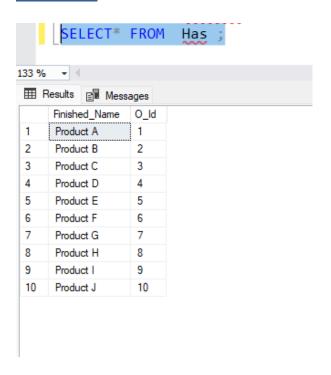


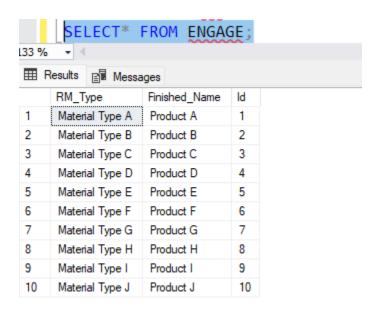
Exhibit Table:



Has Table:



Engage Table:



Keys and Constraints of Table:

■ dbo.Customers ■ PK_Customer_A9FDEC32E2EB ■ dbo.Employees Columns - PK_Employee_D730AF34A847 ■ dbo.ENGAGE Columns ■ PK_ENGAGE_95A2F7AF9BCA ©= FK_ENGAGE_Finished_63830 @ FK_ENGAGE_Id_619B8048 ©⇒ FK_ENGAGE_RM_Type_628F → PK Exhibit 21C11B0212365D. © FK_Exhibit_E_Id_5AEE82B9 Exhibit_m_ld_59FA5E80 ∣ IIII dbo.Has - PK_Has_61C66D7077D9508D ○

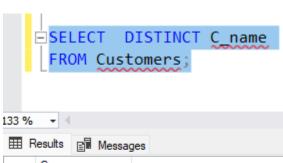
□

FK_Has_Finished_Na_5DCAE @ FK_Has_O_ld_5EBF139D Constraints ± HH UDO-EXTIIDIE - PK_Finished_F46CDD Constraints E E anorway ■ dbo.Maintenance_Task - PK_Maintena_7CB211F10FA7 © FK_Maintenance__ld_571DF

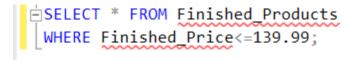
m = Constraints

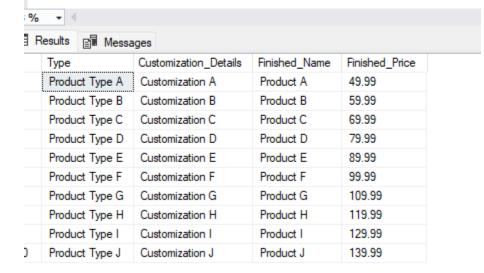
- - - PK_Manufact_3214EC073!
- - - » PK_Orders_5AAB0C38527
 - c= FK_Orders_C_ld_534D60F
 - ©=> FK_Orders_E_ld__5441852,
- - Columns
 - - PK_Raw_Mate_54277750B

Basic Queries:



	C_name							
1	Alice Johnson							
2	David Wilson							
3	James Anderson							
4	Jane Smith							
5	John Doe							
6	Linda Martinez							
7	Maria Garcia							
8	Michael Davis							
9	Patricia Thomas							
10	Robert Brown							

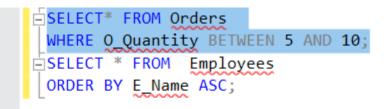




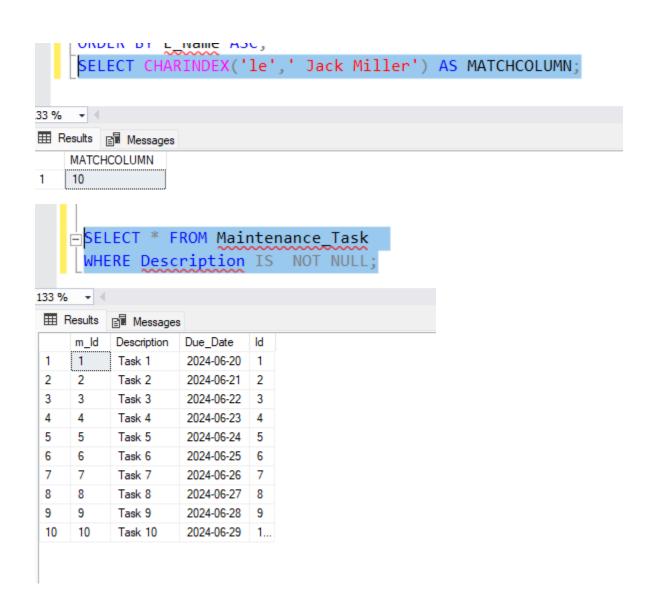
```
SELECT * FROM Employees

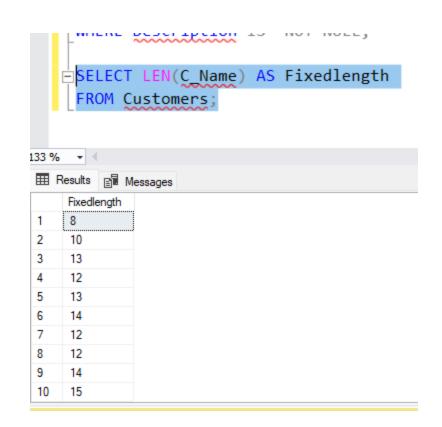
ORDER BY E Name ASC;
```

%	° % ▼								
ĪR	Results								
	E_ld	E_Name	Position	Schedule					
	9	Amelia Scott	Engineer	2024-06-18					
	2	Emma Harris	Operator	2024-06-11					
	10	Ethan Green	Manager	2024-06-19					
	1	Jack Miller	Technician	2024-06-10					
	4	Liam Lewis	Engineer	2024-06-13					
	7	Lucas King	Operator	2024-06-16					
	8	Mason Wright	Supervisor	2024-06-17					
	5	Noah Walker	Manager	2024-06-14					
	3	Olivia Clark	Supervisor	2024-06-12					
0	6	Sophia Young	Technician	2024-06-15					

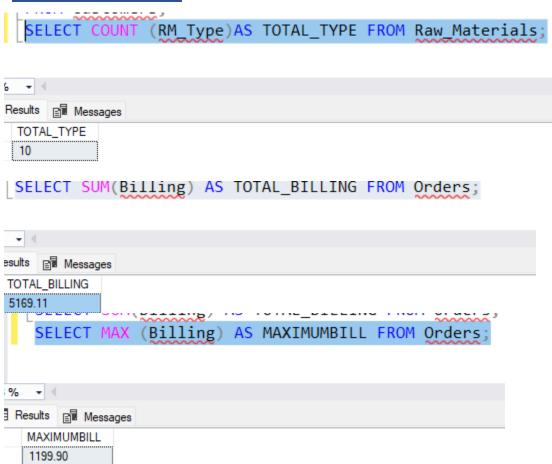


133 %	<						
III	Results	☐ Messa	ges				
	O_ld	Billing	O_Quantity	Delivery_Date	C_ld	E_ld	
1	1	499.90	10	2024-06-20	1	1	
2	2	799.90	10	2024-06-21	2	2	
3	3	299.95	5	2024-06-22	3	3	
4	4	599.90	10	2024-06-23	4	4	
5	5	1199.90	10	2024-06-24	5	5	
6	6	239.92	8	2024-06-25	6	6	
7	8	179.94	6	2024-06-27	8	8	
8	9	149.95	5	2024-06-28	9	9	
9	10	299.90	10	2024-06-29	10	10	





Aggregate Functions:



SELECT MAX (Billing) AS MAXIMUMBILL FROM Orders;

SELECT COUNT (RM_Type)AS TOTAL_TYPE ,Supplier

FROM Raw Materials

GROUP BY Supplier;

133 % - < Results Messages TOTAL_TYPE Supplier Supplier A 2 Supplier B 1 3 1 Supplier C 4 1 Supplier D 5 Supplier E 1 6 1 Supplier F 7 Supplier G 8 1 Supplier H 9 1 Supplier I 10 Supplier J

SELECT * FROM Orders LEFT JOIN Customers ON(Orders.C_Id=Customers.C_ID);

===	Results	B Messa	iges						
	O_ld	Billing	O_Quantity	Delivery_Date	C_ld	E_ld	C_ld	C_Name	Phone_No
1	1	499.90	10	2024-06-20	1	1	1	John Doe	123-456-7890
2	2	799.90	10	2024-06-21	2	2	2	Jane Smith	234-567-8901
3	3	299.95	5	2024-06-22	3	3	3	Alice Johnson	345-678-9012
4	4	599.90	10	2024-06-23	4	4	4	Robert Brown	456-789-0123
5	5	1199.90	10	2024-06-24	5	5	5	Michael Davis	567-890-1234
6	6	239.92	8	2024-06-25	6	6	6	Linda Martinez	678-901-2345
7	7	899.85	15	2024-06-26	7	7	7	David Wilson	789-012-3456
8	8	179.94	6	2024-06-27	8	8	8	Maria Garcia	890-123-4567
9	9	149.95	5	2024-06-28	9	9	9	James Anderson	901-234-5678
10	10	299.90	10	2024-06-29	10	10	10	Patricia Thomas	012-345-6789

SELECT * FROM Maintenance_Task RIGHT JOIN Manufacturing_Equipment

ON(Maintenance_Task.Id=Manufacturing_Equipment.ID);

3 %	% ▼									
ĪR	Results									
	m_ld	Description	Due_Date	ld	ld	Туре	Capacity	Maintenance_Schedule		
	1	Task 1	2024-06-20	1	1	Machine Type A	100 units/day	2024-06-10		
	2	Task 2	2024-06-21	2	2	Machine Type B	200 units/day	2024-06-11		
	3	Task 3	2024-06-22	3	3	Machine Type C	150 units/day	2024-06-12		
	4	Task 4	2024-06-23	4	4	Machine Type D	120 units/day	2024-06-13		
	5	Task 5	2024-06-24	5	5	Machine Type E	180 units/day	2024-06-14		
	6	Task 6	2024-06-25	6	6	Machine Type F	90 units/day	2024-06-15		
	7	Task 7	2024-06-26	7	7	Machine Type G	110 units/day	2024-06-16		
	8	Task 8	2024-06-27	8	8	Machine Type H	170 units/day	2024-06-17		
	9	Task 9	2024-06-28	9	9	Machine Type I	130 units/day	2024-06-18		
)	10	Task 10	2024-06-29	1	1	Machine Type J	160 units/day	2024-06-19		

Query executed successfully

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