

**1. Display the client name, project description, and status.**

```
WITH Clients_CTE (ClientName, Description, Status) AS (  
    SELECT C.ClientName, P.Description, E.Status  
    FROM [lab6.1].[dbo].[Client] C  
    INNER JOIN Project P ON C.ClientID = P.ClientID  
    INNER JOIN EmployeeProjectTask E ON E.ProjectID = P.ProjectID  
)  
SELECT * FROM Clients_CTE;
```

**2. Display the departments that have at least three employees.**

```
WITH Departments_CTE (DepartmentNo, DepartmentName, EmployeeCount) AS (  
    SELECT D.DepartmentNo, D.DepartmentName, COUNT(E.EmployeeNo)  
    FROM [lab6.1].[dbo].[ Department] D  
    INNER JOIN Employee E ON D.DepartmentNo = E.DepartmentNo  
    GROUP BY D.DepartmentNo, D.DepartmentName  
)  
SELECT DepartmentNo, DepartmentName FROM Departments_CTE WHERE EmployeeCount >= 3;
```

**3. Display the average salary by department and count how many employees had salaries equal to or above (>=) their respective department average.**

```
WITH Salary_CTE (DepartmentNo, AverageSalary) AS (  
    SELECT TOP (1000) [DepartmentNo], AVG(Salary)  
    FROM [lab6.1].[dbo].[Employee]  
    GROUP BY [DepartmentNo]  
)  
Employees_Above_Avg AS (  
    SELECT E.DepartmentNo, COUNT(*) AS EmployeesAboveAvg  
    FROM [lab6.1].[dbo].[Employee] E
```

```
JOIN Salary_CTE S ON E.DepartmentNo = S.DepartmentNo
WHERE E.Salary >= S.AverageSalary
GROUP BY E.DepartmentNo
)
SELECT S.DepartmentNo, S.AverageSalary, E.EmployeesAboveAvg
FROM Salary_CTE S
JOIN Employees_Above_Avg E ON S.DepartmentNo = E.DepartmentNo;
```

### Using SQL Views:

#### 4. Create a view that displays the departments and total salary payable in each department.

```
CREATE VIEW DepartmentSalaries AS
SELECT D.DepartmentName, SUM(E.Salary) AS TotalSalary
FROM [lab6.1].[dbo].[Department] D
INNER JOIN Employee E ON D.DepartmentNo = E.DepartmentNo
GROUP BY D.DepartmentName;
```

#### 5. Create a view that displays the first three characters of each client name.

```
CREATE VIEW ClientNamePrefixes AS
SELECT LEFT(ClientName, 3) AS ClientNamePrefix
FROM [lab6.1].[dbo].[Client];
```

### Using Stored Procedures:

#### 6. Create and execute a stored procedure named Employee\_GetAll

```
CREATE PROCEDURE Employee_GetAll AS
BEGIN
    SELECT EmployeeNo, EmployeeName, Job, Salary
    FROM [lab6.1].[dbo].[Employee]
```

END;

GO

EXEC Employee\_GetAll;

### **7: Create and execute a stored procedure named Employee\_Insert**

CREATE PROCEDURE Employee\_Insert

    @EmployeeNo INT,

    @EmployeeName VARCHAR(30),

    @Job VARCHAR(50),

    @Salary INT,

    @DepartmentNo INT

AS

BEGIN

    INSERT INTO Employee(EmployeeNo, EmployeeName, Job, Salary, DepartmentNo)

    VALUES (@EmployeeNo, @EmployeeName, @Job, @Salary, @DepartmentNo)

END;

GO

EXEC Employee\_Insert @EmployeeNo = 1, @EmployeeName = 'kHALID mUZAFFAR', @Job = 'Financial Analyst', @Salary = 55000, @DepartmentNo = 2;

### **8: Create and execute a stored procedure named Client\_Update**

CREATE PROCEDURE Client\_Update

    @ClientID INT,

    @ClientName VARCHAR(50)

AS

BEGIN

    UPDATE Client

    SET ClientName = @ClientName

    WHERE ClientID = @ClientID

END;

GO

EXEC Client\_Update @ClientID = 3, @ClientName = 'Tech Khadijah Muzaffar';

**9: Create and execute a stored procedure named Employee\_Delete**

CREATE PROCEDURE Employee\_Delete

    @EmployeeNo INT

AS

BEGIN

    DELETE FROM Employee

    WHERE EmployeeNo = @EmployeeNo

END;

GO

EXEC Employee\_Delete @EmployeeNo = 4;

**Using Triggers:**

**10. Modify the Department table and add a new column called NumberOfEmployees (int).**

ALTER TABLE Department

ADD NumberOfEmployees INT DEFAULT 0;

**Create a trigger to increase the NumberOfEmployees column value when inserting a new row into the Employee table.**

CREATE TRIGGER trigger\_insert ON Employee

FOR INSERT

AS

BEGIN

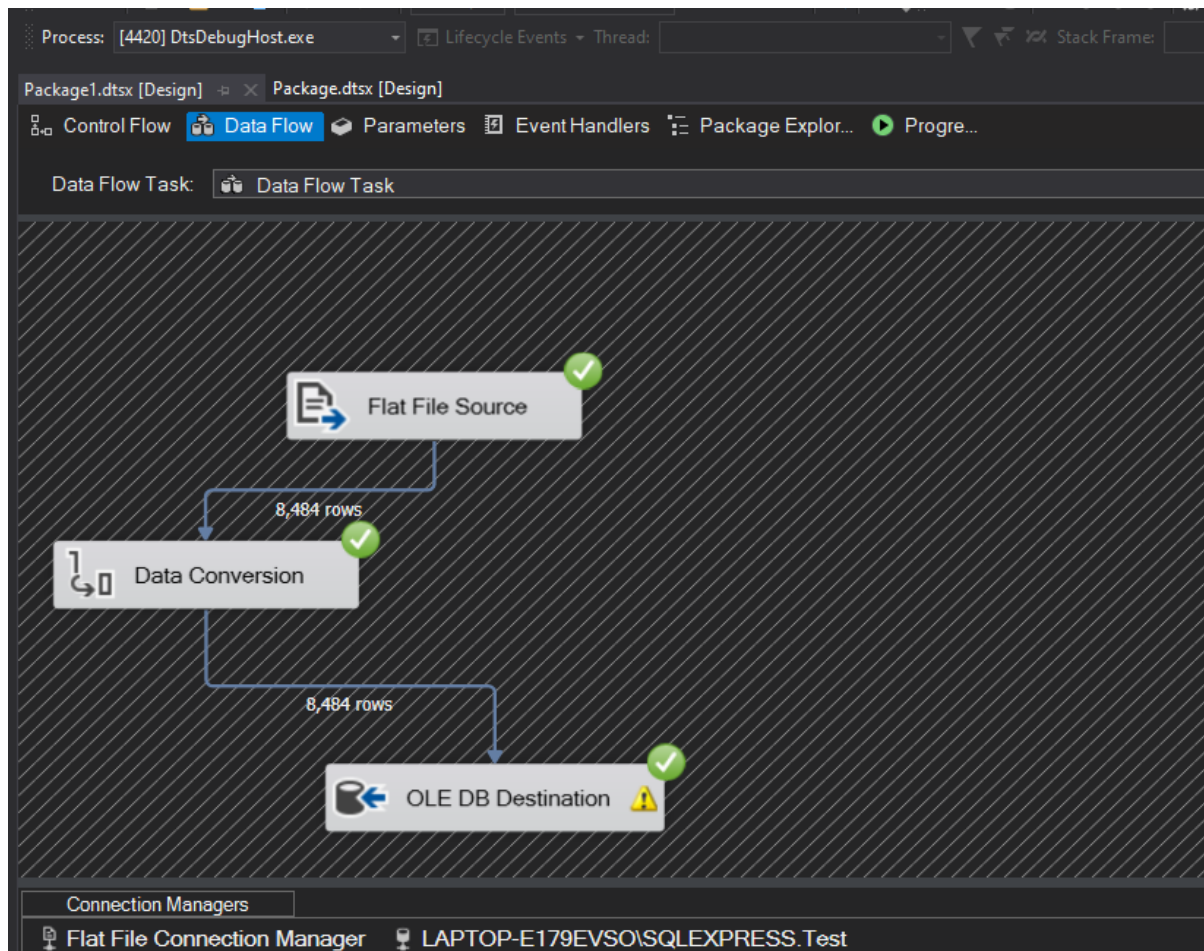
    UPDATE Department

SET NumberOfEmployees = NumberOfEmployees + 1

WHERE DepartmentNo IN (SELECT DepartmentNo FROM inserted)

END

### Using Microsoft SQL Server Integration Services (SSIS):



	CustomerKey	GeographyKey	CustomerAlternateKey
1	1	3	AW00021000
2	2	24	AW00021001
3	3	11	AW00021002
4	4	222	AW00021003
5	5	224	AW00021004
6	6	219	AW00021005
7	7	131	AW00021006
8	8	160	AW00021007
9	9	176	AW00021008
10	10	176	AW00021009
11	11	177	AW00021010
12	12	253	AW00021011
13	13	234	AW00021012
14	14	186	AW00021013
15	15	211	AW00021014
16	16	149	AW00021015

