BASISDATA LANJUT

Studi Kasus Departemen

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JAWABAN

A. Membuat Table

```
CREATE TABLE Employees (
EmployeeID INT PRIMARY KEY,
FirstName NVARCHAR(50) NOT NULL,
LastName NVARCHAR(50) NOT NULL,
DepartmentID INT NOT NULL,
Salary DECIMAL(10, 2) NOT NULL
);
```

```
Commands completed successfully.

Completion time: 2024-10-18T12:48:51.9600780+07:00
```

```
CREATE TABLE Product (
ProductID INT PRIMARY KEY,
ProductName NVARCHAR(100) NOT NULL,
Price DECIMAL(10, 2) NOT NULL,
Stock INT NOT NULL
);
```

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Messages

```
Commands completed successfully.

Completion time: 2024-10-18T12:49:55.7566796+07:00
```

```
CREATE TABLE Sales (
SaleID INT PRIMARY KEY,
SaleDate DATE NOT NULL,
Amount DECIMAL(10, 2) NOT NULL,
EmployeeID INT NOT NULL,
ProductID INT NOT NULL,
FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID),
FOREIGN KEY (ProductID) REFERENCES Product(ProductID)
);
```

) %

Messages

```
Commands completed successfully.

Completion time: 2024-10-18T12:50:50.2649470+07:00
```

B. Mengisi Table

```
INSERT INTO Employees (EmployeeID, FirstName, LastName, DepartmentID, Salary) VALUES
(1, 'Jamiatul', 'Afifah', 1, 60000.00),
(2, 'Jane', 'Smith', 1, 70000.00),
(3, 'Sam', 'Brown', 2, 45000.00),
(4, 'Linda', 'Jones', 2, 50000.00),
(5, 'Mike', 'Davis', 3, 75000.00),
(6, 'Emily', 'Clark', 1, 80000.00),
(7, 'Jacob', 'Williams', 3, 55000.00),
(8, 'Luthfi', 'Triaswangga', 4, 62000.00);
```

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Messages

```
(8 rows affected)

Completion time: 2024-10-18T12:52:09.3988066+07:00
```

```
INSERT INTO Product (ProductID, ProductName, Price, Stock) VALUES
(1, 'Laptop', 1500.00, 10),
(2, 'Smartphone', 800.00, 20),
(3, 'Tablet', 300.00, 15),
(4, 'Printer', 200.00, 5),
(5, 'Headphones', 100.00, 50),
(6, 'Monitor', 250.00, 8),
(7, 'Keyboard', 50.00, 30),
(8, 'Mouse', 20.00, 40),
(9, 'Webcam', 90.00, 25),
(10, 'External Hard Drive', 120.00, 12);
```

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Messages

```
(10 rows affected)

Completion time: 2024-10-18T12:53:45.2239829+07:00
```

```
INSERT INTO Sales (SaleID, SaleDate, Amount, EmployeeID, ProductID) VALUES
(1, '2024-01-01', 500.00, 1, 1),
(2, '2024-01-02', 600.00, 1, 2),
(3, '2024-01-03', 700.00, 2, 2),
(4, '2024-01-04', 800.00, 3, 3),
(5, '2024-01-05', 900.00, 3, 1),
(6, '2024-01-06', 300.00, 4, 3),
(7, '2024-01-07', 400.00, 5, 1),
(8, '2024-01-08', 200.00, 6, 2),
(9, '2024-01-09', 1000.00, 7, 3),
(10, '2024-01-10', 1200.00, 8, 2);
```

0 %

Messages

```
(10 rows affected)

Completion time: 2024-10-18T12:54:08.4069439+07:00
```

JAWABAN

1. Hitung Rata-Rata Gaji Per Departemen

```sql
-- Hitung Rata-Rata Gaji Per Departemen
SELECT DepartmentID,
       AVG(Salary) AS AvgSalary
FROM Employees
GROUP BY DepartmentID;
```

100 %

Results | Messages

	DepartmentID	AvgSalary
1	1	70000.000000
2	2	47500.000000
3	3	65000.000000
4	4	62000.000000

2. Hitung Total Penjualan Kumulatif Karyawan

```sql
-- Hitung Total Penjualan Kumulatif Karyawan
SELECT e.EmployeeID, e.FirstName, e.LastName,
       SUM(s.Amount) OVER (PARTITION BY e.EmployeeID ORDER BY s.SaleDate) AS CumulativeSales
FROM Employees e
JOIN Sales s ON e.EmployeeID = s.EmployeeID
ORDER BY e.EmployeeID, s.SaleDate;
```

100 %

Results | Messages

	EmployeeID	FirstName	LastName	CumulativeSales
1	1	Jamiatul	Afifah	500.00
2	1	Jamiatul	Afifah	1100.00
3	2	Jane	Smith	700.00
4	3	Sam	Brown	800.00
5	3	Sam	Brown	1700.00
6	4	Linda	Jones	300.00
7	5	Mike	Davis	400.00
8	6	Emily	Clark	200.00
9	7	Jacob	Williams	1000.00
10	8	Luthfi	Triaswa...	1200.00

3. Peringkat Karyawan Berdasarkan Total Penjualan

```sql
-- Peringkat Karyawan Berdasarkan Total Penjualan
WITH EmployeeSales AS (
    SELECT e.EmployeeID, e.FirstName, e.LastName,
           SUM(s.Amount) AS TotalSales
    FROM Employees e
    JOIN Sales s ON e.EmployeeID = s.EmployeeID
    GROUP BY e.EmployeeID, e.FirstName, e.LastName
)
SELECT FirstName, LastName, TotalSales,
       RANK() OVER (ORDER BY TotalSales DESC) AS SalesRank
FROM EmployeeSales;
```

100 %

Results | Messages

	FirstName	LastName	TotalSales	SalesRank
1	Sam	Brown	1700.00	1
2	Luthfi	Triaswangga	1200.00	2
3	Jamiatul	Afifah	1100.00	3
4	Jacob	Williams	1000.00	4
5	Jane	Smith	700.00	5
6	Mike	Davis	400.00	6
7	Linda	Jones	300.00	7
8	Emily	Clark	200.00	8

4. Perbandingan Penjualan Hari Ini dengan Penjualan Hari Kemarin

```sql
-- Perbandingan Penjualan Hari Ini dengan Penjualan Hari Kemarin
SELECT ProductID, SaleDate, Amount AS TodaySales,
       LAG(Amount) OVER (PARTITION BY ProductID ORDER BY SaleDate) AS YesterdaySales,
       Amount - LAG(Amount) OVER (PARTITION BY ProductID ORDER BY SaleDate) AS SalesDifference
FROM Sales;
```

100 %

Results | Messages

	ProductID	SaleDate	TodaySales	YesterdaySales	SalesDifference
1	1	2024-01-01	500.00	NULL	NULL
2	1	2024-01-05	900.00	500.00	400.00
3	1	2024-01-07	400.00	900.00	-500.00
4	2	2024-01-02	600.00	NULL	NULL
5	2	2024-01-03	700.00	600.00	100.00
6	2	2024-01-08	200.00	700.00	-500.00
7	2	2024-01-10	1200.00	200.00	1000.00
8	3	2024-01-04	800.00	NULL	NULL
9	3	2024-01-06	300.00	800.00	-500.00
10	3	2024-01-09	1000.00	300.00	700.00

5. Menampilkan Produk dengan Penjualan di Bawah Rata-rata

```sql
-- Menampilkan Produk dengan Penjualan di Bawah Rata-rata
WITH ProductSales AS(
    SELECT
        ProductID,
        SUM(Amount) AS TotalSales
    FROM Sales
    GROUP BY ProductID
)
SELECT
    p.ProductID,
    p.ProductName
FROM Product p
JOIN ProductSales ps ON p.ProductID = ps.ProductID
WHERE ps.TotalSales < (SELECT AVG(TotalSales) FROM ProductSales);
```

100 %

Results | Messages

	ProductID	ProductName
1	1	Laptop
2	3	Tablet

6. Hitung Persentase Gaji Karyawan Terhadap Rata-rata Gaji di Departemen

```sql
-- Hitung Persentase Gaji Karyawan Terhadap Rata-rata Gaji di Departemen
WITH AvgDeptSalary AS (
    SELECT DepartmentID, AVG(Salary) AS AvgSalary
    FROM Employees
    GROUP BY DepartmentID
)
SELECT e.EmployeeID, e.FirstName, e.LastName, e.Salary,
       (e.Salary / a.AvgSalary) * 100 AS SalaryPercentage
FROM Employees e
JOIN AvgDeptSalary a ON e.DepartmentID = a.DepartmentID;
```

100 %

Results | Messages

	EmployeeID	FirstName	LastName	Salary	SalaryPercentage
1	1	Jamiatul	Afifah	60000.00	85.71428571428571428571
2	2	Jane	Smith	70000.00	100.00000000000000000000
3	6	Emily	Clark	80000.00	114.28571428571428571429
4	3	Sam	Brown	45000.00	94.73684210526315789474
5	4	Linda	Jones	50000.00	105.26315789473684210526
6	5	Mike	Davis	75000.00	115.38461538461538461538
7	7	Jacob	Williams	55000.00	84.61538461538461538462
8	8	Luthfi	Triaswangga	62000.00	100.00000000000000000000

7. Jumlah Penjualan Berdasarkan Kuartal

```sql
-- Jumlah Penjualan Berdasarkan Kuartal
SELECT datepart (QUARTER, SaleDate) AS Quarter, SUM(Amount) AS TotalSales
FROM Sales
GROUP BY datepart (QUARTER, SaleDate);
```

100 %

Results | Messages

	Quarter	TotalSales
1	1	6600.00

8. Menampilkan Karyawan yang Gajinya Tertinggi di Setiap Departemen

```sql
-- Menampilkan Karyawan yang Gajinya Tertinggi di Setiap Departemen
WITH RankedSalaries AS (
    SELECT EmployeeID, FirstName, LastName, DepartmentID, Salary,
           RANK() OVER (PARTITION BY DepartmentID ORDER BY Salary DESC) AS SalaryRank
    FROM Employees
)
SELECT EmployeeID, FirstName, LastName, DepartmentID, Salary
FROM RankedSalaries
WHERE SalaryRank = 1;
```

100 %

Results | Messages

	EmployeeID	FirstName	LastName	DepartmentID	Salary
1	6	Emily	Clark	1	80000.00
2	4	Linda	Jones	2	50000.00
3	5	Mike	Davis	3	75000.00
4	8	Luthfi	Triaswangga	4	62000.00

9. Stok Produk yang Belum Terjual dalam Sehari

```sql
-- Stok Produk yang Belum Terjual dalam Sehari
SELECT p.ProductID, p.ProductName, p.Stock
FROM Product p
LEFT JOIN Sales s ON p.ProductID = s.ProductID AND s.SaleDate = '2024-01-01'
WHERE s.SaleID IS NULL;
```

100 %

Results | Messages

	ProductID	ProductName	Stock
1	2	Smartphone	20
2	3	Tablet	15
3	4	Printer	5
4	5	Headphones	50
5	6	Monitor	8
6	7	Keyboard	30
7	8	Mouse	40
8	9	Webcam	25
9	10	External Hard Drive	12

10. Menghitung Perubahan Gaji Karyawan Bulan ke Bulan

```sql
-- Menghitung Perubahan Gaji Karyawan Bulan ke Bulan
SELECT
    e.EmployeeID,
    e.FirstName,
    e.LastName,
    e.Salary,
    LAG(e.Salary, 1,0 ) OVER (PARTITION BY e.EmployeeID ORDER BY e.EmployeeID) AS PreviousSalary,
    (e.Salary - LAG(e.Salary, 1,0) OVER (PARTITION BY e.EmployeeID ORDER BY e.EmployeeID)) AS SalaryChange
FROM
    Employees e;
```

100 %

Results | Messages

	EmployeeID	FirstName	LastName	Salary	PreviousSalary	SalaryChange
1	1	Jamiatul	Afifah	60000.00	0.00	60000.00
2	2	Jane	Smith	70000.00	0.00	70000.00
3	3	Sam	Brown	45000.00	0.00	45000.00
4	4	Linda	Jones	50000.00	0.00	50000.00
5	5	Mike	Davis	75000.00	0.00	75000.00
6	6	Emily	Clark	80000.00	0.00	80000.00
7	7	Jacob	Williams	55000.00	0.00	55000.00
8	8	Luthfi	Triaswangga	62000.00	0.00	62000.00

11. Daftar Produk dengan Jumlah Penjualan di Atas Target

```sql
-- Daftar Produk dengan Jumlah Penjualan di Atas Target
SELECT p.ProductName, SUM(s.Amount) AS TotalSales
FROM Sales s
JOIN Product p ON s.ProductID = p.ProductID
GROUP BY p.ProductName
HAVING SUM(s.Amount) > 1000;
```

100 %

Results | Messages

	ProductName	TotalSales
1	Laptop	1800.00
2	Smartphone	2700.00
3	Tablet	2100.00

12. Hitung Rata-rata Penjualan Harian per Karyawan

```sql
-- Hitung Rata-rata Penjualan Harian per Karyawan
WITH DailySales AS (
    SELECT e.EmployeeID, e.FirstName, e.LastName, s.SaleDate, SUM(s.Amount) AS TotalSales
    FROM Employees e
    JOIN Sales s ON e.EmployeeID = s.EmployeeID
    GROUP BY e.EmployeeID, e.FirstName, e.LastName, s.SaleDate
)
SELECT EmployeeID, FirstName, LastName,
       AVG(TotalSales) AS AvgDailySales
FROM DailySales
GROUP BY EmployeeID, FirstName, LastName;
```

100 %

Results | Messages

	EmployeeID	FirstName	LastName	AvgDailySales
1	1	Jamiatul	Afifah	550.000000
2	2	Jane	Smith	700.000000
3	3	Sam	Brown	850.000000
4	4	Linda	Jones	300.000000
5	5	Mike	Davis	400.000000
6	6	Emily	Clark	200.000000
7	7	Jacob	Williams	1000.000000
8	8	Luthfi	Triaswangga	1200.000000