H.W. # 6

1. Calculate Rank and Dense Rank of employees in each department based on salary. The output columns should be FirstName, LastName, DepartmentId,Salary,empRank,empDenseRank. Show your output. (40 pt.)

The following is an example (only for department 8) of the output.



2. Create New table trainSchedule in HR database with columns (TrainId INT,Station VARCHAR(50),ArrivalTime TIME)(5 pt.)

3. Insert the following rows in the table (5 pt.)

INSERT INTO trainSchedule (TrainId,Station,ArrivalTime)

VALUES(110,'Dallas','10:00:00'),

(110,'Frisco','10:54:00'),

(110,'Irving','11:02:00'),

(110,'FortWorth','12:35:00'),

(120,'Dallas','11:00:00'),

(120,'Irving','12:49:00'),

(120,'FortWorth','13:30:00')

4. Construct a SELECT statement from the trainSchedule table to have the following columns (30 pt.)

trainId, station, ArrivalTime,time\_to\_next\_station

where time\_to\_next\_station is difference in **MINUTES** between the arrival time of each station for the SAME trainid.

Hint: USE the LEAD() window function calculate this new column in addition to using DATEDIFF function.

The output should be as follows:

Table

Description automatically generated

5. Which is not a ranking windows function? (4 pt)

1. LAG
2. RANK
3. ROW\_NUMBER
4. DENSE\_RANK

6. Which analytical window functions allow you to get data from rows other than the current row (4 pt)

1. LAG
2. RANK
3. ROW\_NUMBER
4. DENSE\_RANK

7. Fill in the blank:  SELECT SUM(qty) \_\_\_\_\_\_\_\_\_\_(PARTITION BY EmpID) AS EmpQty (4 pt)

1. ON
2. OVER
3. FOR
4. Window

8. What is the purpose of the GROUP BY Extensions in SQL Server? (4 pt)

1. Increase the complexity of your data analysis
2. Provide additional possibilities to group data
3. Make your queries concise for complex result sets
4. All the above

9. Does a window function require the use of Group By? (4 pt)

1. YES
2. Depends on the function
3. NO
4. Depends on the number of impacted records

USE HR

--Calculate Rank and Dense Rank of employees in each departemnt based on salary. The output columns should be FirstName, LastName, DepartmentId,Salary,empRank,empDenseRank

SELECT

FirstName,LastName, DepartmentId, Salary,

RANK() OVER(PARTITION BY DepartmentId

ORDER BY Salary DESC) AS emp\_rank,

DENSE\_RANK() OVER(PARTITION BY DepartmentId

ORDER BY Salary DESC)

AS emp\_dense\_rank

FROM dbo.Employees

--2. Create NEw table trainSchedule in HR database with columns (TrainId INT,Station VARCHAR(50),ArrivalTime TIME)

CREATE TABLE trainSchedule (TrainId INT,Station VARCHAR(50),ArrivalTime TIME)

--3. Insert the following rows in the table

INSERT INTO trainSchedule (TrainId,Station,ArrivalTime)

VALUES(110,'Dallas','10:00:00'),

(110,'Frisco','10:54:00'),

(110,'Irving','11:02:00'),

(110,'FortWorth','12:35:00'),

(120,'Dallas','11:00:00'),

(120,'Irving','12:49:00'),

(120,'FortWorth','13:30:00')

--4. Construct a SELEC Tstatement from the trainSchedule table to have the following columns

-- trainId, station, ArrivalTime,time\_to\_next\_station

-- where time\_to\_next\_station is difference in MINUTES between the arrival time of each station for the SAME trainid.

--USE the LEAD() window function calculate this new column in additon to using DATEDIFF fucntion.

SELECT

trainid,

station,

Arrivaltime as "station\_time",

DATEDIFF(MINUTE,Arrivaltime,LEAD(Arrivaltime) OVER (PARTITION BY trainid ORDER BY Arrivaltime))

AS time\_to\_next\_station

FROM trainschedule