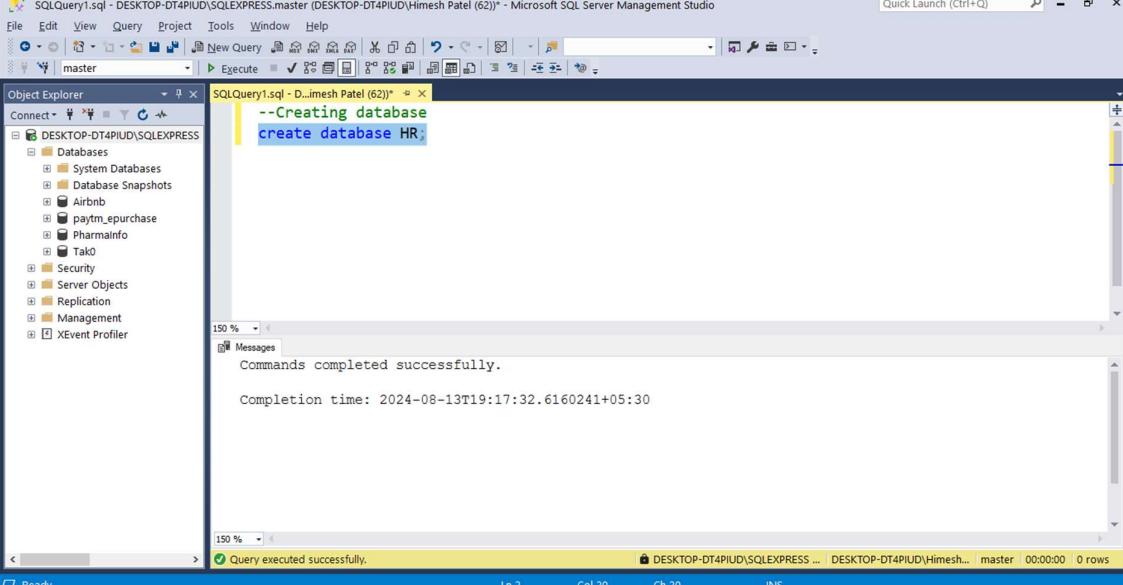
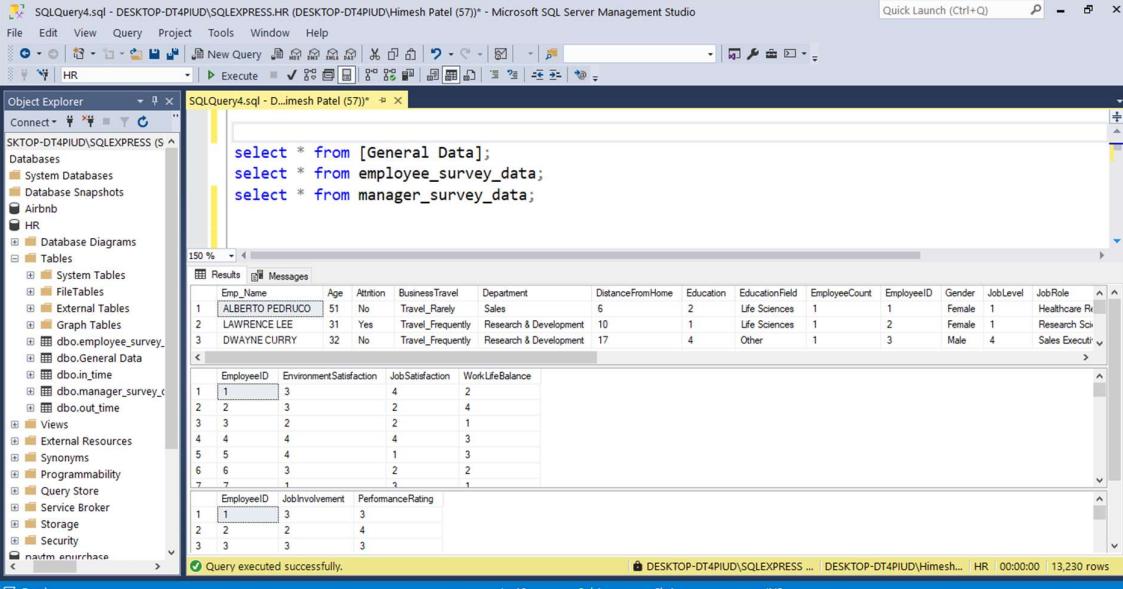


Creating Database of ``HR'' to import data.



The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, the database 'master' is selected. In the center pane, a query window titled 'SQLQuery1.sql' contains the command: '--Creating database create database HR;'. The 'Messages' pane below it displays the message 'Commands completed successfully.' and the completion time 'Completion time: 2024-08-13T19:17:32.6160241+05:30'. At the bottom, the status bar shows 'Ready'.

Once Data is inputed there are 5 tables we will make Primary Key & Foreign Key relationship based on EmployeeID column between tables.



The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, the database 'HR' is selected. In the center pane, a query window titled 'SQLQuery4.sql' contains three select statements: 'select \* from [General Data];', 'select \* from employee\_survey\_data;', and 'select \* from manager\_survey\_data;'. The 'Results' pane below shows the data for each table. The 'EmployeeID' column is highlighted in the first table's results. The status bar at the bottom shows 'Ready'.

Emp_Name	Age	Attrition	BusinessTravel	Department	DistanceFromHome	Education	EducationField	EmployeeCount	EmployeeID	Gender	JobLevel	JobRole
ALBERTO PEDRUCCO	51	No	Travel_Rarely	Sales	6	2	Life Sciences	1	1	Female	1	Healthcare Rep.
LAWRENCE LEE	31	Yes	Travel_Frequently	Research & Development	10	1	Life Sciences	1	2	Female	1	Research Sci.
DWAYNE CURRY	32	No	Travel_Frequently	Research & Development	17	4	Other	1	3	Male	4	Sales Execut.

EmployeeID	EnvironmentSatisfaction	JobSatisfaction	WorkLifeBalance
1	3	4	2
2	3	2	4
3	2	2	1
4	4	4	3
5	5	1	3
6	6	2	2
7	7	1	1

EmployeeID	JobInvolvement	PerformanceRating
1	3	3
2	2	4
3	3	3

Applying Foreign key Primary key pair of EmployeeID between tables.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure, including the HR schema which contains the employee\_survey\_data and manager\_survey\_data tables. The Query Editor window on the right contains the following SQL code:

```
--Applying Foreign key Primary key pair of EmployeeID between tables.

ALTER TABLE employee_survey_data ADD CONSTRAINT fk_epmid FOREIGN KEY (EmployeeID)
REFERENCES [General Data](EmployeeID);

ALTER TABLE manager_survey_data ADD CONSTRAINT fk_employeeid FOREIGN KEY (EmployeeID)
REFERENCES [General Data](EmployeeID);
```

The Messages pane at the bottom indicates that the commands completed successfully with a completion time of 2024-08-13T21:12:02.7731207+05:30. The status bar at the bottom right shows the session details: DESKTOP-DT4PIUD\SQLEXPRESS ... DESKTOP-DT4PIUD\Himesh... | HR | 00:00:00 | 0 rows.

Retrieve the total number of employees in the dataset.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure, including the HR schema which contains the employee\_survey\_data and manager\_survey\_data tables. The Query Editor window on the right contains the following SQL code:

```
--Retrieve the total number of employees in the dataset.
select count(Emp_Name) as No_of_Employee from [General Data];
```

The Results pane at the bottom displays the output of the query, showing a single row with the value 4410. The status bar at the bottom right shows the session details: DESKTOP-DT4PIUD\SQLEXPRESS ... DESKTOP-DT4PIUD\Himesh... | HR | 00:00:00 | 1 rows.

List all unique job roles in the dataset.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, the database 'HR' is selected. In the center pane, a query window titled 'SQLQuery4.sql - D...mesh Patel (71)\*' contains the following SQL code:

```
--List all unique job roles in the dataset.  
select distinct(JobRole) as Job_Roles from [General Data];
```

The results pane shows a table with one column 'Job\_Roles' containing nine rows of data:

Job_Roles
Sales Representative
Manager
Healthcare Representative
Laboratory Technician
Sales Executive
Manufacturing Director
Human Resources
Research Director
Research Scientist

At the bottom of the results pane, a message indicates: 'Query executed successfully.'

Find the average age of employees is '36'.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, the database 'HR' is selected. In the center pane, a query window titled 'SQLQuery4.sql - D...mesh Patel (71)\*' contains the following SQL code:

```
--Find the average age of employees;  
select avg(Age) as Average_Age_of_Employees from [General Data];
```

The results pane shows a table with one column 'Average\_Age\_of\_Employees' containing one row of data:

Average_Age_of_Employees
36

At the bottom of the results pane, a message indicates: 'Query executed successfully.'

Retrieve the 'names' and 'ages' of employees who have worked at the company for more than 5 years.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure, including the HR database. The central pane displays a query window with the following SQL code:

```
--Retrieve the names and ages of employees who have worked at the company for more than 5 years
select Emp_Name, Age, YearsAtCompany from [General Data] where YearsAtCompany>5;
```

The results pane shows a table with 17 rows of data:

	Emp_Name	Age	YearsAtCompany
1	RENEE MARQUARDT	38	8
2	HARVEY ELWIN	32	6
3	LEON WHITE	46	7
4	NATHAN HARDY	31	9
5	SUSAN BUCHBINDER	25	6
6	KIRSTEN BARASH	45	20
7	DENNIS SUTTER	36	15
8	JOHN BROWN	55	36
9	KATHRYN BALLOU	47	10
10	GRAD GREEN	35	7
11	DARCY KELLER	38	8
12	SAMUEL ROMERO	26	6
13	ALEXANDER CHER	50	10
14	BURK DELVENTHAL	42	20
15	THOMAS HARVEY	29	10
16	MARTIN BELTRAN	55	10
17	ROBERT TAI	37	17

At the bottom of the results pane, a message indicates "Query executed successfully."

Get a count of employees grouped by their department

Highest employees working in 'Research & Development' Department with '2883' employees

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure, including the HR database. The central pane displays a query window with the following SQL code:

```
--Get a count of employees grouped by their department
select Department, count(Emp_Name) as No_of_employees from [General Data] group by Department;
```

The results pane shows a table with 3 rows of data:

Department	No_of_employees
Sales	1338
Research & Development	2883
Human Resources	189

At the bottom of the results pane, a message indicates "Query executed successfully."

## List employees who have 'High' Job Satisfaction.(using subquery)

Considering "Job Satisfaction" 4 is 'High' Job Satisfaction based on that there are total '1367' employees.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for the HR database, including tables like General Data, Employee\_Survey\_Data, and Manager\_Survey\_Data. The main query window contains the following code:

```
--List employees who have 'High' Job Satisfaction.  
select Emp_Name from [General Data] where EmployeeID IN  
(select EmployeeID from employee_survey_data where JobSatisfaction='4');
```

The Results pane displays the output of the query, listing 1367 employees with their names:

Emp_Name
ALBERTO PEDRUCO
RENEE MARQUARDT
NATHAN HARDY
KIRSTEN BARASH
DENNIS SUTTER
DONALD FIELDS
LUIS HERRERA
MARTIN LALOR JR
THOMAS HARVEY
MARTIN BELTRAN
ROBERT TAI
PIERRE FRANCOIS
TROY JOLLIFF
BRIAN DELAHUNTY
ROBERT SERRANO
GERALD MANSUR JR
POLAND RICKMAN

At the bottom of the results pane, it says "Query executed successfully." and provides performance metrics: DESKTOP-DT4PIUD\SQLEXPRESS ... DESKTOP-DT4PIUD\Himesh... HR 00:00:00 | 1,367 rows.

## Find the highest monthly income in the dataset.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for the HR database. The main query window contains the following code:

```
--find the highest monthly income in the dataset.  
select max(MonthlyIncome) as Highest_Monthly_Income from [General Data];
```

The Results pane displays the output of the query, showing a single row with the value 199990:

Highest_Monthly_Income
199990

At the bottom of the results pane, it says "Query executed successfully." and provides performance metrics: DESKTOP-DT4PIUD\SQLEXPRESS ... DESKTOP-DT4PIUD\Himesh... HR 00:00:00 | 1 rows.

List employees who have 'Travel\_Rarely' as their Business Travel Type.

The screenshot shows the Microsoft SQL Server Management Studio interface. The title bar reads "SQLQuery4.sql - DESKTOP-DT4PIUD\SQLEXPRESS.HR (DESKTOP-DT4PIUD\Himesh Patel (71)) - Microsoft SQL Server Management Studio". The left pane is the Object Explorer, displaying the database structure. The right pane is the Results grid, showing the output of a query. The query is:

```
--List employees who have 'Travel_Rarely' as their Business Travel Type.  
select Emp_Name,BusinessTravel from [General Data] where BusinessTravel='Travel_Rarely';
```

The results grid displays the following data:

	Emp_Name	BusinessTravel
1	ALBERTO PEDRUZO	Travel_Rarely
2	HARVEY ELWIN	Travel_Rarely
3	LEON WHITE	Travel_Rarely
4	DENNIS HERRERA	Travel_Rarely
5	DONALD BRYANT	Travel_Rarely
6	NATHAN HARDY	Travel_Rarely
7	KIRSTEN BARASH	Travel_Rarely
8	DENNIS SUTTER	Travel_Rarely
9	JOHN BROWN	Travel_Rarely
10	DONALD FIELDS	Travel_Rarely
11	LUIS HERRERA	Travel_Rarely
12	GEORGE FOURAS	Travel_Rarely
13	GRAD GREEN	Travel_Rarely
14	DARCY KELLER	Travel_Rarely
15	ALEXANDER CHEN	Travel_Rarely
16	OLIE BANKS	Travel_Rarely
17	BURK DELVENTHAL	Travel_Rarely
18	MARTIN OCTAVIO	Travel_Rarely

At the bottom, a message says "Query executed successfully." and the status bar shows "Ln 35 Col 89 Ch 89 INS".

Retrieve the distinct 'MaritalStatus' categories in the dataset.

SQLQuery4.sql - DESKTOP-DT4PIUD\SQLEXPRESS.HR (DESKTOP-DT4PIUD\Himesh Patel (71)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

New Query Execute

Object Explorer

Connect Databases System Databases Database Snapshots Airbnb HR Database Diagrams Tables System Tables FileTables External Tables Graph Tables dbo.employee\_survey\_data dbo.General Data dbo.in\_time dbo.manager\_survey\_data dbo.out\_time Views External Resources Synonyms Programmability Query Store Service Broker Storage Security

SQLQuery4.sql - D:\...mesh Patel (71))\*

```
--Retrieve the distinct MaritalStatus categories in the dataset.  
select distinct(MaritalStatus) from [General Data];
```

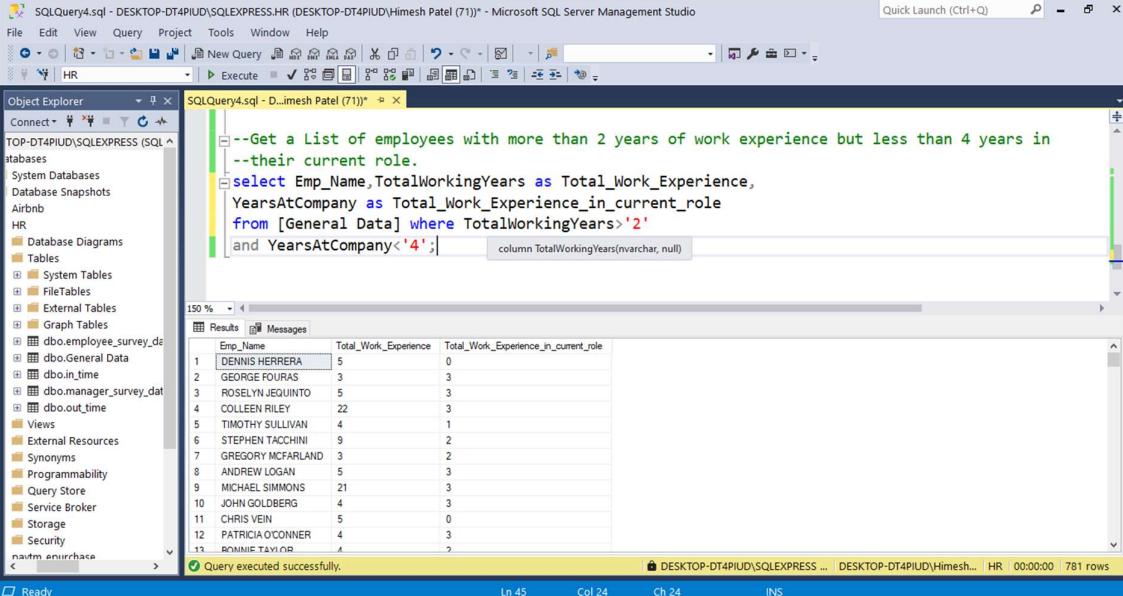
Results Messages

	MaritalStatus
1	Single
2	Divorced
3	Mamed

Query executed successfully.

LN 38 Col 52 Ch 52 INS

Get a List of employees with more than 2 years of work experience but less than 4 years in their current role.

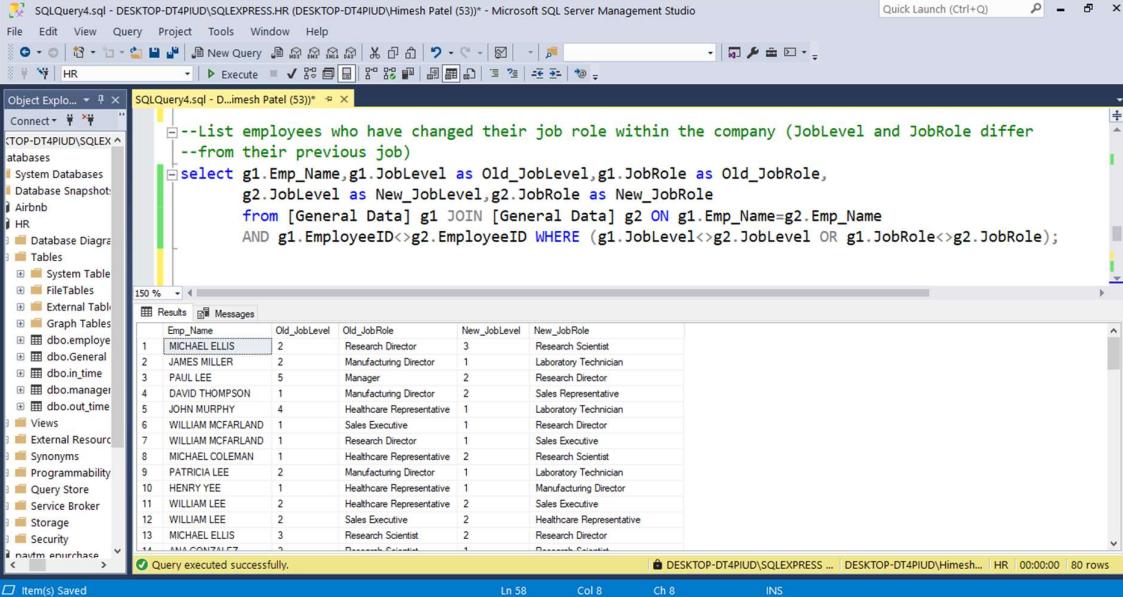


```
--Get a List of employees with more than 2 years of work experience but less than 4 years in
--their current role.
select Emp_Name,TotalWorkingYears as Total_Work_Experience,
YearsAtCompany as Total_Work_Experience_in_current_role
from [General Data] where TotalWorkingYears>'2'
and YearsAtCompany<'4'
```

Emp_Name	Total_Work_Experience	Total_Work_Experience_in_current_role
DENNIS HERRERA	5	0
GEORGE FOURAS	3	3
ROSELYN JEGUINTO	5	3
COLLEEN RILEY	22	3
TIMOTHY SULLIVAN	4	1
STEPHEN TACCHINI	9	2
GREGORY MCFARLAND	3	2
ANDREW LOGAN	5	3
MICHAEL SIMMONS	21	3
JOHN GOLDBERG	4	3
CHRIS VEIN	5	0
PATRICIA O'CONNOR	4	3
RONNIE TAYLOR	4	2

Query executed successfully.

List employees who have changed their job role within the company (JobLevel and JobRole differ from their previous job) (As we have common field 'employeeid' between tables we can use Joins to retrieve data.)



```
--List employees who have changed their job role within the company (JobLevel and JobRole differ
--from their previous job)
select g1.Emp_Name,g1.JobLevel as Old_JobLevel,g1.JobRole as Old_JobRole,
g2.JobLevel as New_JobLevel,g2.JobRole as New_JobRole
from [General Data] g1 JOIN [General Data] g2 ON g1.Emp_Name=g2.Emp_Name
AND g1.EmployeeID>g2.EmployeeID WHERE (g1.JobLevel<>g2.JobLevel OR g1.JobRole<>g2.JobRole);
```

Emp_Name	Old_JobLevel	Old_JobRole	New_JobLevel	New_JobRole
MICHAEL ELLIS	2	Research Director	3	Research Scientist
JAMES MILLER	2	Manufacturing Director	1	Laboratory Technician
PAUL LEE	5	Manager	2	Research Director
DAVID THOMPSON	1	Manufacturing Director	2	Sales Representative
JOHN MURPHY	4	Healthcare Representative	1	Laboratory Technician
WILLIAM MCFARLAND	1	Sales Executive	1	Research Director
WILLIAM MCFARLAND	1	Research Director	1	Sales Executive
MICHAEL COLEMAN	1	Healthcare Representative	2	Research Scientist
PATRICIA LEE	2	Manufacturing Director	1	Laboratory Technician
HENRY YEE	1	Healthcare Representative	1	Manufacturing Director
WILLIAM LEE	2	Healthcare Representative	2	Sales Executive
WILLIAM LEE	2	Sales Executive	2	Healthcare Representative
MICHAEL ELLIS	3	Research Scientist	2	Research Director
ANITA GONZALEZ	2	Research Scientist	1	Research Scientist

Query executed successfully.

Find the average distance from home for employees in each department.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for 'HR'. The central pane displays a query window with the following SQL code:

```
--Find the average distance from home for employees in each department
select Department, avg(DistanceFromHome) as Avg_distance
from [General Data]
group by Department;
```

The results pane shows the output of the query:

Department	Avg_distance
Sales	9
Research & Development	9
Human Resources	8

At the bottom, a message indicates "Query executed successfully."

Retrive the top 5 employees with the highest MonthlyIncome.(Based on Rankwise)

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for 'HR'. The central pane displays a query window with the following SQL code:

```
--Retrive the top 5 employees with the highest MonthlyIncome.(Based on Rankwise)
select EmployeeID, Emp_Name, MonthlyIncome, ranking
from (
    select EmployeeID, Emp_Name, MonthlyIncome,
    DENSE_RANK() Over (order by MonthlyIncome desc) as ranking
    from [General Data]
) as summary
where ranking<=5;
```

The results pane shows the output of the query:

EmployeeID	Emp_Name	MonthlyIncome	ranking
386	KEVIN LABANOWSKI	199990	1
1856	DAVID KUCIA	199990	1
3326	LAWRENCE LAU	199990	1
2412	NATHAN SZUTU	199730	2
3882	SHANNON STABILE	199730	2
942	KEVIN MCNAUGHTON	199730	2
1047	LIAM FROST	199430	3
3987	KATHERINE MILLER	199430	3
2517	HEIDI BOHLER BARNETT	199430	3
3301	GERALDINE RAYCA	199260	4
361	LYN TOMIOKA	199260	4
1831	BLAKE SUMMERS	199260	4
2234	RITA LAM	198590	5
764	BOAZ MARILES	198590	5
3704	CAROLYN JONES	198590	5

At the bottom, a message indicates "Query executed successfully."

Calculate the percentage of employees who have had a promotion in the last year.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure, including the HR database. The central pane displays a query window with the following SQL code:

```
--Calculate the percentage of employees who have had a promotion in the last year.  
Select  
round((CAST(COUNT(CASE WHEN YearsSinceLastPromotion<=1 THEN 1 END) AS float)*100)/Count(*),2)  
as "%percentagepromotion"  
from [General Data];
```

The results pane shows a single row with the value 63.81. The status bar at the bottom indicates "Query executed successfully." and "1 rows".

List the employees with the highest and lowest Environment Satisfaction

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure, including the HR database. The central pane displays a query window with the following SQL code:

```
--List the employees with the highest and lowest Environment Satisfaction  
select G.EmployeeID, Emp_Name, E.EnvironmentSatisfaction from [General Data] G JOIN employee_survey  
on G.EmployeeID=E.EmployeeID where EnvironmentSatisfaction<>'NA'  
order by EnvironmentSatisfaction desc;
```

The results pane shows a list of employees with their EmployeeID, Emp\_Name, and EnvironmentSatisfaction. The data is as follows:

	EmployeeID	Emp_Name	EnvironmentSatisfaction
1	4	RENEE MARQUARDT	4
2	5	HARVEY ELWIN	4
3	13	JOHN BROWN	4
4	15	DONALD FIELDS	4
5	17	GEORGE FOURAS	4
6	28	ROBERT TAI	4
7	29	CHRISTOPHER HAZEN	4
8	30	PIERRE FRANCOIS	4
9	32	TROY JOLLIFF	4
10	42	JOHN FEENEY	4
11	43	CANTREZ TRIPPLETT	4
12	44	GERARDO PINTO	4
13	35	MICHAEL AHERN	4
14	36	BRIAN DELAHUNTY	4

The status bar at the bottom indicates "Query executed successfully." and "4,385 rows".

Find the employees who have the same 'Job Role' and 'Marital Status'.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows a database named 'HR'. The central pane contains a query window with the following SQL code:

```
--Find the employees who have the same Job Role and Marital Status.
select JobRole,MaritalStatus,count(*) as Emp_Count from [General Data]
group by JobRole,MaritalStatus;
```

The results pane displays a table with the following data:

JobRole	MaritalStatus	Emp_Count
Research Director	Single	102
Healthcare Representative	Married	192
Healthcare Representative	Divorced	102
Laboratory Technician	Married	348
Sales Representative	Married	117
Manufacturing Director	Divorced	108
Manufacturing Director	Married	204
Laboratory Technician	Divorced	183
Sales Representative	Divorced	54
Sales Executive	Single	282
Research Scientist	Single	306
Sales Executive	Divorced	204
Human Resources	Married	75
Manager	Single	117
Human Resources	Single	57
Human Resources	Divorced	24

At the bottom, a message indicates "Query executed successfully."

List the employees with the highest Total Working Years who also have a PerformanceRating of 4.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows a database named 'HR'. The central pane contains a query window with the following SQL code:

```
--List the employees with the highest Total Working Years who also have a PerformanceRating of 4.
Select
EmpName,Cast(Total_WorkingYears as int) as Total_Working_years,Performance_Rating from
(select G.Emp_Name as EmpName,TotalWorkingYears as Total_WorkingYears,
M.PerformanceRating as Performance_Rating from [General Data] G INNER JOIN manager_survey_data M
ON G.EmployeeID=M.EmployeeID where M.PerformanceRating=4 and G.TotalWorkingYears<>'NA') as summary
order by Total_Working_years desc;
```

The results pane displays a table with the following data:

EmpName	Total_Working_years	Performance_Rating
STEVEN SETO	35	4
SHARON LEGENZA	35	4
EMILY MURASE	35	4
DAVID BEAUPRE	34	4
LOUIS GALARCE	34	4
ASIT PANWALA	34	4
JEANETTE CAVANO	34	4
ROLAND JONES	34	4
GERALD HESS	34	4
KEVIN KNOBLE	34	4
NORMAN YUP	34	4
STELLA TORREY	34	4

At the bottom, a message indicates "Query executed successfully."

Calculate the average 'Age' and 'JobSatisfaction' for each Business Travel Type;

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure, including tables like 'dbo.employee\_survey\_data' and 'dbo.General Data'. The main window displays a query in the SQL Query Editor:

```
--Calculate the average Age and JobSatisfaction for each Business Travel Type;
select Business_Travel,avg(age) as Average_Age,avg(jobsatisfaction) as Avg_JobSatisfaction
from (select G.BusinessTravel as Business_Travel,G.Age as age, cast(E.JobSatisfaction as int) as jobsat
      from [General Data] G INNER JOIN employee_survey_data E ON G.EmployeeID=E.EmployeeID
      where E.JobSatisfaction<>'NA')as summary
group by Business_Travel;
```

The results pane shows the output of the query:

Business_Travel	Average_Age	Avg_JobSatisfaction
Non-Travel	36	2
Travel_Rarely	37	2
Travel_Frequently	36	2

At the bottom, a message indicates "Query executed successfully."

Retrieve the most common Education Field among employees.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure. The main window displays a query in the SQL Query Editor:

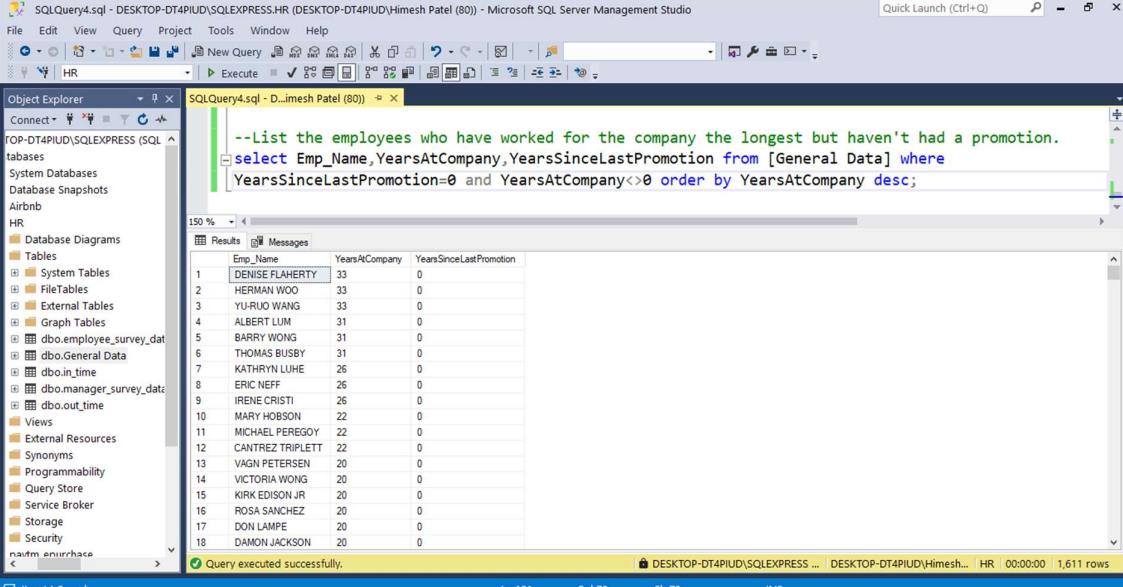
```
--Retrieve the most common Education Field among employees.
select Top 1 EducationField,count(*) as No_of_Employees from [General Data] group by EducationField
order by No_of_Employees desc;
```

The results pane shows the output of the query:

EducationField	No_of_Employees
Life Sciences	1818

At the bottom, a message indicates "Query executed successfully."

List the employees who have worked for the company the longest, but haven't had a promotion.



The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, the 'HR' database is selected. In the center pane, a query window displays the following SQL code:

```
--List the employees who have worked for the company the longest but haven't had a promotion.  
select Emp_Name, YearsAtCompany, YearsSinceLastPromotion from [General Data] where  
YearsSinceLastPromotion=0 and YearsAtCompany>0 order by YearsAtCompany desc;
```

The results grid shows 1,611 rows of employee data. The columns are Emp\_Name, YearsAtCompany, and YearsSinceLastPromotion. The data includes names like DENISE FLAHERTY, HERMAN WOO, YU-RUO WANG, etc., with their respective years at the company and years since last promotion. All rows show 0 in the YearsSinceLastPromotion column.

Emp_Name	YearsAtCompany	YearsSinceLastPromotion
DENISE FLAHERTY	33	0
HERMAN WOO	33	0
YU-RUO WANG	33	0
ALBERT LUN	31	0
BARRY WONG	31	0
THOMAS BUSBY	31	0
KATHRYN LUHE	26	0
ERIC NEFF	26	0
IRENE CRISTI	26	0
MARY HOBSON	22	0
MICHAEL PEREGOY	22	0
CANTREZ TRIPLETT	22	0
VAGH PETERSEN	20	0
VICTORIA WONG	20	0
KIRK EDISON JR	20	0
ROSA SANCHEZ	20	0
DON LAMPE	20	0
DAMON JACKSON	20	0

At the bottom of the screen, a status bar indicates: Item(s) Saved, Ln 101, Col 78, Ch 78, INS.