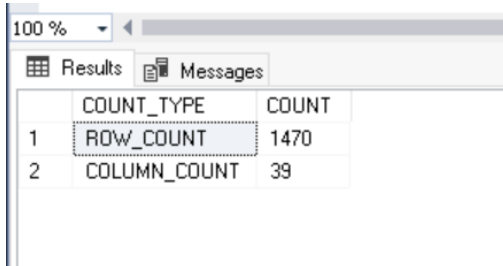


Case Study: Employee Attrition Analysis

Create database HREmployeeDB.

a) Return the shape of the table

```
SELECT 'ROW_COUNT' AS COUNT_TYPE, COUNT(*) AS 'COUNT'
FROM EMPLOYEES
UNION ALL
SELECT 'COLUMN_COUNT' AS COUNT_TYPE, COUNT(*) AS 'COUNT'
FROM INFORMATION_SCHEMA.COLUMNS WHERE TABLE_NAME='EMPLOYEES'
```

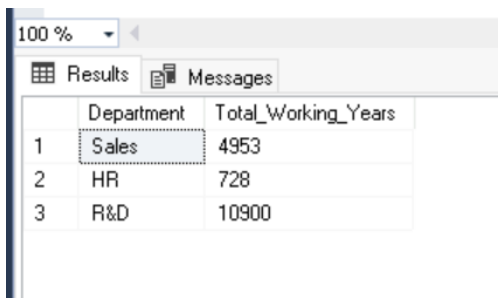


100 %

	COUNT_TYPE	COUNT
1	ROW_COUNT	1470
2	COLUMN_COUNT	39

b) Calculate the cumulative sum of total working years for each department

```
SELECT Department, SUM(TOTAL_Working_Years) Total_Working_Years
FROM employees
GROUP BY Department
```

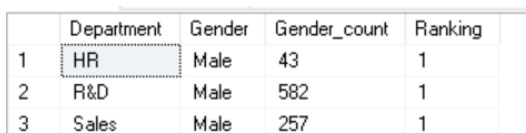


100 %

	Department	Total_Working_Years
1	Sales	4953
2	HR	728
3	R&D	10900

c) Which gender have higher strength as workforce in each department

```
SELECT Department, Gender, Gender_count, Ranking from
(SELECT Department, Gender, Gender_count,
dense_rank() Over(partition by Department order by Gender_count desc) as Ranking
from
(SELECT Department, Gender, count(*) Gender_count
FROM employees
Group by Department, Gender) as gcount)
as sorted_gcount
where Ranking = 1
```



	Department	Gender	Gender_count	Ranking
1	HR	Male	43	1
2	R&D	Male	582	1
3	Sales	Male	257	1

- d) Create a new column AGE_BAND and Show Distribution of Employee's Age band group (Below 25, 25-34, 35-44, 45-55. ABOVE 55).

```

select emp_no, Age,
case
    when Age < 25 then 'Below 25'
    when Age between 25 and 34 then '25-34'
    when Age between 35 and 44 then '35-44'
    when Age between 45 and 55 then '45-55'
    when Age > 55 then 'ABOVE 55'
end as Age_Band
from employees

```

	emp_no	Age	Age_Band
1	STAFF-1	41	35-44
2	STAFF-2	49	45-55
3	STAFF-4	37	35-44
4	STAFF-5	33	25-34
5	STAFF-7	27	25-34
6	STAFF-8	32	25-34
7	STAFF-10	59	ABOVE 55
8	STAFF-11	30	25-34
9	STAFF-12	38	35-44
10	STAFF-13	36	35-44
11	STAFF-14	35	35-44
12	STAFF-15	29	25-34
13	STAFF-16	31	25-34
14	STAFF-18	34	25-34
15	STAFF-19	28	25-34
16	STAFF-20	29	25-34
17	STAFF-21	32	25-34
18	STAFF-22	22	Below 25
19	STAFF-23	53	45-55
20	STAFF-24	38	35-44
21	STAFF-26	24	Below 25

- e) Compare all marital status of employee and find the most frequent marital status

```

select Top(1) Marital_Status, count(*) as Total_count
from employees
group by Marital_Status
order by total_count desc

```

	Marital_Status	Total_count
1	Married	673

- f) Show the Job Role with Highest Attrition Rate (Percentage)

```
select job_role,  
round(cast(sum(attr) as float)/count(attr)*100,2) as 'Attrition_rate (%)'  
from  
(select job_role,  
case  
    when Attrition = 'Yes' then 1  
    when Attrition = 'No' then 0  
end as attr  
from employees) as abcd  
group by job_role  
order by 'Attrition_rate (%)' desc
```

Results			Messages	
	job_role	Attrition_rate (%)		
1	Sales Representative	39.76		
2	Laboratory Technician	23.94		
3	Human Resources	23.08		
4	Sales Executive	17.48		
5	Research Scientist	16.1		
6	Manufacturing Director	6.9		
7	Healthcare Representative	6.87		
8	Manager	4.9		
9	Research Director	2.5		

- g) Show distribution of Employee's Promotion, Find the maximum chances of employee getting promoted.

```
WITH PROMO AS (  
    SELECT Department, Job_Role,  
    COUNT(*) AS TotalEmployees,  
    SUM(CASE WHEN Years_Since_Last_Promotion = 0 THEN 1 ELSE 0 END)  
    AS Promoted,  
    AVG(Years_Since_Last_Promotion) AS AvgYearsSinceLastPromotion  
    FROM Employees  
    GROUP BY Department, Job_Role  
)  
  
SELECT Department, Job_Role, TotalEmployees,  
(Promoted*100/TotalEmployees) as PromotionRate  
FROM PROMO
```

Results		Messages		
	Department	Job_Role	TotalEmployees	PromotionRate
1	R&D	Manufacturing Director	145	38
2	R&D	Research Director	80	30
3	Sales	Sales Executive	326	37
4	R&D	Laboratory Technician	259	48
5	R&D	Manager	54	16
6	R&D	Research Scientist	292	41
7	Sales	Sales Representative	83	53
8	Sales	Manager	37	32
9	HR	Human Resources	52	42
10	HR	Manager	11	18
11	R&D	Healthcare Represe...	131	32

h) Show the cumulative sum of total working years for each department.

```
select Department,
SUM(Total_Working_Years) as 'Total working years'
from employees
group by Department
```

Results		Messages	
	Department	Total working years	
1	Sales	4953	
2	HR	728	
3	R&D	10900	

i) Find the rank of employees within each department based on their monthly income

```
select Department, emp_no, Monthly_Income, ranking
from
(select Department, emp_no, Monthly_Income,
dense_rank() over(partition by Department order by Monthly_Income desc) ranking
from employees
group by Department, Monthly_Income, emp_no) abcd
where ranking <= 5
```

Results		Messages		
	Department	emp_no	Monthly_Income	ranking
1	HR	STAFF-1338	19717	1
2	HR	STAFF-1625	19658	2
3	HR	STAFF-1973	19636	3
4	HR	STAFF-734	19189	4
5	HR	STAFF-731	19141	5
6	R&D	STAFF-259	19999	1
7	R&D	STAFF-1035	19973	2
8	R&D	STAFF-1191	19943	3
9	R&D	STAFF-226	19926	4
10	R&D	STAFF-787	19859	5
11	Sales	STAFF-1282	19847	1
12	Sales	STAFF-1038	19845	2
13	Sales	STAFF-1740	19833	3
14	Sales	STAFF-1578	19586	4
15	Sales	STAFF-323	19517	5

- j) Calculate the running total of 'Total Working Years' for each employee within each department and age band.

```

select Employee_Number, Department,
       CF_age_Band,
       SUM(Total_working_years) as 'Total working years'
from employees
group by Department, Employee_Number, CF_age_Band
order by Employee_Number

```

Results		Messages		
	Employee_Number	Department	CF_age_Band	Total working years
1	1	Sales	35 - 44	8
2	2	R&D	45 - 54	10
3	4	R&D	35 - 44	7
4	5	R&D	25 - 34	8
5	7	R&D	25 - 34	6
6	8	R&D	25 - 34	8
7	10	R&D	Over 55	12
8	11	R&D	25 - 34	1
9	12	R&D	35 - 44	10
10	13	R&D	35 - 44	17
11	14	R&D	35 - 44	6
12	15	R&D	25 - 34	10
13	16	R&D	25 - 34	5
14	18	R&D	25 - 34	3
15	19	R&D	25 - 34	6
16	20	R&D	25 - 34	10

- k) For each employee who left, calculate the number of years they worked before leaving and compare it with the average years worked by employees in the same department.

```

WITH avgyears AS (
  SELECT Department, AVG(Years_At_Company) AS yr
  FROM Employees
  GROUP BY Department
)
SELECT
  e.Employee_Number,
  e.Department,
  e.Years_At_Company,
  e.Years_At_Company - a.yr AS Difference_with_dept_avg
FROM Employees e
JOIN avgyears a ON e.Department = a.Department
WHERE e.Attrition = 'No';

```

Results		Messages		
	Employee_Number	Department	Years_At_Company	Difference_with_dept_avg
1	2	R&D	10	4
2	5	R&D	8	2
3	7	R&D	2	-4
4	8	R&D	7	1
5	10	R&D	1	-5
6	11	R&D	1	-5
7	12	R&D	9	3
8	13	R&D	7	1
9	14	R&D	5	-1
10	15	R&D	9	3
11	16	R&D	5	-1
12	18	R&D	2	-4
13	20	R&D	10	4
14	21	R&D	6	0
15	22	R&D	1	-5
16	23	Sales	25	18
17	24	R&D	3	-3
18	26	R&D	4	-2
19	28	R&D	12	6
20	30	R&D	0	-6
21	32	R&D	14	8

- l) Rank the departments by the average monthly income of employees who have left.

```
--1
select Department,Avg(Monthly_Income) 'Avg Monthly income',
DENSE_RANK() over(order by Avg(Monthly_income) desc) as Rank_
from employees
where Attrition='No'
Group by Department
```

Results Messages			
	Department	Avg Monthly income	Rank_
1	HR	7345	1
2	Sales	7232	2
3	R&D	6630	3

- m) Find the if there is any relation between Attrition Rate and Marital Status of Employee.

```
select Marital_Status,Attrition,
count(Attrition) 'Count' from employees
group by Marital_Status,Attrition
order by Attrition desc,'Count' desc
```

Results Messages			
	Marital_Status	Attrition	Count
1	Single	Yes	120
2	Married	Yes	84
3	Divorced	Yes	33
4	Married	No	589
5	Single	No	350
6	Divorced	No	294

- n) Show the Department with Highest Attrition Rate (Percentage)

```
select Department,
round(cast(sum(attr) as float)/count(attr)*100,2) as 'Attrition_rate (%)'
from
(select Department,
case
when Attrition = 'Yes' then 1
when Attrition = 'No' then 0
end as attr
from employees) as abcd
group by Department
order by 'Attrition_rate (%)' desc
```

Results Messages		
	Department	Attrition_rate (%)
1	Sales	20.63
2	HR	19.05
3	R&D	13.84

- o) Calculate the moving average of monthly income over the past 3 employees for each job role.

```
select Department,
       Job_Role, Monthly_Income,
       AVG(Monthly_Income)
       over(partition by Job_role order by Job_Role ROWS BETWEEN 3 PRECEDING AND CURRENT ROW)
       AS Avg_mon_inc_per_3_emp
from employees
```

Results Messages				
	Department	Job_Role	Monthly_Income	Avg_mon_inc_per_3_emp
1	R&D	Healthcare Representative	5237	5237
2	R&D	Healthcare Representative	10248	7742
3	R&D	Healthcare Representative	6465	7316
4	R&D	Healthcare Representative	9884	7958
5	R&D	Healthcare Representative	10096	9173
6	R&D	Healthcare Representative	4152	7649
7	R&D	Healthcare Representative	13503	9408
8	R&D	Healthcare Representative	10673	9606
9	R&D	Healthcare Representative	5163	8372
10	R&D	Healthcare Representative	7484	9205
11	R&D	Healthcare Representative	10312	8408
12	R&D	Healthcare Representative	9439	8099
13	R&D	Healthcare Representative	13734	10242
14	R&D	Healthcare Representative	6673	10000

- p) **Identify employees with outliers in monthly income within each job role. [Condition : $\text{Monthly_Income} < Q1 - (Q3 - Q1) * 1.5$ OR $\text{Monthly_Income} > Q3 + (Q3 - Q1)$]**

```
WITH table1 AS (
    SELECT Job_Role, Employee_Number,
           Monthly_Income,
           PERCENTILE_CONT(0.25) WITHIN GROUP (ORDER BY Monthly_Income) OVER (PARTITION BY Job_Role) AS Q1,
           PERCENTILE_CONT(0.75) WITHIN GROUP (ORDER BY Monthly_Income) OVER (PARTITION BY Job_Role) AS Q3
    FROM Employees
),
table2 AS (
    SELECT *,
           (Q3 - Q1) AS IQR,
           (Q1 - 1.5 * (Q3 - Q1)) AS LowerBound,
           (Q3 + 1.5 * (Q3 - Q1)) AS UpperBound
    FROM table1
)
SELECT *
FROM table2
WHERE Monthly_Income < LowerBound OR Monthly_Income > UpperBound
ORDER BY Job_Role, Monthly_Income;
```


Results		Messages							
	Job_Role	Employee_Number	Monthly_Income	Q1	Q3	IQR	LowerBound	UpperBound	
1	Laboratory Technician	1985	6323	2379.5	3880.5	1501	128	6132	
2	Laboratory Technician	1737	6472	2379.5	3880.5	1501	128	6132	
3	Laboratory Technician	1315	6674	2379.5	3880.5	1501	128	6132	
4	Laboratory Technician	1132	6782	2379.5	3880.5	1501	128	6132	
5	Laboratory Technician	944	7403	2379.5	3880.5	1501	128	6132	
6	Manager	1516	11244	16339.5	19129.25	2789.75	12154.875	23313.875	
7	Manager	613	11557	16339.5	19129.25	2789.75	12154.875	23313.875	
8	Manager	153	11631	16339.5	19129.25	2789.75	12154.875	23313.875	
9	Manager	376	11849	16339.5	19129.25	2789.75	12154.875	23313.875	
10	Manager	428	11878	16339.5	19129.25	2789.75	12154.875	23313.875	
11	Manager	1048	11904	16339.5	19129.25	2789.75	12154.875	23313.875	
12	Manager	1321	11916	16339.5	19129.25	2789.75	12154.875	23313.875	
13	Manager	381	11996	16339.5	19129.25	2789.75	12154.875	23313.875	
14	Research Scientist	96	6220	2386	3902.5	1516.5	111.25	6177.25	
15	Research Scientist	679	6322	2386	3902.5	1516.5	111.25	6177.25	
16	Research Scientist	347	6545	2386	3902.5	1516.5	111.25	6177.25	
17	Research Scientist	691	6646	2386	3902.5	1516.5	111.25	6177.25	
18	Research Scientist	1830	6854	2386	3902.5	1516.5	111.25	6177.25	
19	Research Scientist	1847	6962	2386	3902.5	1516.5	111.25	6177.25	
20	Research Scientist	86	9724	2386	3902.5	1516.5	111.25	6177.25	
21	Sales Executive	131	13872	5025.25	8538.75	3513.5	-245	13809	
22	Sales Representative	1056	1052	2250	2878.5	628.5	1307.25	3821.25	

- q) **Gender distribution within each job role, show each job role with its gender domination. [Male_Domination or Female_Domination]**

```
--q
select Job_role, Gender as Gender_Dominated,
       Gender_count
from
  (select Job_Role,
   count(gender) as Gender_count, Gender,
   DENSE_RANK() over(partition by Job_Role order by count(gender))
   As Gender_domination
  from employees
  group by Job_role, Gender) as sub
```

Results		Messages	
	Job_role	Gender_Dominated	Gender_count
1	Manager	Male	55
2	Laboratory Technician	Female	85
3	Manager	Female	47
4	Healthcare Representative	Female	51
5	Healthcare Representative	Male	80
6	Laboratory Technician	Male	174
7	Research Scientist	Female	114
8	Manufacturing Director	Male	73
9	Research Scientist	Male	178
10	Sales Executive	Male	194
11	Human Resources	Male	36
12	Research Director	Male	47
13	Human Resources	Female	16
14	Research Director	Female	33
15	Sales Representative	Male	45
16	Sales Executive	Female	132
17	Manufacturing Director	Female	72
18	Sales Representative	Female	38

r) Percent rank of employees based on training times last year



```

select Employee_Number,Department,Education_Field,
Job_Role,Training_Times_Last_Year,
round(PERCENT_RANK() OVER(ORDER BY Training_Times_Last_Year)*100,4)
AS Percentile_Rank
from employees
ORDER BY Employee_Number

```

Results

Messages

	Employee_Number	Department	Education_Field	Job_Role	Training_Times_Last_Year	Percentile_Rank	
13	16	R&D	Life Sciences	Research Scientist	1	3.676	
14	18	R&D	Medical	Laboratory Technician	2	8.5092	
15	19	R&D	Life Sciences	Laboratory Technician	4	79.1695	
16	20	R&D	Life Sciences	Manufacturing Director	1	3.676	
17	21	R&D	Life Sciences	Research Scientist	5	87.5425	
18	22	R&D	Medical	Laboratory Technician	2	8.5092	
19	23	Sales	Life Sciences	Manager	3	45.7454	
20	24	R&D	Life Sciences	Research Scientist	3	45.7454	
21	26	R&D	Other	Manufacturing Director	5	87.5425	
22	27	Sales	Life Sciences	Sales Representative	4	79.1695	
23	28	R&D	Life Sciences	Research Director	4	79.1695	
24	30	R&D	Life Sciences	Research Scientist	6	95.6433	
25	31	R&D	Medical	Research Scientist	2	8.5092	
26	32	R&D	Other	Manager	3	45.7454	

Query executed successfully.

localhost (16.0 RTM)

sa (60)

HREmployeeDB

00:00:00

1,470 rows

Query executed successfully. | localhost (16.0 RTM) | sa (60) | HREmployeeDB | 00:00:00 | 1,470 rows

- s) Divide employees into 5 groups based on training times last year [Use NTILE ()]

```

select Employee_Number, Department, Education_Field,
Gender, Job_Role, Training_Times_Last_Year,
NTILE(5) OVER(ORDER BY Training_Times_Last_Year) AS GROUP_
from employees

```

	Employee_Number	Department	Education_Field	Gender	Job_Role	Training_Times_Last_Year	GROUP_
1	1	Sales	Life Sciences	Female	Sales Executive	0	1
2	56	Sales	Life Sciences	Male	Sales Executive	0	1
3	58	R&D	Technical Degree	Female	Research Director	0	1
4	90	R&D	Medical	Male	Research Scientist	0	1
5	125	Sales	Medical	Male	Sales Executive	0	1
6	178	R&D	Medical	Male	Manufacturing Director	0	1
7	246	R&D	Medical	Female	Research Scientist	0	1
8	275	R&D	Life Sciences	Male	Manufacturing Director	0	1
9	353	R&D	Life Sciences	Male	Research Scientist	0	1
10	361	Sales	Life Sciences	Male	Sales Executive	0	1
11	392	R&D	Life Sciences	Male	Laboratory Technician	0	1
12	401	Sales	Marketing	Male	Sales Executive	0	1
13	439	R&D	Medical	Female	Research Scientist	0	1
14	449	Sales	Marketing	Male	Sales Executive	0	1
15	494	Sales	Life Sciences	Female	Sales Representative	0	1
16	532	Sales	Life Sciences	Female	Sales Executive	0	1
17	657	R&D	Life Sciences	Female	Research Scientist	0	1
18	700	R&D	Medical	Male	Research Scientist	0	1
19	773	R&D	Medical	Male	Research Scientist	0	1
20	826	R&D	Life Sciences	Female	Research Scientist	0	1

Query executed successfully. | localhost (16.0 RTM) | sa (60) | HREmployeeDB | 00:00:00 | 1,470 rows

- t) Categorize employees based on training times last year as - Frequent Trainee, Moderate Trainee, Infrequent Trainee.

```

select emp_no 'Employee', job_role 'Job_Role', Training_Times_Last_Year,
case
when Training_Times_Last_Year <=2 then 'Infrequent Trainee'
when Training_Times_Last_Year <=4 then 'Moderate Trainee'
when Training_Times_Last_Year >4 then 'Frequent Trainee'
end 'Training_Frequency'
from employees

```

	Employee	Job_Role	Training_Times_Last_Year	Training_Frequency
1	STAFF-1	Sales Executive	0	Infrequent Trainee
2	STAFF-2	Research Scientist	3	Moderate Trainee
3	STAFF-4	Laboratory Technician	3	Moderate Trainee
4	STAFF-5	Research Scientist	3	Moderate Trainee
5	STAFF-7	Laboratory Technician	3	Moderate Trainee
6	STAFF-8	Laboratory Technician	2	Infrequent Trainee
7	STAFF-10	Laboratory Technician	3	Moderate Trainee
8	STAFF-11	Laboratory Technician	2	Infrequent Trainee
9	STAFF-12	Manufacturing Director	2	Infrequent Trainee
10	STAFF-13	Healthcare Representative	3	Moderate Trainee
11	STAFF-14	Laboratory Technician	5	Frequent Trainee
12	STAFF-15	Laboratory Technician	3	Moderate Trainee
13	STAFF-16	Research Scientist	1	Infrequent Trainee
14	STAFF-18	Laboratory Technician	2	Infrequent Trainee
15	STAFF-19	Laboratory Technician	4	Moderate Trainee
16	STAFF-20	Manufacturing Director	1	Infrequent Trainee
17	STAFF-21	Research Scientist	5	Frequent Trainee
18	STAFF-22	Laboratory Technician	2	Infrequent Trainee

- u) Categorize employees as 'High', 'Medium', or 'Low' performers based on their performance rating, using a CASE WHEN statement.

```

select emp_no Employee, job_role, Department,
case
  when Performance_Rating >=4 then 'High performer'
  when Performance_Rating = 3 then 'Medium performer'
  when Performance_Rating <=3 then 'Low performer'
end Performance
from employees

```

Results		Messages		
	Employee	job_role	Department	Performance
1	STAFF-1	Sales Executive	Sales	Medium performer
2	STAFF-2	Research Scientist	R&D	High performer
3	STAFF-4	Laboratory Technician	R&D	Medium performer
4	STAFF-5	Research Scientist	R&D	Medium performer
5	STAFF-7	Laboratory Technician	R&D	Medium performer
6	STAFF-8	Laboratory Technician	R&D	Medium performer
7	STAFF-10	Laboratory Technician	R&D	High performer
8	STAFF-11	Laboratory Technician	R&D	High performer
9	STAFF-12	Manufacturing Direc...	R&D	High performer
10	STAFF-13	Healthcare Represe...	R&D	Medium performer
11	STAFF-14	Laboratory Technician	R&D	Medium performer
12	STAFF-15	Laboratory Technician	R&D	Medium performer
13	STAFF-16	Research Scientist	R&D	Medium performer
14	STAFF-18	Laboratory Technician	R&D	Medium performer
15	STAFF-19	Laboratory Technician	R&D	Medium performer
16	STAFF-20	Manufacturing Direc...	R&D	Medium performer
17	STAFF-21	Research Scientist	R&D	Medium performer
18	STAFF-22	Laboratory Technician	R&D	Medium performer
19	STAFF-23	Manager	Sales	Medium performer
20	STAFF-24	Research Scientist	R&D	Medium performer

- v) Use a CASE WHEN statement to categorize employees into 'Poor', 'Fair', 'Good', or 'Excellent' work-life balance based on their work-life balance score.

```

select emp_no Employee, Department,
case
  when Work_Life_Balance = 1 then 'Poor'
  when Work_Life_Balance = 2 then 'Fair'
  when Work_Life_Balance = 3 then 'Good'
  when Work_Life_Balance = 4 then 'Excellent'
end Work_life_balance
from employees

```

Results		Messages	
	Employee	Department	Work_life_balance
1	STAFF-1	Sales	Poor
2	STAFF-2	R&D	Good
3	STAFF-4	R&D	Good
4	STAFF-5	R&D	Good
5	STAFF-7	R&D	Good
6	STAFF-8	R&D	Fair
7	STAFF-10	R&D	Fair
8	STAFF-11	R&D	Good
9	STAFF-12	R&D	Good
10	STAFF-13	R&D	Fair
11	STAFF-14	R&D	Good
12	STAFF-15	R&D	Good
13	STAFF-16	R&D	Fair
14	STAFF-18	R&D	Good
15	STAFF-19	R&D	Good
16	STAFF-20	R&D	Good
17	STAFF-21	R&D	Fair
18	STAFF-22	R&D	Fair
19	STAFF-23	Sales	Good

w) Group employees into 3 groups based on their stock option level using the [NTILE] function.

```
--w
select Employee_Number,Department
Job_Role,Stock_option_level,
NTILE(3) over(ORDER BY Stock_option_level desc) as Stock_op_grp
from employees
```

Results		Messages		
	Employee_Number	Job_Role	Stock_option_level	Stock_op_grp
106	1682	R&D	2	1
107	2012	R&D	2	1
108	1803	R&D	2	1
109	1596	R&D	2	1
110	1514	R&D	2	1
111	1558	R&D	2	1
112	1787	Sales	2	1
113	1908	Sales	2	1
114	1995	Sales	2	1
115	1479	Sales	2	1
116	2019	Sales	2	1
117	1482	R&D	2	1
118	1449	R&D	2	1
119	1771	R&D	2	1

x) Find key reasons for Attrition in Company

```

WITH WLB AS (
    SELECT
        Department, Job_role,
        'Work_Life_Balance' AS Factor,
        COUNT(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) AS Attrition_Count,
        (SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) * 100 / COUNT(*)) AS AttritionRate
    FROM Employees
    GROUP BY Work_Life_Balance, Department, Job_role
),
JS AS (
    SELECT
        Department, Job_role,
        'Job_Satisfaction' AS Factor,
        COUNT(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) AS Attrition_Count,
        (SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) * 100 / COUNT(*)) AS AttritionRate
    FROM Employees
    GROUP BY Job_Satisfaction, Department, Job_role
),
ES AS (
    SELECT
        Department, Job_role, 'Environment_Satisfaction' AS Factor,
        COUNT(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) AS Attrition_Count,
        (SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) * 100 / COUNT(*)) AS AttritionRate
    FROM Employees
    GROUP BY Environment_Satisfaction, Department, Job_role
),
YSLP AS (
    SELECT
        Department, Job_role,
        'Years_since_last_promotion' AS Factor,
        COUNT(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) AS Attrition_Count,
        (SUM(CASE WHEN Attrition = 'Yes' THEN 1 ELSE 0 END) * 100 / COUNT(*)) AS AttritionRate
    FROM Employees
    GROUP BY Years_since_last_promotion, Department, Job_role
),

SELECT
    Department, Job_role, Factor, Attrition_Count, AttritionRate
FROM WLB
UNION ALL
SELECT
    Department, Job_role, Factor, Attrition_Count, AttritionRate
FROM JS
UNION ALL
SELECT
    Department, Job_role, Factor, Attrition_Count, AttritionRate
FROM ES
UNION ALL
SELECT
    Department, Job_role, Factor, Attrition_Count, AttritionRate
FROM YSLP
ORDER BY AttritionRate DESC;

```

<div> <div>Results</div> <div>Messages</div> </div>					
	Department	Job_role	Factor	Attrition_Count	AttritionRate
1	Sales	Sales Representative	Years_since_last_promotion	1	100
2	Sales	Sales Executive	Years_since_last_promotion	1	100
3	Sales	Sales Executive	Years_since_last_promotion	1	100
4	R&D	Laboratory Technician	Years_since_last_promotion	1	100
5	Sales	Sales Representative	Work_Life_Balance	9	88
6	R&D	Laboratory Technician	Work_Life_Balance	20	70
7	Sales	Sales Representative	Job_Satisfaction	12	58
8	Sales	Sales Representative	Years_since_last_promotion	44	50
9	HR	Human Resources	Job_Satisfaction	10	50
10	Sales	Sales Executive	Work_Life_Balance	12	50
11	R&D	Research Director	Years_since_last_promotion	2	50
12	R&D	Healthcare Represe...	Years_since_last_promotion	2	50
13	R&D	Research Scientist	Years_since_last_promotion	2	50
14	Sales	Manager	Years_since_last_promotion	2	50
15	Sales	Sales Representative	Job_Satisfaction	21	47
16	Sales	Sales Representative	Environment_Satisfaction	11	45
17	Sales	Sales Executive	Years_since_last_promotion	9	44
18	Sales	Sales Representative	Years_since_last_promotion	16	43
19	R&D	Laboratory Technician	Environment_Satisfaction	53	41
20	Sales	Sales Representative	Environment_Satisfaction	22	40
21	HR	Human Resources	Environment_Satisfaction	10	40