

## SQL Queries applying Analytic Functions

-- i) ROW\_NUMBER() to provide a "SNO" and

-- i) a) employee names & cumulative salary. Hint: join on salaries, employees table

use dbda2;

select row\_number() OVER (order by sum(s.salary) desc) as SNo,

concat(e.last\_name,',', e.first\_name) as "Employee Name", e.emp\_no, sum(s.salary)

from dbda2.employees e

INNER JOIN dbda2.salaries s

ON e.emp\_no=s.emp\_no

group by emp\_no;

--

```
4 -- i) ROW_NUMBER() to provide a "SNO" and
5 -- i) a) employee names & cumulative salary. Hint: join on salaries, employees table
6 • use dbda2;
7 ✖ select row_number() OVER (order by sum(s.salary) desc) as SNo,
8     concat(e.last_name,',', e.first_name) as "Employee Name", e.emp_no, sum(s.salary)
9 from dbda2.employees e
10     INNER JOIN dbda2.salaries s
11     ON e.emp_no=s.emp_no
12     group by emp_no;
```

Result Grid					Filter Rows:	Export:	Wrap Cell Content:	Fetch rows:
	SNo	Employee Name	emp_no	sum(s.salary)				
▶	1	Alameldin,Tsutomu	109334	2553036				
	2	Pesch,Tokuyasu	43624	2492873				
	3	Kambil,Lansing	66793	2383923				
	4	Hatdliff,Weicheng	237542	2381119				
	5	Whitcomb,Xiahua	47978	2374024				
	6	Baca,Willard	80823	2368170				
	7	Hoppenstand,Aral	68086	2305351				
	8	Kobara,Chirstian	102962	2279289				
	9	Junot,Arnd	246120	2271104				

-- i) b) department names by #current employees.

-- Hint: join dept\_emp departments table with WHERE clause to\_date > now()

select row\_number() OVER (order by count(e.emp\_no) desc) as SNo,

d.dept\_name, count(e.emp\_no) as "Current employees"

from dbda2.employees e

INNER JOIN dbda2.dept\_emp z

ON e.emp\_no=z.emp\_no

INNER JOIN dbda2.departments d

ON z.dept\_no=d.dept\_no

WHERE YEAR(z.to\_date)>YEAR(Now())

group by d.dept\_no;

```
14 -- i) b) department names by #current employees.
15 -- Hint: join dept_emp departments table with WHERE clause to_date > now()
16 select row_number() OVER (order by count(e.emp_no) desc) as SNo,
17     d.dept_name, count(e.emp_no) as "Current employees"
18 from dbda2.employees e
19     INNER JOIN dbda2.dept_emp z
20     ON e.emp_no=z.emp_no
21     INNER JOIN dbda2.departments d
22     ON z.dept_no=d.dept_no
23 WHERE YEAR(z.to_date)>YEAR(Now())
24 group by d.dept_no;
25
```

Result Grid			
Filter Rows: <input type="text"/>			
Export: <input type="button" value=""/>			
Wrap Cell Content: <input type="button" value=""/>			
	SNo	dept_name	Current employees
▶	1	Development	61386
	2	Production	53304
	3	Sales	37701
	4	Customer Service	17569
	5	Research	15441
	6	Marketing	14842
	7	Quality Management	14546
	8	Human Resources	12898
	9	Finance	12437

-- i) c) department names by most (current and not current) employees.

-- Hint: join dept\_emp departments table

select row\_number() OVER (order by count(e.emp\_no) desc) as SNo,

d.dept\_name, count(e.emp\_no)

from dbda2.employees e

INNER JOIN dbda2.dept\_emp z

ON e.emp\_no=z.emp\_no


INNER JOIN dbda2.departments d

ON z.dept\_no=d.dept\_no

group by d.dept\_name;

--

```
26 -- i) c) department names by most (current and not current) employees.
27 -- Hint: join dept_emp departments table
28 select row_number() OVER (order by count(e.emp_no) desc) as SNo,
29 d.dept_name, count(e.emp_no)
30 from dbda2.employees e
31 INNER JOIN dbda2.dept_emp z
32 ON e.emp_no=z.emp_no
33 INNER JOIN dbda2.departments d
34 ON z.dept_no=d.dept_no
35 group by d.dept_name;
36 --
```

Result Grid			
Filter Rows: <input type="text"/>			
Export:  Wrap Cell Content: <a href="#">IA</a>			
SNo	dept_name	count(e.emp_no)	
1	Development	85707	
2	Production	73485	
3	Sales	52245	
4	Customer Service	23580	
5	Research	21126	
6	Marketing	20211	
7	Quality Management	20117	
8	Human Resources	17786	
9	Finance	17346	

-- i) d) current manager names by #current employees.

-- Hint: join dept\_managers, dept\_emp, employees table with WHERE to\_date > now()

use dbda2;

select

row\_number() OVER (ORDER BY count(e.emp\_no) desc) sno,

m.emp\_no, m.dept\_no, concat(e.first\_name, " ", e.last\_name) Manager\_name ,

COUNT(e.emp\_no) as "Employees by manager"

from dbda2.dept\_emp de

inner join dbda2.dept\_manager m

on de.dept\_no = m.dept\_no

inner join dbda2.employees e on m.emp\_no = e.emp\_no and de.to\_date>now() and  
m.to\_date>now()

group by m.emp\_no, concat(e.first\_name, " ", e.last\_name)

order by "Employees\_by\_manager";

--

```
37  -- i) d) current manager names by #current employees.
38  -- Hint: join dept_managers, dept_emp, employees table with WHERE to_date > now()
39  • use dbda2;
40  • select
41  ❌ row_number() OVER (ORDER BY count(e.emp_no) desc) sno,
42    m.emp_no, m.dept_no, concat(e.first_name, " ", e.last_name) Manager_name ,
43    COUNT(e.emp_no) as "Employees by manager"
44  from dbda2.dept_emp de
45    inner join dbda2.dept_manager m
46      on de.dept_no = m.dept_no
47    inner join dbda2.employees e on m.emp_no = e.emp_no and de.to_date>now() and m.to_date>now()
48  group by m.emp_no, concat(e.first_name, " ", e.last_name)
49  order by "Employees by manager";
```

	sno	emp_no	dept_no	Manager_name	Employees by manager
▶	1	110567	d005	Leon DasSarma	61386
	2	110420	d004	Oscar Ghazalie	53304
	3	111133	d007	Hauke Zhang	37701
	4	111939	d009	Yuchang Weedman	17569
	5	111534	d008	Hilary Kambil	15441
	6	110039	d001	Vishwani Minakawa	14842
	7	110854	d006	Dung Pesch	14546
	8	110228	d003	Karsten Sigstam	12898

-- i) e) current manager names, with last salary and title, by #current employees. -- Hint: join on dept\_managers, dept\_emp, employees, salaries and titles table

use dbda2;

select

row\_number() OVER (ORDER BY count(e.emp\_no) desc) sno,

m.emp\_no, m.dept\_no, concat(e.first\_name, " ", e.last\_name) Manager\_name , t.title title, s.salary salary,

COUNT(e.emp\_no) as "Employees by manager"

from dbda2.dept\_emp de

inner join dbda2.dept\_manager m

on de.dept\_no = m.dept\_no

inner join dbda2.employees e on m.emp\_no = e.emp\_no and de.to\_date>now() and m.to\_date>now()

inner join dbda2.salaries s

on m.emp\_no = s.emp\_no and s.to\_date>now()

inner join dbda2.titles t

on s.emp\_no = t.emp\_no and t.to\_date>now()

group by m.emp\_no, concat(e.first\_name, " ", e.last\_name)

order by "employees\_by\_manager";

```
50 -- i) e) current manager names, with last salary and title, by #current employees. -- Hint: join on dept_managers, dept_emp,
51 • use dbda2;
52 • select
53   row_number() OVER (ORDER BY count(e.emp_no) desc) sno,
54   m.emp_no, m.dept_no, concat(e.first_name, " ", e.last_name) Manager_name , t.title title, s.salary salary,
55   COUNT(e.emp_no) as "Employees by manager"
56 from dbda2.dept_emp de
57   inner join dbda2.dept_manager m
58     on de.dept_no = m.dept_no
59   inner join dbda2.employees e on m.emp_no = e.emp_no and de.to_date>now() and m.to_date>now()
60   inner join dbda2.salaries s
61     on m.emp_no = s.emp_no and s.to_date>now()
62   inner join dbda2.titles t
63     on s.emp_no = t.emp_no and t.to_date>now()
64 group by m.emp_no, concat(e.first_name, " ", e.last_name)
65 order by "employees by manager";
```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	sno	emp_no	dept_no	Manager_name	title	salary	Employees by manager
▶	1	110567	d005	Leon DasSarma	Manager	74510	61386
	2	110420	d004	Oscar Ghazale	Manager	56654	53304
	3	111133	d007	Hauke Zhang	Manager	101987	37701
	4	111939	d009	Yuchang Weedman	Manager	58745	17569
	5	111534	d008	Hilary Kambil	Manager	79393	15441
	6	110039	d001	Vishwani Minakawa	Manager	106491	14842
	7	110854	d006	Dung Pesch	Manager	72876	14546
	8	110228	d003	Karsten Sigstam	Manager	65400	12898
	9	110114	d002	Isamu Legleitner	Manager	83457	12437

-- ii) SUM() OVER (...) to provide a Running Total

-- ii) a) employee names & cumulative salary. Hint: join on salaries, employees table

USE dbda2;

SELECT

concat(e.last\_name,',', e.first\_name) as "Employee Name", e.emp\_no, s.salary,

SUM(s.salary) OVER(PARTITION BY e.emp\_no) AS emp\_cumulative\_salary

FROM employees e

INNER JOIN salaries s

ON e.emp\_no=s.emp\_no

ORDER BY e.emp\_no, e.first\_name, s.salary;

--

```
69 -- ii) a) employee names & cumulative salary. Hint: join on salaries, employees table
70 • USE dbda2;
71 • SELECT
72     concat(e.last_name,',', e.first_name) as "Employee Name", e.emp_no, s.salary,
73     SUM(s.salary) OVER(PARTITION BY e.emp_no) AS emp_cumulative_salary
74 FROM employees e
75     INNER JOIN salaries s
76     ON e.emp_no=s.emp_no
77 ORDER BY e.emp_no, e.first_name, s.salary;
```

	Employee Name	emp_no	salary	emp_cumulative_salary
▶	Facello,Georgi	10001	60117	1281612
	Facello,Georgi	10001	62102	1281612
	Facello,Georgi	10001	66074	1281612
	Facello,Georgi	10001	66596	1281612
	Facello,Georgi	10001	66961	1281612
	Facello,Georgi	10001	71046	1281612
	Facello,Georgi	10001	74333	1281612
	Facello,Georgi	10001	75286	1281612
	Facello,Georgi	10001	75994	1281612
	Facello,Georgi	10001	76884	1281612
	Facello,Georgi	10001	80013	1281612
	Facello,Georgi	10001	81025	1281612
	Facello,Georgi	10001	81097	1281612
	Facello,Georgi	10001	84917	1281612
	Facello,Georgi	10001	85097	1281612
	Facello,Georgi	10001	85112	1281612
	Facello,Georgi	10001	88958	1281612
	Simmel,Bezalel	10002	65828	413127
	Simmel,Bezalel	10002	65909	413127

-- ii b) department names by #current employees.-- Hint: join dept\_emp departments table with WHERE clause to\_date > now()

USE dbda2;

select

d.dept\_name, e.emp\_no,

COUNT(e.emp\_no) OVER(PARTITION BY d.dept\_name) AS employees\_by\_department

from dbda2.employees e

INNER JOIN dbda2.dept\_emp z

ON e.emp\_no=z.emp\_no and z.to\_date>now()

INNER JOIN dbda2.departments d

ON z.dept\_no=d.dept\_no

order by d.dept\_name, e.emp\_no;

--

```
79 -- ii b) department names by #current employees.-- Hint: join dept_emp departments table with WHERE clause to_date > now()
80 • USE dbda2;
81 • select
82     d.dept_name, e.emp_no,
83     COUNT(e.emp_no) OVER(PARTITION BY d.dept_name) AS employees_by_department
84 from dbda2.employees e
85     INNER JOIN dbda2.dept_emp z
86     ON e.emp_no=z.emp_no and z.to_date>now()
87     INNER JOIN dbda2.departments d
88     ON z.dept_no=d.dept_no
89 order by d.dept_name, e.emp_no;
```

< 89

	dept_name	emp_no	employees_by_department
	Customer Service	457959	17569
	Customer Service	457987	17569
	Customer Service	458026	17569
	Customer Service	458044	17569
	Customer Service	458063	17569
	Customer Service	458115	17569
	Customer Service	458147	17569
	Customer Service	458156	17569
	Customer Service	458164	17569
	Customer Service	458239	17569
	Customer Service	458244	17569
	Customer Service	458288	17569
	Customer Service	458299	17569
	Customer Service	458323	17569
▶	Customer Service	458400	17569
	Customer Service	458422	17569

-- ii c) department names by most (current and not current) employees

-- Hint: join dept\_emp departments table

select

d.dept\_name, e.emp\_no,

COUNT(e.emp\_no) OVER(PARTITION BY d.dept\_name) AS employees\_by\_department

from dbda2.employees e

INNER JOIN dbda2.dept\_emp z

ON e.emp\_no=z.emp\_no

INNER JOIN dbda2.departments d

ON z.dept\_no=d.dept\_no

order by d.dept\_name, e.emp\_no;

--

```
91 -- ii c) department names by most (current and not current) employees.
92 -- Hint: join dept_emp departments table
93 • select
94     d.dept_name, e.emp_no,
95     COUNT(e.emp_no) OVER(PARTITION BY d.dept_name) AS employees_by_department
96 from dbda2.employees e
97     INNER JOIN dbda2.dept_emp z
98     ON e.emp_no=z.emp_no
99     INNER JOIN dbda2.departments d
100    ON z.dept_no=d.dept_no
101 order by d.dept_name, e.emp_no;
```

dept_name	emp_no	employees_by_department
Customer Service	10011	23580
Customer Service	10038	23580
Customer Service	10049	23580
Customer Service	10060	23580
Customer Service	10088	23580
Customer Service	10098	23580
Customer Service	10112	23580
Customer Service	10115	23580
Customer Service	10126	23580
Customer Service	10128	23580
Customer Service	10137	23580
Customer Service	10154	23580
Customer Service	10164	23580
Customer Service	10176	23580
Customer Service	10183	23580
Customer Service	10184	23580



-- ii) d) current manager names by #current employees

-- Hint: join dept\_managers, dept\_emp, employees table with WHERE to\_date > now()

use dbda2;

select

m.emp\_no, m.dept\_no, concat(e.first\_name, " ", e.last\_name) Manager\_name,

COUNT(e.emp\_no) as "Employees by manager" -- OVER(PARTITION BY m.emp\_no) AS employees\_by\_manager

from dbda2.dept\_emp de

inner join dbda2.dept\_manager m

on de.dept\_no = m.dept\_no

inner join dbda2.employees e on m.emp\_no = e.emp\_no where de.to\_date>now() and m.to\_date>now()

group by m.emp\_no, concat(e.first\_name, " ", e.last\_name)

ORDER BY 4 DESC;

--

```
103 - ii) d) current manager names by #current employees.
104 -- Hint: join dept_managers, dept_emp, employees table with WHERE to_date > now()
105 • se dbda2;
106 • elect
107 m.emp_no, m.dept_no, concat(e.first_name, " ", e.last_name) Manager_name,
108 COUNT(e.emp_no) as "Employees by manager" -- OVER(PARTITION BY m.emp_no) AS employees_by_manager
109 rom dbda2.dept_emp de
110 inner join dbda2.dept_manager m
111 on de.dept_no = m.dept_no
112 inner join dbda2.employees e on m.emp_no = e.emp_no where de.to_date>now() and m.to_date>now()
113 roup by m.emp_no, concat(e.first_name, " ", e.last_name)
114 RDER BY 4 DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	emp_no	dept_no	Manager_name	Employees by manager
▶	110567	d005	Leon DasSarma	61386
	110420	d004	Oscar Ghazalie	53304
	111133	d007	Hauke Zhang	37701
	111939	d009	Yuchang Weedman	17569
	111534	d008	Hilary Kambil	15441
	110039	d001	Vishwani Minakawa	14842
	110854	d006	Dung Pesch	14546
	110228	d003	Karsten Sigstam	12898
	110114	d002	Isamu Legleitner	12437

-- ii) e) current manager names, with last salary and title, by #current employees-- Hint: join on dept\_managers, dept\_emp, employees, salaries and titles table

use dbda2;

select

m.emp\_no, m.dept\_no, concat(e.first\_name, " ", e.last\_name) Manager\_name , t.title title, s.salary salary,

COUNT(e.emp\_no) as "Employees by manager" -- OVER(PARTITION BY m.emp\_no) AS employees\_by\_manager

from dbda2.dept\_emp de

inner join dbda2.dept\_manager m

on de.dept\_no = m.dept\_no

inner join dbda2.employees e on m.emp\_no = e.emp\_no and de.to\_date>now() and m.to\_date>now()

inner join dbda2.salaries s

on m.emp\_no = s.emp\_no and s.to\_date>now()

inner join dbda2.titles t

on s.emp\_no = t.emp\_no and t.to\_date>now()

group by m.emp\_no, concat(e.first\_name, " ", e.last\_name)

ORDER BY 6 DESC;

```

116 -- ii) e) current manager names, with last salary and title, by #current employees--
117 -- Hint: join on dept_managers, dept_emp, employees, salaries and titles table
118 • use dbda2;
119 • select
120     m.emp_no, m.dept_no, concat(e.first_name, " ", e.last_name) Manager_name , t.title title, s.salary salary,
121     COUNT(e.emp_no) as "Employees by manager" -- OVER(PARTITION BY m.emp_no) AS employees_by_manager
122 from dbda2.dept_emp de
123     inner join dbda2.dept_manager m
124         on de.dept_no = m.dept_no
125     inner join dbda2.employees e on m.emp_no = e.emp_no and de.to_date>now() and m.to_date>now()
126     inner join dbda2.salaries s
127         on m.emp_no = s.emp_no and s.to_date>now()
128     inner join dbda2.titles t
129         on s.emp_no = t.emp_no and t.to_date>now()
130 group by m.emp_no, concat(e.first_name, " ", e.last_name)
131 ORDER BY 6 DESC;

```

emp_no	dept_no	Manager_name	title	salary	Employees by manager
110567	d005	Leon DasSarma	Manager	74510	61386
110420	d004	Oscar Ghazale	Manager	56654	53304
111133	d007	Hauke Zhang	Manager	101987	37701
111939	d009	Yuchang Weedman	Manager	58745	17569
111534	d008	Hilary Kambil	Manager	79393	15441
110039	d001	Vishwani Minakawa	Manager	106491	14842
110854	d006	Dung Pesch	Manager	72876	14546
110228	d003	Karsten Sigstam	Manager	65400	12898