

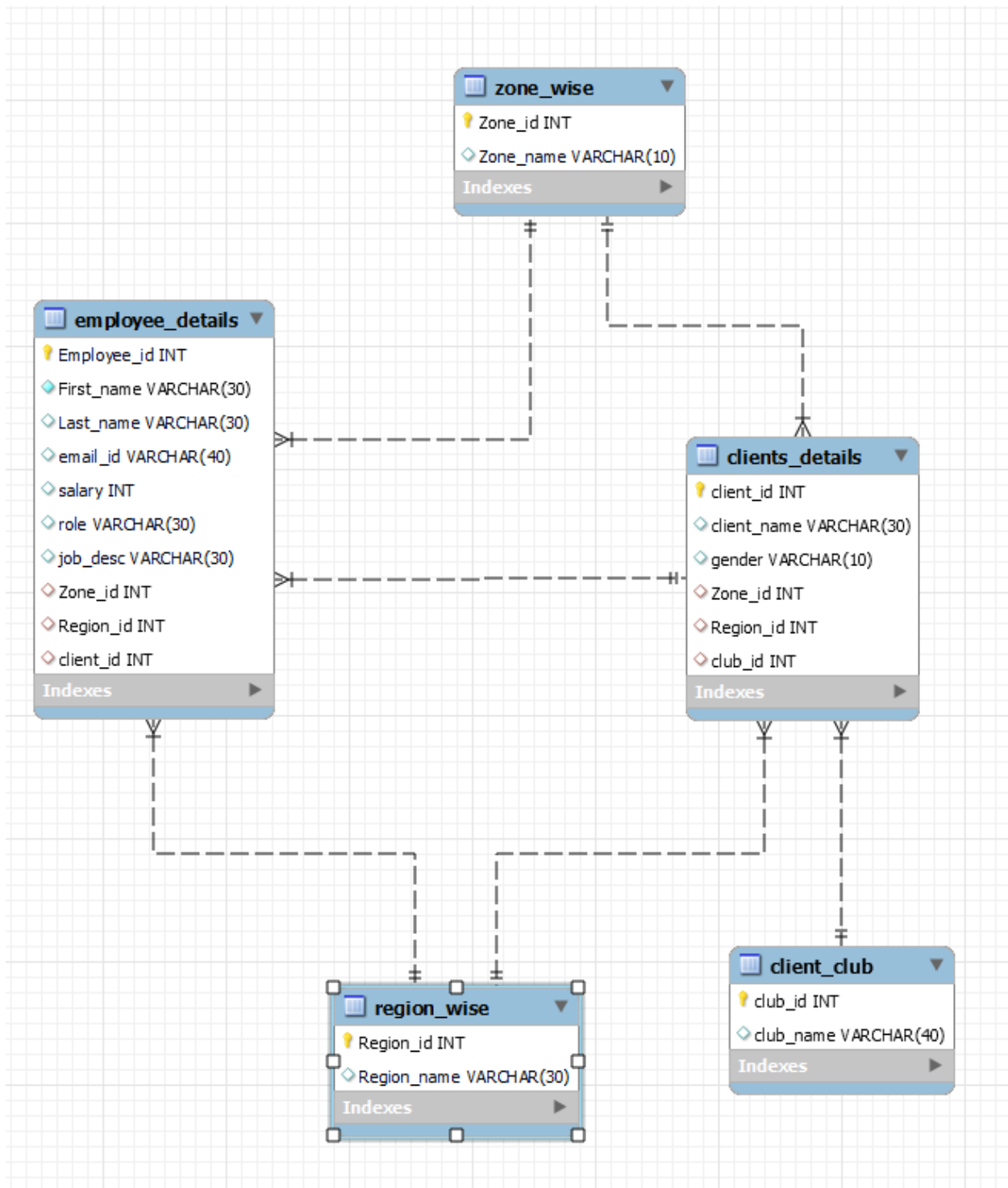
## **SQL CASE STUDY**

### **Employee Database management**

Tally is the most powerful tool used for GST filing all over India. Everywhere Tally software is using. For example hospital, schools, supermarket, restaurant, small business scale and large business scale. It is a user friendly. I thought of creating the database for tally employees. So I created one table for employees, which zone they belong to, which region the employee are from. One employee can manage multiple partner. One partner can give the product to multi-user. The user is using the Tally software. The client have different club. It's a big company database but I have created few things. Managing employee data effectively crucial for any organization.

Tally offers robust features for employee database management. This includes handling employees details, clients details, payroll, attendance and other HR related tasks efficiently. Implement role-based access control to ensure that sensitive employee data is accessible only to authorized personnel. Support for importing and exporting employee data in various formats for easy integration with other HR systems. It is more Efficiency for streamlines HR process, making them more more efficient and less time-consuming. It is more Accuracy and ensures accurate record-keeping.

## **ENTITY RELATIONSHIP DIAGRAM**



1. Create the parent table like **Region\_wise**, **zone\_wise**, **client\_club** table:

```

3
4 • create table Region_wise
5 (
6     Region_id int primary key,
7     Region_name varchar(30)
8 );

create table Client_club
(
club_id int primary key,
club_name varchar(40)
);

create table Zone_wise
(
Zone_id int primary key,
Zone_name varchar(10)
);

```

2.Created the details of the clients in **client\_details** table:

```

37 • create table clients_details
38 (
39     client_id int primary key,
40     client_name varchar(30),
41     gender varchar(10),
42     Zone_id int,
43     constraint fk_zone_id foreign key(Zone_id) references Zone_wise(Zone_id),
44     Region_id int,
45     constraint fk_client_regionId foreign key(Region_id) references Region_wise(Region_id),
46     club_id int,
47     constraint fk_clubId foreign key(club_id) references Client_club(club_id)
48 );

```

3.Created the information about the Employee in **Employee\_details** table:

```

56 • create table Employee_details
57 (
58     Employee_id int primary key,
59     First_name varchar(30) not null,
60     Last_name varchar(30),
61     email_id varchar(40),
62     salary int,
63     mobile_no int,
64     Role int,
65     job_desc varchar(30),
66     Zone_id int,
67     constraint fk_zoneId foreign key(Zone_id) references Zone_wise(Zone_id),
68     Region_id int,
69     constraint fk_employee_regionId foreign key(Region_id) references Region_wise(Region_id),
70     client_id int,
71     constraint fk_clientId foreign key(client_id) references clients_details(client_id)
72 );

```

I have created all the tables and columns in it with data types and I have used the constraint like primary key, foreign key, not null, check constraint.

4. Inserting values into the tables:

**A.Zone\_wise** table:

```

80 • insert into Zone_wise values(1,'south');
81 • insert into Zone_wise values(2,'north');
82 • insert into Zone_wise values(3,'west');
83 • insert into Zone_wise values(4,'east');

```

**B.Client\_club** table:

```

103 • insert into client_club values(100,'Gold Club');
104 • insert into client_club values(101,'Rising Club');
105 • insert into client_club values(102,'Platinum Club');
106 • insert into client_club values(103,'Silver Club');
107 • insert into client_club values(104,'Diamond Club');

```

**C.Region\_wise** table:

```

86 • insert into Region_wise values(10,'Bengaluru');
87 • insert into Region_wise values(11,'Chennai');
88 • insert into Region_wise values(12,'Kerala');
89 • insert into Region_wise values(13,'Rest of Tamilnadu');
90 • insert into Region_wise values(14,'Rest of Karnataka');
91 • insert into Region_wise values(15,'TSAP');
92 • insert into Region_wise values(20,'Uttar Pradesh');
93 • insert into Region_wise values(21,'Jammu and Kashmir');
94 • insert into Region_wise values(22,'Himachal Pradesh');
95 • insert into Region_wise values(30,'Maharashtra');
96 • insert into Region_wise values(31,'Gujarat');
97 • insert into Region_wise values(32,'Goa');
98 • insert into Region_wise values(33,'Rajasthan');
99 • insert into Region_wise values(40,'West Bengal');
100 • insert into Region_wise values(41,'Odisha');
101 • insert into Region_wise values(42,'Bihar');

```

#### D.User\_details table:

```

134 • insert into user_details values(3000,'sandhiya','MRF',9090909,null,35,1,12);
135 • insert into user_details values(3001,'balaji','reliance trends',9060909,null,40,3,32);
136 • insert into user_details values(3002,'sethuramalingam','peter england',9090509,null,55,1,10);
137 • insert into user_details values(3003,'vijay','ramaraj',9094909,null,45,2,20);
138 • insert into user_details values(3004,'radhakrishnan','rk hospital',9097909,null,42,4,41);
139 • insert into user_details values(3005,'raghul','sathya lab',9090309,null,33,1,11);
140 • insert into user_details values(3006,'aryan','aryan supermarket',9093409,null,29,2,20);
141 • insert into user_details values(3007,'arjun','psr',90956709,null,37,3,30);

```

#### E.Client\_details table:

```

143 • insert into clients_details values(2000,'Mother tech','male',1,13,101,3000);
144 • insert into clients_details values(2001,'Yennes infotech','male',2,21,100,3003);
145 • insert into clients_details values(2002,'Prompt software','female',4,40,102,3002);
146 • insert into clients_details values(2003,'ACE','male',3,31,101,3001);
147 • insert into clients_details values(2004,'Infotech solutions','female',2,20,102,3004);
148 • insert into clients_details values(2005,'Real solutions','female',1,13,103,3007);
149 • insert into clients_details values(2006,'BG academy','male',4,41,100,3005);
150 • insert into clients_details values(2007,'Global information','female',3,30,101,3006);

```

## F.Employee\_details table:

```
110 • insert into employee_details values(1000,'Balaji','sethuramalingam','balaaz85@gmail.com',1000000,'RSM','Sales',1,11,null);
111 • insert into employee_details values(1001,'Bharath','Raghavan','bharath@gmail.com',700000,'BM','Sales',1,10,2007);
112 • insert into employee_details values(1002,'Sangeeth','Thomas','sangeeth@gmail.com',900000,'Analyst','IT',2,21,null);
113 • insert into employee_details values(1003,'Prakash','Karthik','prakash@gmail.com',900000,'BM','Sales',4,40,2004);
114 • insert into employee_details values(1004,'Balaji','Gurrampati','balaji@gmail.com',1500000,'RSM','Sales',3,31,2000);
115 • insert into employee_details values(1005,'Previn','Lobo','previn@gmail.com',1200000,'BM','Sales',1,12,2002);
116 • insert into employee_details values(1006,'Rohit','Mishra','rohit@gmail.com',600000,'manager','HR',2,22,null);
117 • insert into employee_details values(1007,'Rolf','Dsilva','rolf@gmail.com',1300000,'RSM','SALES',2,21,2001);
118 • insert into employee_details values(1008,'Arun','Kumar','arun@gmail.com',800000,'Analyst','IT',3,32,null);
119 • insert into employee_details values(1009,'Anil','Geeda','anil@gmail.com',6500000,'manager','HR',1,11,null);
120 • insert into employee_details values(1010,'Manoj','Aravind E','manoj@gmail.com',1150000,'RSM','Sales',4,40,2005);
121 • insert into employee_details values(1011,'Dinesh','Lal','dinesh@gmail.com',1400000,'developer','IT',2,22,null);
122 • insert into employee_details values(1012,'Naresh','Pullela','naresh@gmail.com',1450000,'RSM','Sales',4,41,2006);
123 • insert into employee_details values(1013,'Ravi','Talikut','ravi@gmail.com',1370000,'manager','HR',2,20,null);
124 • insert into employee_details values(1014,'Franklin D',null,'frankin@gmail.com',670000,'developer','IT',3,31,null);
125 • insert into employee_details values(1015,'Mishaël','Jose','mishaël@gmail.com',300070,'RSM','Sales',1,13,2007);
126 • insert into employee_details values(1016,'Ashish','Chandele','ashish@gmail.com',7500000,'senior manager','HR',1,12,null);
127 • insert into employee_details values(1017,'Shankar G','Patil','shankerg@gmail.com',1200000,'Analyst','IT',3,30,null);
128 • insert into employee_details values(1018,'Manikanta','Kasireddy','manikanta@gmail.com',1100000,'BM','Sales',2,21,2003);
129 • insert into employee_details values(1019,'Ravindra Babu','Adapala','ravindra@gmail.com',1600000,'RSM','Sales',1,12,2000);
130 • insert into employee_details values(1020,'Nazrana','Shaik','nazrana@gmail.com',1050000,'CAM','Sales',2,21,2003);
```

5.Update the employee last\_name 'leo' whose employee id=1014?

```
UPDATE employee_details
set last_name='Leo'
where employee_id=1014;
```

## Output:

	Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
▶	1014	Franklin D	Leo	frankin@gmail.com	670000	developer	IT	3	31	NULL
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

6.Retrieve the employee\_id and employee full name from employee\_details table?

```
156 • select Employee_id,concat(First_name,' ',Last_name)
157 from employee_details;
```

**Output:**I have used concat function to merge two columns by giving space between first\_name and last\_name.

	Employee_id	concat(First_name,' ',Last_name)
▶	1000	Balaji sethuramalingam
	1001	Bharath Raghavan
	1002	Sangeeth Thomas

7.Retrieve the employee\_id and employee full name from employee\_details table?

```

156 • select Employee_id,concat(First_name,' ',Last_name) as full_name
157     from employee_details;

```

**Output:** I merged two columns and named full\_name using **as** function.

	Employee_id	full_name
▶	1000	Balaji sethuramalingam
	1001	Bharath Raghavan
	1002	Sangeeth Thomas

8.Fetch the distinct job\_desc using employee\_details table?

```

159 • select distinct job_desc
160     from employee_details;

```

**Output:** i have fetched the unique job\_desc using **distinct** function

	job_desc
▶	Sales
	IT
	HR

9.Count the number of employees working in a company?

```

162 • select count(*)
163     from employee_details;

```

**Output:** I have counted the total no of employees using **count(\*)**.

	count(*)
▶	21

10.Retrieve the employees who is getting salary above 1000000?

```

165 • select * from employee_details
166     where salary>1000000;

```

**Output:**Getting the salary above 1000000.

	Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
▶	1004	Balaji	Gurrampati	balaji@gmail.com	1500000	RSM	Sales	3	31	2000
	1005	Previn	Lobo	previn@gmail.com	1200000	BM	Sales	1	12	2002
	1007	Rolf	Dsilva	rolf@gmail.com	1300000	RSM	SALES	2	21	2001
	1009	Anil	Geeda	anil@gmail.com	6500000	manager	HR	1	11	NULL
	1010	Manoj	Aravind E	manoj@gmail.com	1150000	RSM	Sales	4	40	2005

11.Retrieve the employees who is getting salary below 1000000?

```

168 • select * from employee_details
169     where salary < 1000000;

```

**Output:**Getting the salary below 1000000.

	Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
▶	1001	Bharath	Raghavan	bharath@gmail.com	700000	BM	Sales	1	10	2007
	1002	Sangeeth	Thomas	sangeeth@gmail.com	900000	Analyst	IT	2	21	NULL
	1003	Prakash	Karthik	prakash@gmail.com	900000	BM	Sales	4	40	2004

12..Retrive the employees who is getting salary between 1000000 and 1500000 ?

```
171 • select * from employee_details
172     where salary between 1000000 and 1500000;
```

**Output:**Getting the salary between 1000000 and 1500000 including both values.

	Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
▶	1000	Balaji	sethuramalingam	balaaz85@gmail.com	1000000	RSM	Sales	1	11	NULL
	1004	Balaji	Gurrampati	balaji@gmail.com	1500000	RSM	Sales	3	31	2000
	1005	Previn	Lobo	previn@gmail.com	1200000	BM	Sales	1	12	2002
	1007	Rolf	Dsilva	rolf@gmail.com	1300000	RSM	SALES	2	21	2001

13.Fetch the employees whose role is analyst?

```
174 • select employee_id,role
175     from employee_details
176     where role='analyst';
```

**Output:**

	employee_id	role
▶	1002	Analyst
	1008	Analyst
	1017	Analyst

14.Return the list of employees with the following last names:(sethuramalingam,Mishra,Aravind E)?

```
178 • select * from employee_details
179     where Last_name in ('sethuramalingam','Mishra','Aravind E');
```

**Output:**

	Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
▶	1000	Balaji	sethuramalingam	balaaz85@gmail.com	1000000	RSM	Sales	1	11	NULL
	1006	Rohit	Mishra	rohit@gmail.com	600000	manager	HR	2	22	NULL
	1010	Manoj	Aravind E	manoj@gmail.com	1150000	RSM	Sales	4	40	2005
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

15.Return the list of clients except those with the client\_id : (2003,2005,2007)?

```
181 • select * from clients_details
182     where client_id not in (2003,2005,2007);
```

**Output:**

	client_id	client_name	gender	Zone_id	Region_id	club_id	user_id
▶	2000	Mother tech	male	1	13	101	3000
	2001	Yennes infotech	male	2	21	100	3003
	2002	Prompt software	female	4	40	102	3002
	2004	Infotech solutions	female	2	20	102	3004

16.Write the query to find the clients\_details are **null** in employee\_details table?

```
184 • select * from employee_details
185     where client_id is null;
```



## Output:

Result Grid

Filter Rows:

Edit:

Export/Import:

Wrap Cell Contents:

	Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
▶	1000	Balaji	sethuramalingam	balaaz85@gmail.com	1000000	RSM	Sales	1	11	NULL
	1002	Sangeeth	Thomas	sangeeth@gmail.com	900000	Analyst	IT	2	21	NULL
	1006	Rohit	Mishra	rohit@gmail.com	600000	manager	HR	2	22	NULL
	1008	Arun	Kumar	arun@gmail.com	800000	Analyst	IT	3	32	NULL

17. Write the query to find the clients\_details are not null in employee\_details table?

```
187 • select employee_id,role,job_desc,client_id
188 from employee_details
189 where client_id is not null;
```

## Output:

employee_id	role	job_desc	client_id
1004	RSM	Sales	2000
1019	RSM	Sales	2000
1007	RSM	SALES	2001
1005	BM	Sales	2002
1018	BM	Sales	2003
1020	CAM	Sales	2003
1003	BM	Sales	2004
1010	RSM	Sales	2005

18. Retrieve the list of employees whose salary is greater than 100000 and job description is sales?

```
191 • select * from employee_details
192 where salary >1000000 and job_desc ='sales';
```

**Output:** I have fetched the output by using AND function both the condition are satisfied.

Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
1004	Balaji	Gurrampati	balaji@gmail.com	1500000	RSM	Sales	3	31	2000
1005	Previn	Lobo	previn@gmail.com	1200000	BM	Sales	1	12	2002
1007	Rolf	Dsilva	rolf@gmail.com	1300000	RSM	SALES	2	21	2001
1010	Manoj	Aravind E	manoj@gmail.com	1150000	RSM	Sales	4	40	2005
1012	Naresh	Pullela	naresh@gmail.com	1450000	RSM	Sales	4	41	2006
1018	Manikanta	Kasireddy	manikanta@gmail.com	1100000	BM	Sales	2	21	2003
1019	Ravindra Babu	Adapala	ravindra@gmail.com	1600000	RSM	Sales	1	12	2000
1020	Nazrana	Shaik	nazrana@gmail.com	1050000	CAM	Sales	2	21	2003

19. Retrieve the list of employees whose salary is less than 650000 or role is BM?

```
194 • select * from employee_details
195 where salary <650000 or role ='BM';
```

**Output:** I have fetched the output by using OR function any one condition is satisfied.

	Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
▶	1001	Bharath	Raghavan	bharath@gmail.com	700000	BM	Sales	1	10	2007
	1003	Prakash	Karthik	prakash@gmail.com	900000	BM	Sales	4	40	2004
	1005	Previn	Lobo	previn@gmail.com	1200000	BM	Sales	1	12	2002
	1006	Rohit	Mishra	rohit@gmail.com	600000	manager	HR	2	22	NULL
	1015	Mishaal	Jose	mishaal@gmail.com	300070	RSM	Sales	1	13	2007
	1018	Manikanta	Kasireddy	manikanta@gmail.com	1100000	BM	Sales	2	21	2003
+	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

20. Write the query to fetch the employee\_id, first\_name, role, job\_desc of the employees order by descending ?

```
197 • select employee_id, first_name, role, job_desc
198       from employee_details
199       order by first_name desc;
```

**Output:**

	employee_id	first_name	role	job_desc
▶	1017	Shankar G	Analyst	IT
	1002	Sangeeth	Analyst	IT
	1007	Rolf	RSM	SALES
	1006	Rohit	manager	HR
	1019	Ravindra Babu	RSM	Sales
	1013	Ravi	manager	HR
	1005	Previn	BM	Sales
	1003	Prakash	BM	Sales

21. Find all the client name from the client table where client name have 'solutions' in it?

```
201 • select client_id, client_name
202       from clients_details
203       where client_name like '%solutions';
```

**Output:**

	client_id	client_name
▶	2004	Infotech solutions
	2005	Real solutions
*	NULL	NULL

22. I want all the employee first name in upper case and last name in lower case...

```
205 • select upper(first_name), lower(last_name)
206       from employee_details;
```

**Output:**

	upper(first_name)	lower(last_name)
▶	BALAJI	sethuramalingam
	BHARATH	raghavan
	SANGEETH	thomas
	PRAKASH	karthik
	BALAJI	gurrampati
	PREVIN	lobo

23. Find the length of the client name in client table?

```
208 • select length(client_name) as total_length
209      from clients_details;
```

**Output:**

	total_length
▶	11
	15
	15
	3
	18
	14

24. Who is getting maximum salary in each job description?

```
211 • select job_desc,max(salary)
212      from employee_details
213      group by job_desc;
```

**Output:**

	job_desc	max(salary)
▶	Sales	1600000
	IT	1400000
	HR	7500000

25. List the first name of the employee occurs more than once in the employee table....

```
217 • SELECT first_name
218      FROM employee_details
219      GROUP BY first_name
220      HAVING COUNT(first_name) > 1;
```

**Output:**

	first_name
▶	Balaji

26. Split the salary:

- A. greater than 1500000 as 'veryhigh'
- B. between 1000000 and 1500000 as 'high'
- C. between 7500000 and 1000000 as 'medium'
- D. between 5000000 and 7500000 as 'average' else 'low'

```

select employee_id,salary,
case
when salary > 1500000 then 'VERY HIGH'
when salary > 1000000 and salary <= 1500000 then 'HIGH'
when salary >= 750000 and salary < 1000000 then 'MEDIUM'
when salary > 500000 and salary < 750000 then 'AVERAGE'
ELSE 'LOW'
END AS salary_status
from employee_details;

```

### Output:

	employee_id	salary	salary_status
	1006	600000	AVERAGE
	1007	1300000	HIGH
	1008	800000	AVERAGE
	1009	6500000	VERY HIGH
	1010	1150000	HIGH

27.Show client id, client name and club name of each client.Order by client name ascending.

```

232 • select
233     c.client_id,c.client_name,club.club_name
234     from clients_details c
235     join client_club club
236     on c.club_id=club.club_id
237     order by client_name;

```

### Output:

	client_id	client_name	club_name
►	2003	ACE	Rising Club
	2006	BG academy	Gold Club
	2007	Global information	Rising Club
	2004	Infotech solutions	Platinum Club
	2000	Mother tech	Rising Club
	2002	Prompt software	Platinum Club
	2005	Real solutions	Silver Club
	2001	Yennes infotech	Gold Club

28.Get the employee id,first name,job description,role,zone name and region name from employee table zone table and region table?

```

261 • select
262     e.Employee_id,
263     e.first_name,
264     e.job_desc,
265     e.role,
266     z.zone_name,
267     r.region_name
268 from employee_details e
269 join zone_wise z
270 on e.zone_id=z.zone_id
271 join region_wise r
272 on e.region_id=r.region_id;

```

### Output:

	Employee_id	first_name	job_desc	role	zone_name	region_name
▶	1000	Balaji	Sales	RSM	south	Chennai
	1001	Bharath	Sales	BM	south	Bengaluru
	1005	Previn	Sales	BM	south	Kerala
	1009	Anil	HR	manager	south	Chennai
	1015	Mishael	Sales	RSM	south	Rest of Tamilnadu
	1016	Ashish	HR	senior manager	south	Kerala
	1019	Ravindra Babu	Sales	RSM	south	Kerala
	1002	Sangeeth	IT	Analyst	north	Jammu and Kashmir
	1006	Rohit	HR	manager	north	Himachal Pradesh
	1007	Rolf	SALES	RSM	north	Jammu and Kashmir
	1011	Dinesh	IT	developer	north	Himachal Pradesh

29. Write a query to sum of the salary ,rank,row number using window functioning group by job\_desc, order by job\_desc and rank ascending?

```

274 • select employee_id,first_name,salary,job_desc,
275     sum(salary)over(partition by job_desc)as sum,
276     rank() over(order by salary desc) as rnk,
277     row_number()over() as row_id
278 from employee_details
279 order by job_desc,rnk ;

```

### Output:

	employee_id	first_name	salary	job_desc	sum	rnk	row_id
▶	1016	Ashish	7500000	HR	15970000	1	1
	1009	Anil	6500000	HR	15970000	2	2
	1013	Ravi	1370000	HR	15970000	7	7
	1006	Rohit	600000	HR	15970000	20	20
	1011	Dinesh	1400000	IT	4970000	6	6
	1017	Shankar G	1200000	IT	4970000	9	9
	1002	Sangeeth	900000	IT	4970000	15	15
	1008	Arun	800000	IT	4970000	17	17
	1014	Franklin D	670000	IT	4970000	19	19
	1019	Ravindra Babu	1600000	Sales	13250070	3	3
	1004	Balaji	1500000	Sales	13250070	4	4

30. Write the query to get the details of the employee who is getting maximum salary?

```
select * from employee_details
where salary =
(select max(salary) from employee_details);
```

**Output:**

	Employee_id	First_name	Last_name	email_id	salary	role	job_desc	Zone_id	Region_id	client_id
▶	1016	Ashish	Chandele	ashish@gmail.com	7500000	senior manager	HR	1	12	NULL
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

31. Create a view to show the employees working in zone and region wise..

```
create view emp_view
as
select
e.Employee_id,
e.first_name,
e.job_desc,
e.role,
z.zone_name,
r.region_name
from employee_details e
join zone_wise z
on e.zone_id=z.zone_id
join region_wise r
on e.region_id=r.region_id;
```

**Output:** View has created.