Project on SQL

Overview of the Project

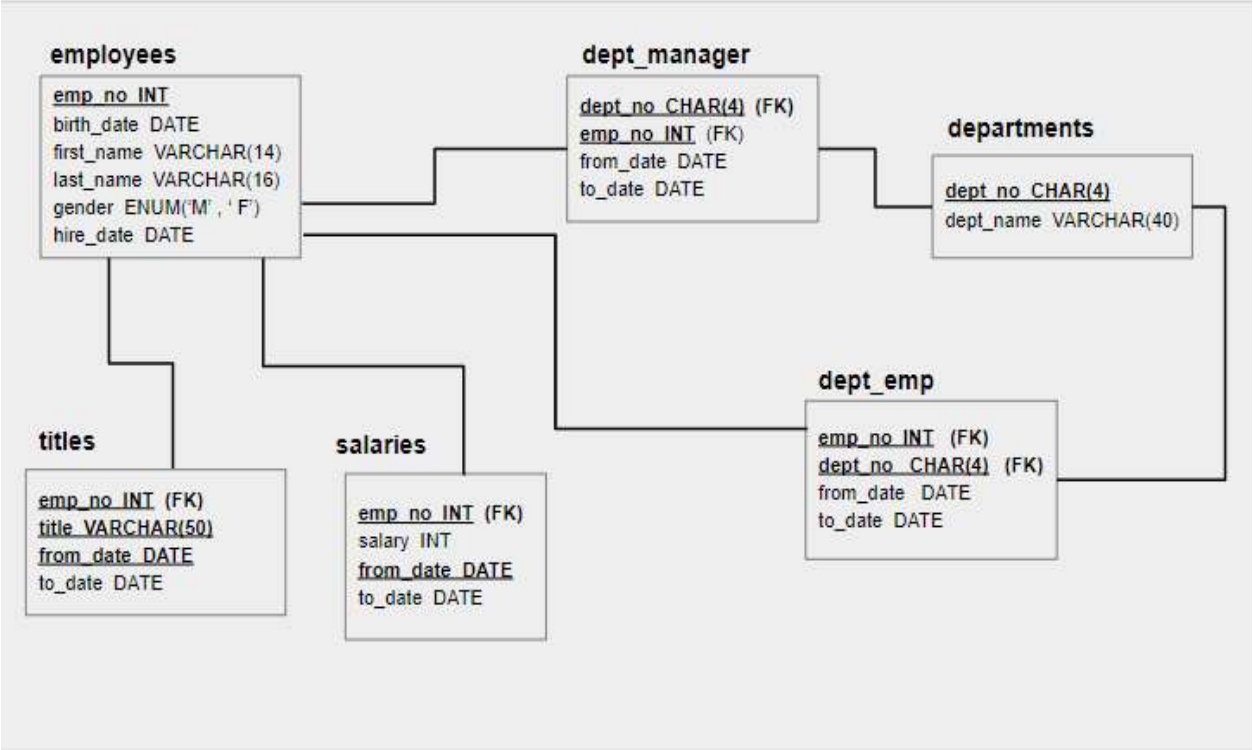
In this project, I will working on **Employees** database of a big company. This database consists of 6 tables :-

1. departments
2. dept_emp
3. dept_manager
4. employees
5. salaries
6. titles

"https://www.dropbox.com/s/znmjrtlae6vt4zi/employees.sql?dl=0 " this is link for access Employees database in SQL script form.

In this project, I work on different questionnaires related to database, and write query on My-SQL platform on the basis of these questionnaires and obtained there results. I prefer to show all queries and results with the help of screenshots of My-SQL platform.

Detail information on each table



Content of each table

❖ dept_emp table

```
2 •  select * from dept_emp;
```

Result Grid | Filter Rows: | Ed

emp_no	dept_no	from_date	to_date
10001	d005	1986-06-26	9999-01-01
10002	d007	1996-08-03	9999-01-01
10003	d004	1995-12-03	9999-01-01
10004	d004	1986-12-01	9999-01-01
10005	d003	1989-09-12	9999-01-01
10006	d005	1990-08-05	9999-01-01
10007	d008	1989-02-10	9999-01-01
10008	d005	1998-03-11	2000-07-31
10009	d006	1985-02-18	9999-01-01
10010	d004	1996-11-24	2000-06-26
10010	d006	2000-06-26	9999-01-01
10011	d009	1990-01-22	1996-11-09
10012	d005	1992-12-18	9999-01-01
10013	d003	1985-10-20	9999-01-01
10014	d005	1993-12-29	9999-01-01
10015	d008	1992-09-19	1993-08-22

select * from dept_emp	331603 row(s) returned	0.015 sec / 0.188 sec

❖ **departments table**

```
2 •  select * from departments
3    order by dept_no ;
```

Result Grid | Filter Rows:

dept_no	dept_name
d001	Marketing
d002	Finance
d003	Human Resources
d004	Production
d005	Development
d006	Quality Management
d007	Sales
d008	Research
d009	Customer Service
NULL	NULL

select * from departments	9 row(s) returned	0.000 sec / 0.000 sec

❖ **dept_manager table**

```
2 •   select * from dept_manager
3     order by dept_no ;
```

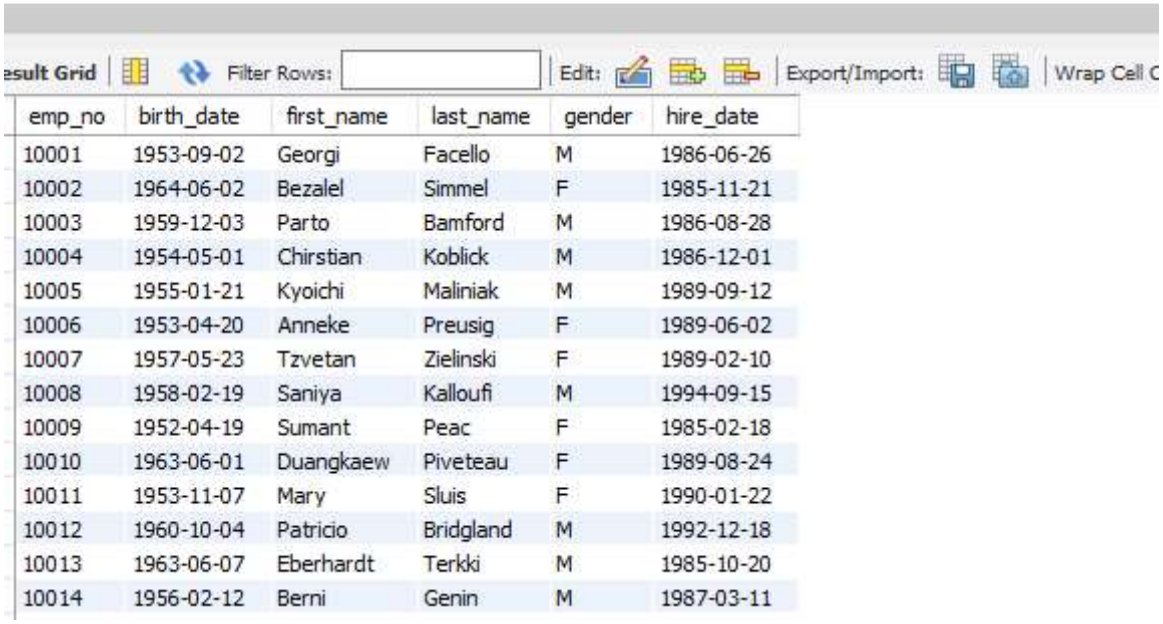
Result Grid | Filter Rows: | Edit: | Export

emp_no	dept_no	from_date	to_date
110022	d001	1985-01-01	1991-10-01
110039	d001	1991-10-01	9999-01-01
110085	d002	1985-01-01	1989-12-17
110114	d002	1989-12-17	9999-01-01
110183	d003	1985-01-01	1992-03-21
110228	d003	1992-03-21	9999-01-01
110303	d004	1985-01-01	1988-09-09
110344	d004	1988-09-09	1992-08-02
110386	d004	1992-08-02	1996-08-30
110420	d004	1996-08-30	9999-01-01
110511	d005	1985-01-01	1992-04-25
110567	d005	1992-04-25	9999-01-01
110725	d006	1985-01-01	1989-05-06
110765	d006	1989-05-06	1991-09-12

select * from dept_manager order by dept_no	24 row(s) returned	0.000 sec / 0.000 sec

❖ **employees table**

```
2 •  select * from employees
3    order by emp_no ;
```



esult Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell C

emp_no	birth_date	first_name	last_name	gender	hire_date
10001	1953-09-02	Georgi	Facello	M	1986-06-26
10002	1964-06-02	Bezalel	Simmel	F	1985-11-21
10003	1959-12-03	Parto	Bamford	M	1986-08-28
10004	1954-05-01	Chirstian	Koblick	M	1986-12-01
10005	1955-01-21	Kyoichi	Maliniak	M	1989-09-12
10006	1953-04-20	Anneke	Preusig	F	1989-06-02
10007	1957-05-23	Tzvetan	Zielinski	F	1989-02-10
10008	1958-02-19	Saniya	Kalloufi	M	1994-09-15
10009	1952-04-19	Sumant	Peac	F	1985-02-18
10010	1963-06-01	Duangkaew	Piveteau	F	1989-08-24
10011	1953-11-07	Mary	Sluis	F	1990-01-22
10012	1960-10-04	Patricio	Bridgland	M	1992-12-18
10013	1963-06-07	Eberhardt	Terkki	M	1985-10-20
10014	1956-02-12	Berni	Genin	M	1987-03-11

select * from employees order by emp_no	300024 row(s) returned	0.078 sec / 0.375 sec

❖ **salaries table**

```
2 •  select * from salaries
3    order by emp_no ;
```

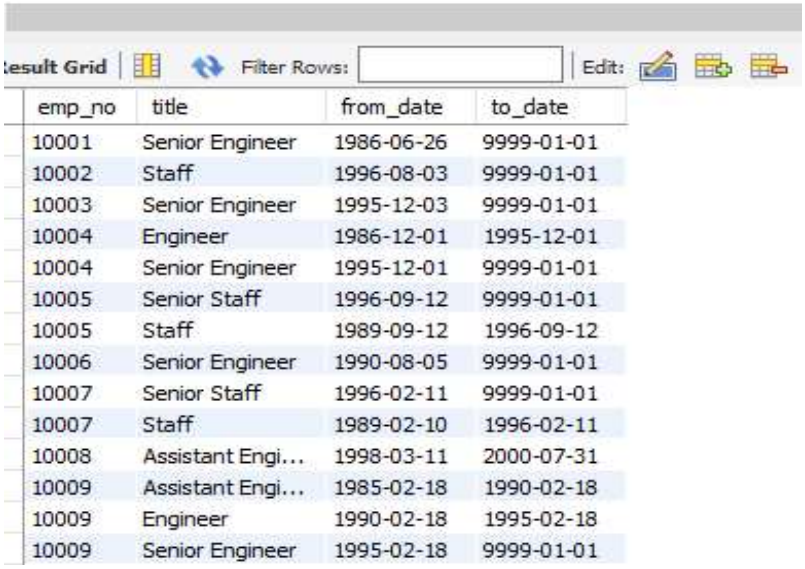
Result Grid | Filter Rows: | Edit:

emp_no	salary	from_date	to_date
10001	60117	1986-06-26	1987-06-26
10001	62102	1987-06-26	1988-06-25
10001	66074	1988-06-25	1989-06-25
10001	66596	1989-06-25	1990-06-25
10001	66961	1990-06-25	1991-06-25
10001	71046	1991-06-25	1992-06-24
10001	74333	1992-06-24	1993-06-24
10001	75286	1993-06-24	1994-06-24
10001	75994	1994-06-24	1995-06-24
10001	76884	1995-06-24	1996-06-23
10001	80013	1996-06-23	1997-06-23
10001	81025	1997-06-23	1998-06-23
10001	81097	1998-06-23	1999-06-23
10001	84917	1999-06-23	2000-06-22

select * from salaries order by emp_no	967330 row(s) returned	0.031 sec / 0.703 sec

❖ **titles table**

```
2 •  select * from titles
3    order by emp_no ;
```



Result Grid | Filter Rows: | Edit:

emp_no	title	from_date	to_date
10001	Senior Engineer	1986-06-26	9999-01-01
10002	Staff	1996-08-03	9999-01-01
10003	Senior Engineer	1995-12-03	9999-01-01
10004	Engineer	1986-12-01	1995-12-01
10004	Senior Engineer	1995-12-01	9999-01-01
10005	Senior Staff	1996-09-12	9999-01-01
10005	Staff	1989-09-12	1996-09-12
10006	Senior Engineer	1990-08-05	9999-01-01
10007	Senior Staff	1996-02-11	9999-01-01
10007	Staff	1989-02-10	1996-02-11
10008	Assistant Engi...	1998-03-11	2000-07-31
10009	Assistant Engi...	1985-02-18	1990-02-18
10009	Engineer	1990-02-18	1995-02-18
10009	Senior Engineer	1995-02-18	9999-01-01

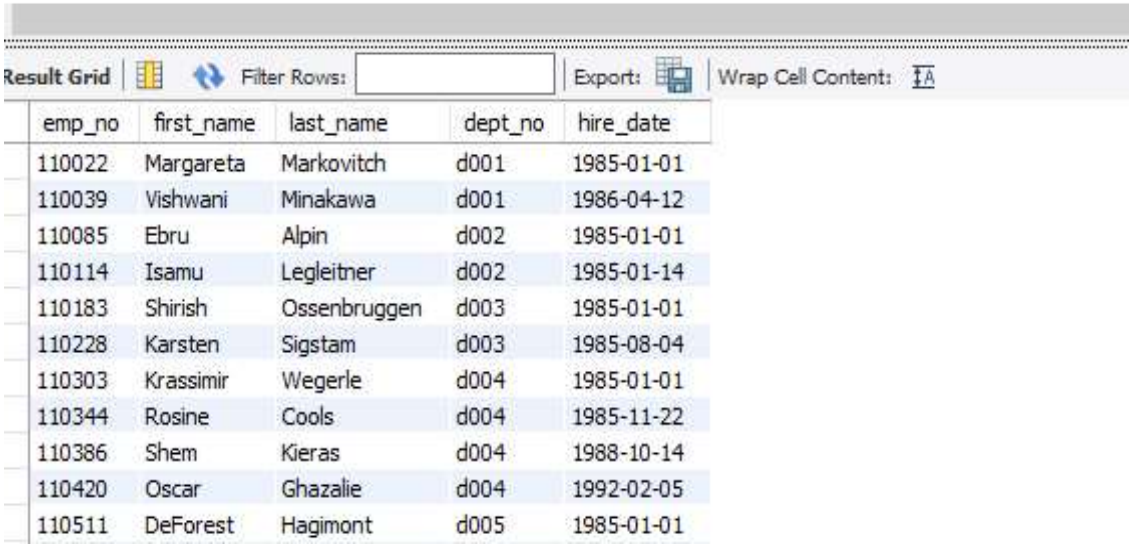
select * from titles order by emp_no	443308 row(s) returned	0.047 sec / 0.656 sec

Questionnaires with SQL queries with their result grid and action output

Q-1

- Extract a list containing information about all managers' employee number, first and last name, department number, and hire date.

```
1 •  SELECT
2        e.emp_no, e.first_name, e.last_name, dm.dept_no, e.hire_date
3    FROM
4        employees e
5            JOIN
6        dept_manager dm ON e.emp_no = dm.emp_no
7        order by e.emp_no;
```



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

emp_no	first_name	last_name	dept_no	hire_date
110022	Margareta	Markovitch	d001	1985-01-01
110039	Vishwani	Minakawa	d001	1986-04-12
110085	Ebru	Alpin	d002	1985-01-01
110114	Isamu	Legleitner	d002	1985-01-14
110183	Shirish	Ossenbruggen	d003	1985-01-01
110228	Karsten	Sigstam	d003	1985-08-04
110303	Krassimir	Wegerle	d004	1985-01-01
110344	Rosine	Cools	d004	1985-11-22
110386	Shem	Kieras	d004	1988-10-14
110420	Oscar	Ghazalie	d004	1992-02-05
110511	DeForest	Hagimont	d005	1985-01-01

SELECT e.emp_no, e.first_name, e.last_name, dm.dept_no, e.hire_date FROM employees e JOIN dept_manager dm ON e.emp_no = dm.emp_no order by e.emp_no	24 row(s) returned	0.031 sec / 0.000 sec

Q-2

- Join the 'employees' and the 'dept_manager' tables to return a subset of all the employees whose last name is Markovitch. See if the output contains a manager with that name.

```
1 •  SELECT
2        e.emp_no, e.first_name, e.last_name, dm.dept_no, dm.from_date
3    FROM
4        employees e
5            LEFT JOIN
6        dept_manager dm ON e.emp_no = dm.emp_no
7    WHERE
8        e.last_name = 'Markovitch'
9    ORDER BY dm.dept_no DESC , e.emp_no;
```

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

emp_no	first_name	last_name	dept_no	from_date
110022	Margareta	Markovitch	d001	1985-01-01
10898	Munenori	Markovitch	NULL	NULL
11817	Niranjan	Markovitch	NULL	NULL
12419	Srinidhi	Markovitch	NULL	NULL
12977	Byong	Markovitch	NULL	NULL
15392	Pradeep	Markovitch	NULL	NULL
21545	Boguslaw	Markovitch	NULL	NULL
22826	Ferdinand	Markovitch	NULL	NULL
22838	Brendon	Markovitch	NULL	NULL

SELECT e.emp_no, e.first_name, e.last_name, dm.dept_no, dm.from_date FROM employees e LEFT JOIN dept_manager dm ON e.emp_no = dm.emp_no WHERE e.last_name = 'Markovitch' ORDER BY dm.dept_no DESC , e.emp_no	181 row(s) returned	0.282 sec / 0.000 sec

Yes, only one manager has the last name as Markovitch

Q-3

- Select all managers' first and last name, hire date, job title, start date, and department name.

```
1  SELECT
2      e.first_name, e.last_name, e.hire_date, t.title, m.from_date, d.dept_name
3  FROM
4      employees e
5          JOIN
6      dept_manager m ON e.emp_no = m.emp_no
7          JOIN
8      departments d ON m.dept_no = d.dept_no
9          JOIN
10     titles t ON e.emp_no = t.emp_no
11 WHERE t.title = 'Manager'
12 ORDER BY e.emp_no;
```

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

first_name	last_name	hire_date	title	from_date	dept_name
Margareta	Markovitch	1985-01-01	Manager	1985-01-01	Marketing
Vishwani	Minakawa	1986-04-12	Manager	1991-10-01	Marketing
Ebru	Alpin	1985-01-01	Manager	1985-01-01	Finance
Isamu	Legleitner	1985-01-14	Manager	1989-12-17	Finance
Shirish	Ossenbruggen	1985-01-01	Manager	1985-01-01	Human Resources
Karsten	Sigstam	1985-08-04	Manager	1992-03-21	Human Resources
Krassimir	Wegerle	1985-01-01	Manager	1985-01-01	Production
Rosine	Cools	1985-11-22	Manager	1988-09-09	Production
Shem	Kieras	1988-10-14	Manager	1992-08-02	Production
Oscar	Ghazalie	1992-02-05	Manager	1996-08-30	Production

SELECT e.first_name, e.last_name, e.hire_date, t.title, m.from_date, d.dept_name FROM employees e JOIN dept_manager m ON e.emp_no = m.emp_no JOIN departments d ON m.dept_no = d.dept_no JOIN titles t ON e.emp_no = t.emp_no WHERE t.title = 'Manager' ORDER BY e.emp_no	24 row(s) returned	0.000 sec / 0.000 sec

Q-4

- Unify the two table with employees no., first name, last name from employees table where last name of employees is Denis, and department no & from date from dept manager table.

```
SELECT * FROM
    (SELECT
        e.emp_no, e.first_name, e.last_name, NULL AS dept_no, NULL AS from_date
    FROM
        employees e
    WHERE
        last_name = 'Denis'
        UNION
        SELECT
        NULL AS emp_no, NULL AS first_name, NULL AS last_name, dm.dept_no, dm.from_date
    FROM
    dept_manager dm) AS a
ORDER BY - a.emp_no DESC;
```

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

emp_no	first_name	last_name	dept_no	from_date
496457	Jagoda	Denis	NULL	NULL
498819	Kerhong	Denis	NULL	NULL
498827	Yuqun	Denis	NULL	NULL
499371	Nagui	Denis	NULL	NULL
NULL	NULL	NULL	d001	1985-01-01
NULL	NULL	NULL	d001	1991-10-01
NULL	NULL	NULL	d002	1985-01-01
NULL	NULL	NULL	d002	1989-12-17

SELECT * FROM (SELECT e.emp_no, e.first_name, e.last_name, NULL AS dept_no, NULL AS from_date FROM employees e WHERE last_name = 'Denis' UNION SELECT NULL AS emp_no, NULL AS first_name, NULL AS last_name, dm.dept_no, dm.from_date FROM dept_manager dm) AS a ORDER BY - a.emp_no DESC	189 row(s) returned	0.125 sec / 0.000 sec

Q-5

- Extract the information about all department managers who were hired between the 1st of January 1990 and the 1st of January 1995.

```
1  SELECT
2      *
3      FROM
4      dept_manager
5  WHERE
6      emp_no IN (SELECT
7              emp_no
8          FROM
9              employees
10         WHERE
11             hire_date BETWEEN '1990-01-01' AND '1995-01-01');
```

Result Grid | Filter Rows: | Edit: | Export/Import:

emp_no	dept_no	from_date	to_date
110420	d004	1996-08-30	9999-01-01
111877	d009	1992-09-08	1996-01-03

SELECT * FROM dept_manager WHERE emp_no IN (SELECT emp_no FROM employees WHERE hire_date BETWEEN '1990-01-01' AND '1995-01-01')	2 row(s) returned	0.000 sec / 0.000 sec

Q-6

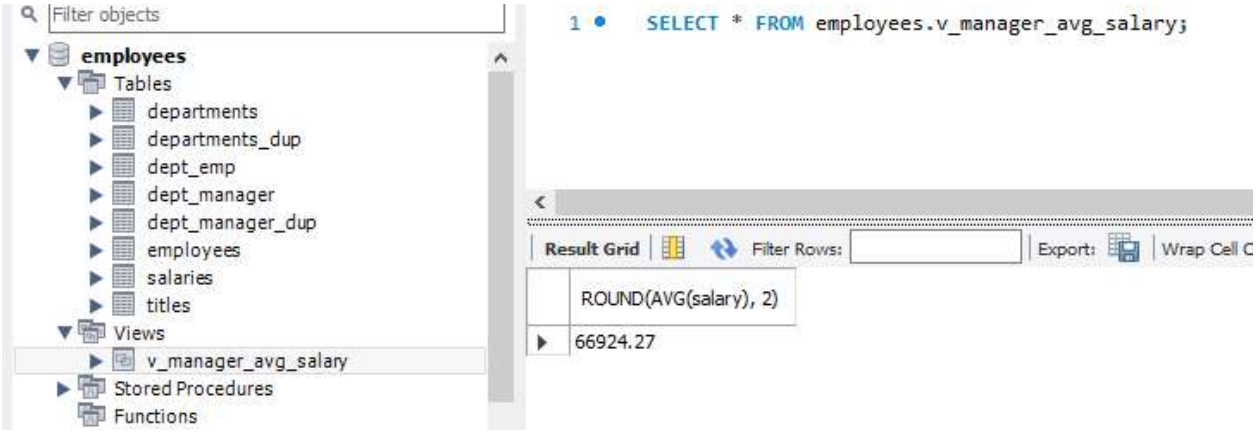
- Create a view that will extract the average salary of all managers registered in the database. Round this value to the nearest cent.

```
1  CREATE OR REPLACE VIEW v_manager_avg_salary AS
2      SELECT
3          ROUND(AVG(salary), 2)
4      FROM
5          salaries s
6              JOIN
7          dept_manager m ON s.emp_no = m.emp_no;
```

CREATE OR REPLACE VIEW v_manager_avg_salary AS SELECT ROUND(AVG(salary), 2) FROM salaries s JOIN dept_manager m ON s.emp_no = m.emp_no	0 row(s) affected	0.06 2 sec

View has been created in Schemas section

Checking the View output



SELECT * FROM employees.v_manager_avg_salary	1 row(s) returned	0.000 sec / 0.000 sec

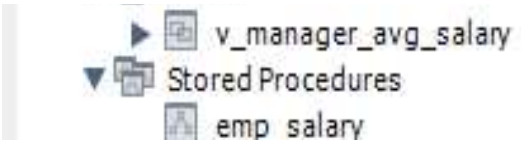
Q-7

- Create a procedure called ‘emp_salary’ that uses as parameters the employees no. of an individual, and returns their first name , last name, salary, from date, to date.

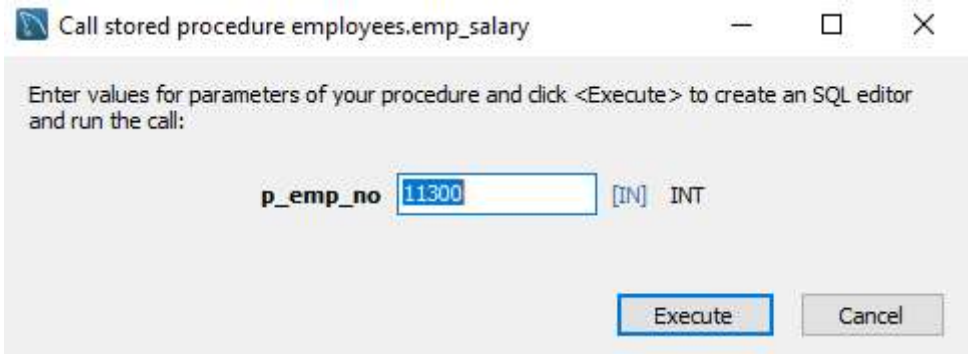
```
1   DELIMITER $$
2   CREATE PROCEDURE emp_salary( IN  p_emp_no INT)
3   BEGIN
4    SELECT e.first_name, e.last_name, s.salary, s.from_date, s.to_date
5    FROM
6    employees e
7    JOIN
8    salaries s ON e.emp_no = s.emp_no
9    WHERE e.emp_no = p_emp_no ;
10   END$$
11   DELIMITER ;
```

CREATE PROCEDURE emp_salary(IN p_emp_no INT) BEGIN SELECT e.first_name, e.last_name, s.salary, s.from_date, s.to_date FROM employees e JOIN salaries s ON e.emp_no = s.emp_no WHERE e.emp_no = p_emp_no ; END	0 row(s) affected	0.03 1 sec

Procedure has been created in Schemas section



Call Procedure for emp_no = 11300



After execute the command

```
1 •   call employees.emp_salary(11300);
2
```

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

first_name	last_name	salary	from_date	to_date
Lillian	Fontet	44380	1992-09-10	1993-09-10
Lillian	Fontet	47360	1993-09-10	1994-09-10
Lillian	Fontet	47115	1994-09-10	1995-09-10
Lillian	Fontet	50291	1995-09-10	1996-09-09
Lillian	Fontet	51823	1996-09-09	1996-12-20

Q-8

- Count the number of employees with their first name and use the condition of count more than 250.

```
1    SELECT
2       last_name, first_name, count(first_name) as names_count
3    FROM
4        employees
5        GROUP BY first_name
6        HAVING count(first_name) >250
7        ORDER BY first_name DESC;
```

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

last_name	first_name	names_count
Magalhaes	Zhenhua	257
Iisaka	Yurij	266
Passino	Yuguang	256
Schaad	Youssef	258
Kalloufi	Yoshinari	260
Yetto	Ymte	260
Spell	Yefim	261
Murillo	Yannik	261
Tzvieli	Yakichi	251
Lammel	Yahiko	255
Chiodo	Xuedong	270

SELECT last_name, first_name, count(first_name) as names_count FROM employees GROUP BY first_name HAVING count(first_name) >250 ORDER BY first_name DESC	193 row(s) returned	0.313 sec / 0.000 sec

Q-9

- Use count function with from date in dept emp table, where from date is greater than 1st jan 2000 having limit 500.

```
1  SELECT
2      emp_no , count(from_date)
3  FROM
4      dept_emp
5  WHERE
6      from_date > '2000-01-01'
7  GROUP BY emp_no
8  HAVING COUNT(from_date) >= 1
9  ORDER BY emp_no
10 limit 500;
```

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

emp_no	count(from_date)
10010	1
10040	1
10153	1
10164	1
10179	1
10200	1
10298	1

SELECT emp_no , count(from_date) FROM dept_emp WHERE from_date > '2000-01-01' GROUP BY emp_no HAVING COUNT(from_date) >= 1 ORDER BY emp_no limit 500	500 row(s) returned	0.000 sec / 0.000 sec

Q-10

- Create table with name ‘amex dbe students’ with columns name of students , gender , age, mba marks and hire date. After that into some data in this table.

```sql
CREATE TABLE amex_dbe_students (
    name_of_students    VARCHAR(40)    NOT NULL,
    gender ENUM ('M','F') NOT NULL,
    age   INT   NOT NULL,
    mba_marks INT   NOT NULL,
    interview_date DATE NOT NULL,
    PRIMARY KEY (name_of_students)
);
INSERT INTO amex_dbe_students VALUES ('abhishek Raj', 'M' , 24 , 753 , '2022-09-16'),
('Purvasha kashyva', 'F' , 26 , 760 , '2022-09-16'),
('Harshit Jain', 'M' , 25 , 810 , '2022-09-16'),
('shivam Himanshu', 'M' , 23, 780 , '2022-09-16') ,
('Ashish Teja', 'M' , 25 , 710, '2022-09-16' ),
('Garima Singh', 'F' , 24 , 800 , '2022-09-16'),
('Tarun Deshwal', 'M' , 24 , 725 , '2022-09-16');
SELECT * FROM amex_dbe_students;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

name_of_students	gender	age	mba_marks	interview_date
abhishek Raj	M	24	753	2022-09-16
Ashish Teja	M	25	710	2022-09-16
Garima Singh	F	24	800	2022-09-16
Harshit Jain	M	25	810	2022-09-16
Purvasha kashyva	F	26	760	2022-09-16

SELECT * FROM amex_dbe_students	7 row(s) returned	0.000 sec / 0.000 sec