# Case Study 2

**Query writing:**
C:\Users\patil>cd\
C:\>cd xampp\mysql\bin
C:\xampp\mysql\bin>mysql -h localhost -u root
MariaDB [(none)]> use college;

**Create Tables and Insert values:**

create table employeedate(employee_id int AUTO_INCREMENT = 100, first_name varchar(50), last_name varchar(50), phone_number varchar(50), hire_date date, job_id varchar(50), salary decimal(12,2), manager_id int, department_id int);

alter table employee
    -> AUTO_INCREMENT = 100;

MariaDB [college]> desc employeedate;

```
MariaDB [college]> desc employeedate;
+---------------+--------------+------+-----+---------+----------------+
| Field         | Type         | Null | Key | Default | Extra          |
+---------------+--------------+------+-----+---------+----------------+
| employee_id   | int(11)      | NO   | PRI | NULL    | auto_increment |
| first_name    | varchar(50)  | YES  |     | NULL    |                |
| last_name     | varchar(50)  | YES  |     | NULL    |                |
| phone_number  | varchar(50)  | YES  |     | NULL    |                |
| hire_date     | date         | YES  |     | NULL    |                |
| job_id        | varchar(50)  | YES  |     | NULL    |                |
| salary        | decimal(12,2)| YES  |     | NULL    |                |
| manager_id    | int(11)      | YES  |     | NULL    |                |
| department_id | int(11)      | YES  |     | NULL    |                |
+---------------+--------------+------+-----+---------+----------------+
9 rows in set (0.030 sec)
```

insert into employeedate(first_name, last_name, phone_number, hire_date, job_id, salary, manager_id, department_id) values('steven','king','515.123.4567','1987-06-17','ad_pres',24000.00,0,90);
insert into employeedate(first_name, last_name, phone_number, hire_date, job_id, salary, manager_id, department_id) values ('neeena','Kochhar','515.123.4568', '1987-06-18','AD_VP',17000.00,100,90);
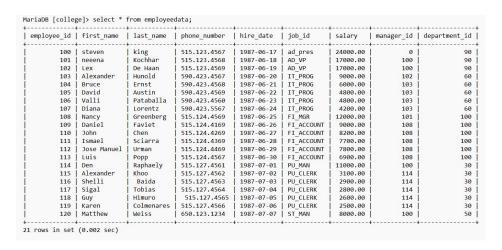insert into employeedate(first_name, last_name, phone_number, hire_date, job_id, salary, manager_id, department_id) values ('Lex','De Haan','515.123.4569','1987-06-19','AD_VP',17000.00,100,90),('Alexander','Hunold','590.423.4567','1987-06-20','IT_PROG',9000.00,102,60),('Bruce','Ernst','590.423.4568','1987-06-21','IT_PROG',6000.00,103 ,60 ),('David','Austin','590.423.4569','1987-06-22','IT_PROG',4800.00,103,60),('Valli','Pataballa','590.423.4560','1987-06-23', 'IT_PROG',4800.00,103,60),('Diana','Lorentz','590.423.5567','1987-06-24','IT_PROG',4200.00,103,,60),('Nancy','Greenberg','515.124.4569','1987-06-25','FI_MGR',12000.00,101, 100),('Daniel','Faviet','515.124.4169','1987-06-26','FI_ACCOUNT', 9000.00, 108 , 100),('John', 'Chen','515.124.4269','1987-06-27','FI_ACCOUNT',8200.00,108,100),('Ismael','Sciarra','515.124.4369','1987-06-28','FI_ACCOUNT', 7700.00, 108,100),('Jose Manuel','Urman','515.124.4469','1987-06-29','FI_ACCOUNT',7800.00, 108, 100),('Luis','Popp','515.124.4567','1987-06-30','FI_ACCOUNT',6900.00,108,100),('Den','Raphaely','515.127.4561','1987-07-01','PU_MAN',11000.00,100,30),('Alexander', 'Khoo', '515.127.4562','1987-07-

02','PU_CLERK',3100.00, 114, 30),('Shelli',' Baida','515.127.4563', '1987-07-03','PU_CLERK', 2900.00,114,30),('Sigal', 'Tobias', '515.127.4564','1987-07-04','PU_CLERK', 2800.00 , 114, 30),( 'Guy','Himuro',' 515.127.4565', '1987-07-05','PU_CLERK',2600.00, 114, 30),('Karen','Colmenares' ,'515.127.4566','1987-07-06','PU_CLERK',2500.00,  114, 30 ),('Matthew', 'Weiss','650.123.1234','1987-07-07','ST_MAN', 8000.00,100, 50);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '60),('Nancy','Greenberg','515.124.4569','1987-06-25','FI_MGR',12000.00,101, 1...' at line 1
MariaDB [college]> insert into employeedate(first_name, last_name, phone_number, hire_date, job_id, salary, manager_id, department_id) values ('Lex','De Haan','515.123.4569','1987-06-19','AD_VP',17000.00,100,90),('Alexander','Hunold','590.423.4567','1987-06-20','IT_PROG',9000.00,102,60),('Bruce','Ernst','590.423.4568','1987-06-21','IT_PROG',6000.00,103 ,60 ),('David','Austin','590.423.4569','1987-06-22','IT_PROG',4800.00,103,60),('Valli','Pataballa','590.423.4560','1987-06-23', 'IT_PROG',4800.00,103,60),('Diana','Lorentz','590.423.5567','1987-06-24','IT_PROG',4200.00,103,,60),('Nancy','Greenberg','515.124.4569','1987-06-25','FI_MGR',12000.00,101,100),('Daniel','Faviet','515.124.4169','1987-06-26','FI_ACCOUNT', 9000.00, 108 , 100),('John', 'Chen','515.124.4269','1987-06-27','FI_ACCOUNT',8200.00,108,100),('Ismael','Sciarra','515.124.4369','1987-06-28','FI_ACCOUNT', 7700.00, 108,100),('Jose Manuel','Urman','515.124.4469','1987-06-29','FI_ACCOUNT',7800.00, 108, 100),('Luis','Popp','515.124.4567','1987-06-30','FI_ACCOUNT',6900.00,108,100),('Den','Raphaely','515.127.4561','1987-07-01','PU_MAN',11000.00,100,3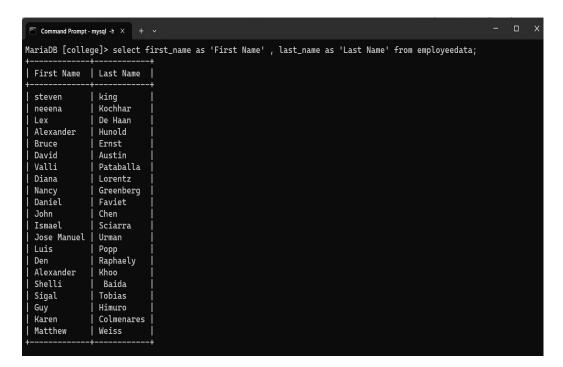0),('Alexander', 'Khoo', '515.127.4562','1987-07-02','PU_CLERK',3100.00, 114, 30),('Shelli',' Baida','515.127.4563', '1987-07-03','PU_CLERK', 2900.00,114,30),('Sigal', 'Tobias', '515.127.4564','1987-07-04','PU_CLERK', 2800.00 , 114, 30),( 'Guy','Himuro',' 515.127.4565', '1987-07-05','PU_CLERK',2600.00, 114, 30),('Karen','Colmenares' ,'515.127.4566','1987-07-06','PU_CLERK',2500.00,  114, 30 ),('Matthew', 'Weiss','650.123.1234','1987-07-07','ST_MAN', 8000.00,100, 50);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '60),('Nancy','Greenberg','515.124.4569','1987-06-25','FI_MGR',12000.00,101,10...' at line 1
MariaDB [college]> insert into employeedate(first_name, last_name, phone_number, hire_date, job_id, salary, manager_id, department_id) values ('Lex','De Haan','515.123.4569','1987-06-19','AD_VP',17000.00,100,90),('Alexander','Hunold','590.423.4567','1987-06-20','IT_PROG',9000.00,102,60),('Bruce','Ernst','590.423.4568','1987-06-21','IT_PROG',6000.00,103 ,60 ),('David','Austin','590.423.4569','1987-06-22','IT_PROG',4800.00,103,60),('Valli','Pataballa','590.423.4560','1987-06-23', 'IT_PROG',4800.00,103,60),('Diana','Lorentz','590.423.5567','1987-06-24','IT_PROG',4200.00,103,60),('Nancy','Greenberg','515.124.4569','1987-06-25','FI_MGR',12000.00,101,100),('Daniel','Faviet','515.124.4169','1987-06-26','FI_ACCOUNT', 9000.00, 108 , 100),('John', 'Chen','515.124.4269','1987-06-27','FI_ACCOUNT',8200.00,108,100),('Ismael','Sciarra','515.124.4369','1987-06-28','FI_ACCOUNT', 7700.00, 108,100),('Jose Manuel','Urman','515.124.4469','1987-06-29','FI_ACCOUNT',7800.00, 108, 100),('Luis','Popp','515.124.4567','1987-06-30','FI_ACCOUNT',6900.00,108,100),('Den','Raphaely','515.127.4561','1987-07-01','PU_MAN',11000.00,100,30),('Alexander', 'Khoo', '515.127.4562','1987-07-02','PU_CLERK',3100.00, 114, 30),('Shelli',' Baida','515.127.4563', '1987-07-03','PU_CLERK', 2900.00,114,30),('Sigal', 'Tobias', '515.127.4564','1987-07-04','PU_CLERK', 2800.00 , 114, 30),( 'Guy','Himuro',' 515.127.4565', '1987-07-05','PU_CLERK',2600.00, 114,

30),('Karen','Colmenares' ,'515.127.4566','1987-07-06','PU_CLERK',2500.00,  114, 30 ),('Matthew', 'Weiss','650.123.1234','1987-07-07','ST_MAN', 8000.00,100, 50);

**Display Table:**

```
MariaDB [college]> select * from employeedata;
+-------------+------------+-----------+--------------+------------+------------+----------+------------+---------------+
| employee_id | first_name | last_name | phone_number | hire_date  | job_id     | salary   | manager_id | department_id |
+-------------+------------+-----------+--------------+------------+------------+----------+------------+---------------+
|         100 | steven     | king      | 515.123.4567 | 1987-06-17 | ad_pres    | 24000.00 |          0 |            90 |
|         101 | neeena     | Kochhar   | 515.123.4568 | 1987-06-18 | AD_VP      | 17000.00 |        100 |            90 |
|         102 | Lex        | De Haan   | 515.123.4569 | 1987-06-19 | AD_VP      | 17000.00 |        100 |            90 |
|         103 | Alexander  | Hunold    | 590.423.4567 | 1987-06-20 | IT_PROG    |  9000.00 |        102 |            60 |
|         104 | Bruce      | Ernst     | 590.423.4568 | 1987-06-21 | IT_PROG    |  6000.00 |        103 |            60 |
|         105 | David      | Austin    | 590.423.4569 | 1987-06-22 | IT_PROG    |  4800.00 |        103 |            60 |
|         106 | Valli      | Pataballa | 590.423.4560 | 1987-06-23 | IT_PROG    |  4800.00 |        103 |            60 |
|         107 | Diana      | Lorentz   | 590.423.5567 | 1987-06-24 | IT_PROG    |  4200.00 |        103 |            60 |
|         108 | Nancy      | Greenberg | 515.124.4569 | 1987-06-25 | FI_MGR     | 12000.00 |        101 |           100 |
|         109 | Daniel     | Faviet    | 515.124.4169 | 1987-06-26 | FI_ACCOUNT |  9000.00 |        108 |           100 |
|         110 | John       | Chen      | 515.124.4269 | 1987-06-27 | FI_ACCOUNT |  8200.00 |        108 |           100 |
|         111 | Ismael     | Sciarra   | 515.124.4369 | 1987-06-28 | FI_ACCOUNT |  7700.00 |        108 |           100 |
|         112 | Jose Manuel| Urman     | 515.124.4469 | 1987-06-29 | FI_ACCOUNT |  7800.00 |        108 |           100 |
|         113 | Luis       | Popp      | 515.124.4567 | 1987-06-30 | FI_ACCOUNT |  6900.00 |        108 |           100 |
|         114 | Den        | Raphaely  | 515.127.4561 | 1987-07-01 | PU_MAN     | 11000.00 |        100 |            30 |
|         115 | Alexander  | Khoo      | 515.127.4562 | 1987-07-02 | PU_CLERK   |  3100.00 |        114 |            30 |
|         116 | Shelli     | Baida     | 515.127.4563 | 1987-07-03 | PU_CLERK   |  2900.00 |        114 |            30 |
|         117 | Sigal      | Tobias    | 515.127.4564 | 1987-07-04 | PU_CLERK   |  2800.00 |        114 |            30 |
|         118 | Guy        | Himuro    | 515.127.4565 | 1987-07-05 | PU_CLERK   |  2600.00 |        114 |            30 |
|         119 | Karen      | Colmenares| 515.127.4566 | 1987-07-06 | PU_CLERK   |  2500.00 |        114 |            30 |
|         120 | Matthew    | Weiss     | 650.123.1234 | 1987-07-07 | ST_MAN     |  8000.00 |        100 |            50 |
+-------------+------------+-----------+--------------+------------+------------+----------+------------+---------------+
21 rows in set (0.002 sec)
```

Q.1) Write a query to display the names (first_name, last_name) using alias name "First Name", "Last Name".

```
Command Prompt - mysql -h  X    + v                                                            —    □    X

MariaDB [college]> select first_name as 'First Name' , last_name as 'Last Name' from employeedata;
+-------------+------------+
| First Name  | Last Name  |
+-------------+------------+
| steven      | king       |
| neeena      | Kochhar    |
| Lex         | De Haan    |
| Alexander   | Hunold     |
| Bruce       | Ernst      |
| David       | Austin     |
| Valli       | Pataballa  |
| Diana       | Lorentz    |
| Nancy       | Greenberg  |
| Daniel      | Faviet     |
| John        | Chen       |
| Ismael      | Sciarra    |
| Jose Manuel | Urman      |
| Luis        | Popp       |
| Den         | Raphaely   |
| Alexander   | Khoo       |
| Shelli      | Baida      |
| Sigal       | Tobias     |
| Guy         | Himuro     |
| Karen       | Colmenares |
| Matthew     | Weiss      |
+-------------+------------+
```

Q.2)Write a query to get unique department ID from employee table.

```
MariaDB [college]> select distinct(department_id) from employeedata;
+---------------+
| department_id |
+---------------+
|            90 |
|            60 |
|           100 |
|            30 |
|            50 |
+---------------+
5 rows in set (0.001 sec)

MariaDB [college]>
```

Q.3)Write a query to get all employee details from the employee table order by first name, descending.

```
Command Prompt - mysql  -h  ×     +  ∨                                                                                                        —    ☐    ×
+---------------+
5 rows in set (0.001 sec)

MariaDB [college]> select * from employeedata order by first_name desc;
+-------------+------------+-----------+--------------+------------+------------+----------+------------+---------------+
| employee_id | first_name | last_name | phone_number | hire_date  | job_id     | salary   | manager_id | department_id |
+-------------+------------+-----------+--------------+------------+------------+----------+------------+---------------+
|         106 | Valli      | Pataballa | 590.423.4560 | 1987-06-23 | IT_PROG    |  4800.00 |        103 |            60 |
|         100 | steven     | king      | 515.123.4567 | 1987-06-17 | ad_pres    | 24000.00 |          0 |            90 |
|         117 | Sigal      | Tobias    | 515.127.4564 | 1987-07-04 | PU_CLERK   |  2800.00 |        114 |            30 |
|         116 | Shelli     | Baida     | 515.127.4563 | 1987-07-03 | PU_CLERK   |  2900.00 |        114 |            30 |
|         101 | neeena     | Kochhar   | 515.123.4568 | 1987-06-18 | AD_VP      | 17000.00 |        100 |            90 |
|         108 | Nancy      | Greenberg | 515.124.4569 | 1987-06-25 | FI_MGR     | 12000.00 |        101 |           100 |
|         120 | Matthew    | Weiss     | 650.123.1234 | 1987-07-07 | ST_MAN     |  8000.00 |        100 |            50 |
|         113 | Luis       | Popp      | 515.124.4567 | 1987-06-30 | FI_ACCOUNT |  6900.00 |        108 |           100 |
|         102 | Lex        | De Haan   | 515.123.4569 | 1987-06-19 | AD_VP      | 17000.00 |        100 |            90 |
|         119 | Karen      | Colmenares| 515.127.4566 | 1987-07-06 | PU_CLERK   |  2500.00 |        114 |            30 |
|         112 | Jose Manuel| Urman     | 515.124.4469 | 1987-06-29 | FI_ACCOUNT |  7800.00 |        108 |           100 |
|         110 | John       | Chen      | 515.124.4269 | 1987-06-27 | FI_ACCOUNT |  8200.00 |        108 |           100 |
|         111 | Ismael     | Sciarra   | 515.124.4369 | 1987-06-28 | FI_ACCOUNT |  7700.00 |        108 |           100 |
|         118 | Guy        | Himuro    | 515.127.4565 | 1987-07-05 | PU_CLERK   |  2600.00 |        114 |            30 |
|         107 | Diana      | Lorentz   | 590.423.5567 | 1987-06-24 | IT_PROG    |  4200.00 |        103 |            60 |
|         114 | Den        | Raphaely  | 515.127.4561 | 1987-07-01 | PU_MAN     | 11000.00 |        100 |            30 |
|         105 | David      | Austin    | 590.423.4569 | 1987-06-22 | IT_PROG    |  4800.00 |        103 |            60 |
|         109 | Daniel     | Faviet    | 515.124.4169 | 1987-06-26 | FI_ACCOUNT |  9000.00 |        108 |           100 |
|         104 | Bruce      | Ernst     | 590.423.4568 | 1987-06-21 | IT_PROG    |  6000.00 |        103 |            60 |
|         115 | Alexander  | Khoo      | 515.127.4562 | 1987-07-02 | PU_CLERK   |  3100.00 |        114 |            30 |
|         103 | Alexander  | Hunold    | 590.423.4567 | 1987-06-20 | IT_PROG    |  9000.00 |        102 |            60 |
+-------------+------------+-----------+--------------+------------+------------+----------+------------+---------------+
21 rows in set (0.001 sec)
```

Q.4)Write a query to get the employee ID, names (first_name, last_name), salary in ascending order of salary.

```
Command Prompt - mysql -h  ×    +   ∨                                                          —  □  ×

MariaDB [college]> select employee_id, concat(first_name, ' ',last_name) as Name, salary from employeedata ord
er by salary;
+-------------+--------------------+----------+
| employee_id | Name               | salary   |
+-------------+--------------------+----------+
|         119 | Karen Colmenares   |  2500.00 |
|         118 | Guy Himuro         |  2600.00 |
|         117 | Sigal Tobias       |  2800.00 |
|         116 | Shelli  Baida      |  2900.00 |
|         115 | Alexander Khoo     |  3100.00 |
|         107 | Diana Lorentz      |  4200.00 |
|         106 | Valli Pataballa    |  4800.00 |
|         105 | David Austin       |  4800.00 |
|         104 | Bruce Ernst        |  6000.00 |
|         113 | Luis Popp          |  6900.00 |
|         111 | Ismael Sciarra     |  7700.00 |
|         112 | Jose Manuel Urman  |  7800.00 |
|         120 | Matthew Weiss      |  8000.00 |
|         110 | John Chen          |  8200.00 |
|         109 | Daniel Faviet      |  9000.00 |
|         103 | Alexander Hunold   |  9000.00 |
|         114 | Den Raphaely       | 11000.00 |
|         108 | Nancy Greenberg    | 12000.00 |
|         102 | Lex De Haan        | 17000.00 |
|         101 | neeena Kochhar     | 17000.00 |
|         100 | steven king        | 24000.00 |
```

Q.5)Write a query to get the maximum and minimum salary from employees table.

```
MariaDB [college]> select Max(salary) as Max_Salary, min(salary) as Min_Salary from employeedata;
+------------+------------+
| Max_Salary | Min_Salary |
+------------+------------+
|   24000.00 |    2500.00 |
+------------+------------+
1 row in set (0.001 sec)

MariaDB [college]>
```

Q.6)Write a query to get the first 3 characters of first name from employees table.

```
MariaDB [college]> select substring(first_name,1,3) as 'First_3_char'from employeedata;
+--------------+
| First_3_char |
+--------------+
| ste          |
| nee          |
| Lex          |
| Ale          |
| Bru          |
| Dav          |
| Val          |
| Dia          |
| Nan          |
| Dan          |
| Joh          |
| Ism          |
| Jos          |
| Lui          |
| Den          |
| Ale          |
| She          |
| Sig          |
| Guy          |
| Kar          |
| Mat          |
+--------------+
21 rows in set (0.001 sec)

MariaDB [college]>
```

Q.7)Write a query to display the name (first_name, last_name) and department ID of all employees in departments 30 or 90 in ascending order.

```
MariaDB [college]> select first_name, last_name, department_id from employeedata where department_id in(30,90)
 order by department_id;
+------------+------------+---------------+
| first_name | last_name  | department_id |
+------------+------------+---------------+
| Den        | Raphaely   |            30 |
| Alexander  | Khoo       |            30 |
| Shelli     |  Baida     |            30 |
| Sigal      | Tobias     |            30 |
| Guy        | Himuro     |            30 |
| Karen      | Colmenares |            30 |
| steven     | king       |            90 |
| neeena     | Kochhar    |            90 |
| Lex        | De Haan    |            90 |
+------------+------------+---------------+
9 rows in set (0.000 sec)

MariaDB [college]>
```

**like operator**

-------------

Q.8)Write a query to display the last name of employees having 'e' as the third character.

```
MariaDB [college]> select last_name from employeedata where last_name like '__e%';
+-----------+
| last_name |
+-----------+
| Greenberg |
| Chen      |
+-----------+
2 rows in set (0.000 sec)

MariaDB [college]>
```

**sub queries**

-----------

Q.9)Write a query to find the name (first_name, last_name) and the salary of the employees who have a higher salary than the employee whose last_name= 'Weiss'.

```
MariaDB [college]> select first_name, last_name, salary from employeedata where salary > (select salary from e
mployeedata where last_name= 'Weiss');
+------------+-----------+----------+
| first_name | last_name | salary   |
+------------+-----------+----------+
| steven     | king      | 24000.00 |
| neeena     | Kochhar   | 17000.00 |
| Lex        | De Haan   | 17000.00 |
| Alexander  | Hunold    |  9000.00 |
| Nancy      | Greenberg | 12000.00 |
| Daniel     | Faviet    |  9000.00 |
| John       | Chen      |  8200.00 |
| Den        | Raphaely  | 11000.00 |
+------------+-----------+----------+
8 rows in set (0.000 sec)

MariaDB [college]>
```

Q.10)Write a query to find the name (first_name, last_name) of the employees who are managers.

```
MariaDB [college]> select distinct m.first_name as First_Name, m.last_name as Last_name from employeedata e jo
in employeedata m on e.manager_id= m.employee_id;
+------------+-----------+
| First_Name | Last_name |
+------------+-----------+
| steven     | king      |
| Lex        | De Haan   |
| Alexander  | Hunold    |
| neeena     | Kochhar   |
| Nancy      | Greenberg |
| Den        | Raphaely  |
+------------+-----------+
6 rows in set (0.000 sec)

MariaDB [college]>
```

## Date functions
----------------

Q.11)Write a query to get the firstname, lastname who joined in the month of June.

```
Command Prompt - mysql  -h  ×    +  ∨
| Luis       | Popp    |
+------------+---------+
14 rows in set (0.001 sec)

MariaDB [college]> select first_name, last_name, hire_date from employeedata where month(hire_date)= 6;
+-------------+-----------+------------+
| first_name  | last_name | hire_date  |
+-------------+-----------+------------+
| steven      | king      | 1987-06-17 |
| neeena      | Kochhar   | 1987-06-18 |
| Lex         | De Haan   | 1987-06-19 |
| Alexander   | Hunold    | 1987-06-20 |
| Bruce       | Ernst     | 1987-06-21 |
| David       | Austin    | 1987-06-22 |
| Valli       | Pataballa | 1987-06-23 |
| Diana       | Lorentz   | 1987-06-24 |
| Nancy       | Greenberg | 1987-06-25 |
| Daniel      | Faviet    | 1987-06-26 |
| John        | Chen      | 1987-06-27 |
| Ismael      | Sciarra   | 1987-06-28 |
| Jose Manuel | Urman     | 1987-06-29 |
| Luis        | Popp      | 1987-06-30 |
+-------------+-----------+------------+
14 rows in set (0.000 sec)

MariaDB [college]>
```

## Joins
=====

Q.12) Question on self join

emp1:
-----

id    name    manager_id
---------------------------
1    Harry      2
2    Mac        3
3    Rox        Null
4    Shree      2

o/p

employee_name    manager_name
-----------------------------
Harry          Mac
Mac            Rox
Shree           Mac

```
+---------------+---------------+
3 rows in set (0.000 sec)

MariaDB [college]> select * from emp1;
+----+-------+------------+
| id | name  | manager_id |
+----+-------+------------+
|  1 | Harry |          2 |
|  2 | Mac   |          3 |
|  3 | Rox   |       NULL |
|  4 | Shree |          2 |
+----+-------+------------+
4 rows in set (0.000 sec)

MariaDB [college]> select e.name as employee_name, m.name as manager_name from emp1 e join emp1 m on m.id= e.m
anager_id;
+---------------+---------------+
| employee_name | manager_name  |
+---------------+---------------+
| Harry         | Mac           |
| Shree         | Mac           |
| Mac           | Rox           |
+---------------+---------------+
3 rows in set (0.000 sec)

MariaDB [college]>
```