

P10: Sub-Queries

Sub-Queries

a. Basic Subqueries b. Multiple Column Subqueries c. Subqueries with Having d. Correlated Subqueries

OUTPUT:

DATABASE with table Definition

```
Select Command Prompt - mysql -u root -p
mysql> use restaurant_db;
Database changed
mysql> show tables;
+-----+
| Tables_in_restaurant_db |
+-----+
| booking                  |
| booking_view             |
| chef_details             |
| chef_employees_details   |
| customer                 |
| customer_orderdetails    |
| customer_view            |
| employee                 |
| employee_detail           |
| employee_details         |
| employees                |
| menu                     |
| menu_view                |
| order_details            |
| orderitems               |
| salary_above_avg_employee |
| sale_details             |
| user                     |
| user_view                |
| xxx                      |
+-----+
20 rows in set (0.03 sec)

mysql>
```

Single row subqueries using where clause

```
mysql> desc employee;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Employee_id | int | NO | PRI | NULL | auto_increment |
| Fname | varchar(15) | NO | | NULL | |
| Lname | varchar(15) | NO | | NULL | |
| Work_dept | varchar(15) | NO | | NULL | |
| Phone_no | varchar(15) | NO | | NULL | |
| Hire_date | date | NO | | NULL | |
| Sex | char(1) | NO | | NULL | |
| Birth_date | date | NO | | NULL | |
| Address | varchar(180) | NO | | NULL | |
| Basic_salary | decimal(9,2) | YES | | NULL | |
| Education_level | varchar(10) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.04 sec)

mysql> select * from employee;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Employee_id | Fname | Lname | Work_dept | Phone_no | Hire_date | Sex | Birth_date | Address | Basic_salary | Education_level |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1001 | Allen | Grace | Chef | +919025451057 | 2015-05-01 | M | 1990-03-09 | Grace villa Bangalore | 930000.00 | Masters |
| 1002 | Anitta | Aldrin | Chef | +919025451058 | 2015-05-01 | F | 1991-07-20 | pino villa Bangalore | 930000.00 | Masters |
| 1003 | Asha | Tampl | Manager | +919023451059 | 2015-05-01 | F | 1990-04-12 | MH villa Bangalore | 1035000.00 | Bachelors |
| 1004 | Deepak | A | Manager | +919023451060 | 2015-05-01 | M | 1993-06-22 | DD apartment Bangalore | 575000.00 | Bachelors |
| 1005 | Jolly | Francis | Chef | +91806747521 | 2018-01-01 | F | 1970-10-10 | Jolly villa Bangalore | 500000.00 | Masters |
| 1006 | Ambily | Francis | Chef | +91806747521 | 2018-07-01 | F | 1977-10-10 | ABC villa Bangalore | 100000.00 | Masters |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.06 sec)

mysql>
mysql> select Fname, Lname, Sex from employee where Employee_id = (select Employee_id from employee where Employee_id = 1004);
+-----+-----+-----+
| Fname | Lname | Sex |
+-----+-----+-----+
| Asha | Tampl | F |
+-----+-----+-----+
1 row in set (0.01 sec)
```

Equal to

```
mysql> select Fname, Lname, Sex from employee group by Phone_no having min(Basic_salary) = (select min(Basic_salary) from employee where Employee_id = 1004);
+-----+-----+-----+
| Fname | Lname | Sex |
+-----+-----+-----+
| Jolly | Francis | F |
| Ambily | Francis | F |
+-----+-----+-----+
2 rows in set (0.01 sec)

mysql>
```

Greater than

```
mysql> select Fname, Lname, Sex from employee group by Phone_no having min(Basic_salary) > (select min(Basic_salary) from employee where Employee_id = 1004);
+-----+-----+-----+
| Fname | Lname | Sex |
+-----+-----+-----+
| Allen | Grace | M |
| Anitta | Aldrin | F |
| Asha | Tampl | F |
+-----+-----+-----+
3 rows in set (0.01 sec)

mysql>
```

Greater or equal to

```
mysql> select Fname, Lname, Sex from employee group by Phone_no having min(Basic_salary) >= (select min(Basic_salary) from employee where Employee_id = 1004);
+-----+-----+-----+
| Fname | Lname | Sex |
+-----+-----+-----+
| Allen | Grace | M |
| Anitta | Aldrin | F |
| Asha | Tampl | F |
| Deepak | A | M |
+-----+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

Subqueries in from clause

```
mysql> select Join_date, Name from (select Hire_date as Join_date, Fname as Name from employee) as employee where Name = 'Ambily';
+-----+-----+
| Join_date | Name |
+-----+-----+
| 2018-07-01 | Ambily |
+-----+-----+
1 row in set (0.00 sec)

mysql>
```

Multiple row subqueries

Using in

```
mysql> select Order_id, Order_date, Total_price from Order_details where Menu_id in (select Menu_id from Menu where Type = "Hyderabadi");
+-----+-----+-----+
| Order_id | Order_date | Total_price |
+-----+-----+-----+
| 10005 | 2021-05-10 | 150 |
| 10002 | 2021-05-01 | 700 |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

Using Any

```
mysql> select Order_id, Order_date, Total_price from Order_details where Menu_id = any (select Menu_id from Menu where Type = "Hyderabadi");
+-----+-----+-----+
| Order_id | Order_date | Total_price |
+-----+-----+-----+
| 10005 | 2021-05-10 | 150 |
| 10002 | 2021-05-01 | 700 |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select Order_id, Order_date, Total_price from Order_details where Menu_id = any (select Menu_id from Menu where Type = "Arab");
Empty set (0.00 sec)
```

Using all

```
mysql> select Order_id, Order_date, Total_price from Order_details where Menu_id = ALL (select Menu_id from Menu where Type = "ITALIAN");
+-----+-----+-----+
| Order_id | Order_date | Total_price |
+-----+-----+-----+
| 10004 | 2021-01-08 | 500 |
+-----+-----+-----+
1 row in set (0.01 sec)

mysql>
```

Correlated subquery

Exists

```
mysql> select Fname, Shifting, Phone_no, specialisation from chef_details C where exists (select * from chef_details where Chef_id=C.Chef_id);
+-----+-----+-----+-----+
| Fname | Shifting | Phone_no | specialisation |
+-----+-----+-----+-----+
| Alex | Morning | +929825483937 | Sausier |
| Anita | Morning | +929825483938 | Sausier |
| Jilly | Evening | +929806747571 | Pastry |
| Abdul | Night | +929806747521 | Pastry |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

Not exists

```
mysql> select Order_id, Order_date, Total_price from Order_details as O where not exists( (select * from Menu as M where O.Menu_id = M.Menu_id and Type = "Arab"));
+-----+-----+-----+
| Order_id | Order_date | Total_price |
+-----+-----+-----+
| 10001 | 2021-01-01 | 100 |
| 10002 | 2021-01-02 | 700 |
| 10003 | 2021-01-03 | 10 |
| 10004 | 2021-01-08 | 500 |
| 10005 | 2021-01-10 | 150 |
+-----+-----+-----+
5 rows in set (0.00 sec)

mysql>
```