SubQueries

- Syntax:

```
SELECT columns
FROM table
WHERE expression
          (SELECT coulmns
           FROM table);
```

Example 1

- Find the name (first_name, last_name) and the salary of the employees who have a higher salary than the employee whose last_name='Bull'.

```
SELECT FIRST_NAME, LAST_NAME, SALARY
FROM employees
WHERE SALARY > (SELECT salary
                FROM employees
                WHERE last_name = 'Bull');
```

Example 2

- Find the name (first_name, last_name) of all employees who works in the IT department.

```
SELECT first_name, last_name
FROM employees
WHERE department_id
IN (SELECT department_id
      FROM departments
      WHERE department_name='IT');
```

Example 3

- Find the name (first_name, last_name) of the employees who have a manager and worked in a USA based department.

```
SELECT first_name, last_name FROM employees
WHERE manager_id in
      (select employee_id FROM employees
      WHERE department_id
      IN (SELECT department_id
            FROM departments WHERE location_id
            IN (SELECT location_id FROM locations
                  WHERE country_id='US')));
```

Example 4

- Find the name (first_name, last_name) of the employees who are managers.

```
SELECT first_name, last_name
FROM employees
WHERE (employee_id IN (SELECT manager_id FROM
                       employees));
```

Example 5

- Find the name (first_name, last_name), and salary of the employees whose salary is greater than the average salary.

```
SELECT first_name, last_name, salary
FROM employees
WHERE salary > (SELECT AVG(salary) FROM
            employees);
```

Example 6

- Find the name (first_name, last_name), and salary of the employees whose salary is equal to the minimum salary for their job grade.

```
SELECT first_name, last_name, salary
FROM employees
WHERE employees.salary = (SELECT min_salary
            FROM jobs
            WHERE employees.job_id = jobs.job_id);
```

Example 7

- Find the name (first_name, last_name), and salary of the employees who earns more than the average salary and works in any of the IT departments.

```
SELECT first_name, last_name, salary
FROM employees
WHERE department_id IN (SELECT department_id
      FROM  departments
      WHERE department_name LIKE 'IT%')
      AND salary > (SELECT avg(salary)
                    FROM employees);
```

Example 8

- Find the name (first_name, last_name), and salary of the employees who earns more than the earning of Mr. Bell.

```
SELECT first_name, last_name, salary
FROM employees
WHERE salary > (SELECT salary FROM employees
                WHERE last_name = 'Bell')
                ORDER BY first_name;
```

Example 9

- Find the name (first_name, last_name), and salary of the employees who earn the same salary as the minimum salary for all departments.

```
SELECT * FROM employees
WHERE salary = (SELECT MIN(salary)
                FROM employees);
```

Example 10

- Find the name (first_name, last_name), and salary of the employees whose salary is greater than the average salary of all departments.

```
SELECT * FROM employees
WHERE salary > ALL(SELECT avg(salary)
                   FROM employees
                   GROUP BY department_id);
```

Example 11

- Find the name (first_name, last_name) and salary of the employees who earn a salary that is higher than the salary of all the Shipping Clerk (JOB_ID = 'SH_CLERK'). Sort the results of the salary of the lowest to highest.

```
SELECT first_name,last_name, job_id, salary
FROM employees WHERE salary >
      ALL (SELECT salary FROM employees
      WHERE job_id = 'SH_CLERK') ORDER BY salary ;
```

Example 12

- Find the name (first_name, last_name) of the employees who are not supervisors.

```
SELECT b.first_name,b.last_name
FROM employees b WHERE NOT EXISTS
       (SELECT 'X' FROM employees a
      WHERE a.manager_id = b.employee_id);
```

Example 13

- Display the employee ID, first name, last name, and department names of all employees.

```
SELECT employee_id, first_name, last_name,
(SELECT department_name FROM departments d
WHERE e.department_id = d.department_id)
department
FROM employees e ORDER BY department;
```

Example 14

- Display the employee ID, first name, last name, salary of all employees whose salary is above average for their departments.

```
SELECT employee_id, first_name
FROM employees AS A
WHERE salary > ( SELECT AVG(salary) FROM employees
      WHERE department_id = A.department_id);
```

Example 15

- Fetch even numbered records from employees table.

```
SET @i = 0; SELECT i, employee_id
FROM (SELECT @i := @i + 1 AS i, employee_id
      FROM employees) a WHERE MOD(a.i, 2) = 0;
```

Example 16

- Find the 5th maximum salary in the employees table.

```
SELECT DISTINCT salary FROM employees e1
WHERE 5 = (SELECT COUNT(DISTINCT salary)
             FROM employees  e2
             WHERE e2.salary >= e1.salary);
```

Example 17

- Find the 4th minimum salary in the employees table.

```
SELECT DISTINCT salary FROM employees e1
WHERE 4 = (SELECT COUNT(DISTINCT salary)
             FROM employees  e2
             WHERE e2.salary <= e1.salary);
```

Example 18

- Select last 10 records from a table.

```
SELECT * FROM (SELECT * FROM employees
      ORDER BY employee_id DESC LIMIT 10) sub
      ORDER BY employee_id ASC;
```

Example 19

- List the department ID and name of all the departments where no employee is working.

```
SELECT * FROM departments
      WHERE department_id NOT IN (select
      department_id FROM employees);
```

Example 20

- Get 3 maximum salaries.

```
SELECT DISTINCT salary FROM employees a
WHERE  3 >= (SELECT COUNT(DISTINCT salary)
             FROM employees b
             WHERE b.salary >= a.salary)
             ORDER BY a.salary DESC;
```

Example 21

- Get 3 minimum salaries.

```
SELECT DISTINCT salary FROM employees a
WHERE  3 >= (SELECT COUNT(DISTINCT salary)
             FROM employees b
             WHERE b.salary <= a.salary)
             ORDER BY a.salary DESC;
```

Example 22

- Get 5th max salaries of employees.

```
SELECT * FROM employees emp1
WHERE (5) = (SELECT COUNT(DISTINCT(emp2.salary))
             FROM employees emp2
             WHERE emp2.salary > emp1.salary);
```