VIT-AP UNIVERSITY

School Of Computer Science and Engineering

Assignment 4

(**Winter Sem 2021-2022)**

Course Code: CSE2007 **Course Title:** Database Management Systems

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Aim: To understand subquery in SQL

Table Name: Employee

EMP_ID	EMP_NAME	DESIGNATION	MANAGER_ID	DOJ	DEPT_ID	SALARY	GENDER
1008	Kiran	Principal	**1008**	1978-02-01	DEPT_1004	99000.00	M
1001	Akash	Salesman	1008	1991-07-15	DEPT_1003	35000.00	M
1002	Rishabh	Manager	1008	1992-05-23	DEPT_1001	65000.00	M
1004	Ridhi	Manager	1008	1987-11-22	DEPT_1001	85000.00	F
1003	Rihan	Analyst	1004	1991-07-15	DEPT_1001	55000.00	M
1007	Seema	Manager	1008	1991-07-15	DEPT_1001	65000.00	F
1005	Sajal	Salesman	1007	1991-07-15	DEPT_1003	35000.00	M
1006	Biki	Salesman	1002	1999-11-26	DEPT_1003	25000.00	F

```
CREATE TABLE EMPLOYEE_20BCD7171(
EMP_ID NUMERIC(4),
EMP_NAME VARCHAR(15),
DESIGNATION VARCHAR(15), MANAGER_ID NUMERIC(4),
DOJ DATE,
DEPT_ID VARCHAR(15),
SALARY FLOAT,
GENDER CHAR(1)
);
SELECT * FROM EMPLOYEE_20BCD7171;

CREATE TABLE DEPARTMENT_20BCD7171(
```

pt Output × | Query Result ×

SQL | All Rows Fetched: 0 in 0.01 seconds

EMP_ID	EMP_NA...	DESIGN...	MANAGE...	DOJ	DEPT_ID	SALARY	GENDER

```
INSERT INTO EMPLOYEE_20BCD7171 VALUES(1008, 'Kiran', 'Principal',1008,'1-FEB1987', 'DEPT_1004',99000.00, 'M');
INSERT INTO EMPLOYEE_20BCD7171 VALUES(1001, 'Akash', 'Salesman',1008,'15-JUL-1991', 'DEPT_1003',35000.00, 'M');
INSERT INTO EMPLOYEE_20BCD7171 VALUES (1002, 'Rishabh','Manager',1008,'23-MAY-1992', 'DEPT_1001',65000.00, 'M');
INSERT INTO EMPLOYEE_20BCD7171 VALUES (1003, 'Rihan','Analyst',1004,'15-JUL-1991','DEPT_1001',55000.00, 'M');
INSERT INTO EMPLOYEE_20BCD7171 VALUES (1007, 'Seema', 'Manager',1008,'15-JUL1991', 'DEPT_1001',65000.00, 'F');
INSERT INTO EMPLOYEE_20BCD7171 VALUES (1004, 'Ridhi', 'Manager',1008, '22-NOV-1987', 'DEPT_1001',85000.00, 'F');
INSERT INTO EMPLOYEE_20BCD7171 VALUES (1005, 'Sajal', 'Salesman',1007, '15-JUL-1991', 'DEPT_1003',35000.00, 'M');
INSERT INTO EMPLOYEE_20BCD7171 VALUES(1006, 'Biki', 'Salesman',1002, '26-NOV-1999', "DEPT_1003",25000.00, 'F');
SELECT * FROM EMPLOYEE_20BCD7171;

INSERT INTO DEPARTMENT_20BCD7171 VALUES ('DEPT_1001', 'Human Resource', 'Delhi',1111);
INSERT INTO DEPARTMENT_20BCD7171 VALUES('DEPT_1002', 'Production', 'Kolkata',2222);
INSERT INTO DEPARTMENT_20BCD7171 VALUES ('DEPT_1003', 'Marketing', 'Kerala',3333);
INSERT INTO DEPARTMENT_20BCD7171 VALUES ('DEPT_1004', 'Audit', 'Noida',4444);
INSERT INTO DEPARTMENT_20BCD7171 VALUES ('DEPT_1005', 'Finance', 'Andhra Pradesh',5555);
SELECT * FROM DEPARTMENT_20BCD7171;
```

ript Output × | Query Result × | Query Result 1 × | Query Result 2 ×

SQL | All Rows Fetched: 7 in 0.002 seconds

	EMP_ID	EMP_NAME	DESIGNATION	MANAGER_ID	DOJ	DEPT_ID	SALARY	GENDER
1	1008	Kiran	Principal	1008	01-FEB-87	DEPT_1004	99000	M
2	1001	Akash	Salesman	1008	15-JUL-91	DEPT_1003	35000	M
3	1002	Rishabh	Manager	1008	23-MAY-92	DEPT_1001	65000	M
4	1003	Rihan	Analyst	1004	15-JUL-91	DEPT_1001	55000	M
5	1007	Seema	Manager	1008	15-JUL-91	DEPT_1001	65000	F
6	1004	Ridhi	Manager	1008	22-NOV-87	DEPT_1001	85000	F
7	1005	Sajal	Salesman	1007	15-JUL-91	DEPT_1003	35000	M

Table Name: Department

DEPT_NUM	DEPT_NAME	DEPT_LOCATION	Phn_Num
DEPT_1001	Human Resource	Delhi	1111
DEPT_1002	Production	Kolkata	2222
DEPT_1003	Marketing	Kerala	3333
DEPT_1004	Audit	Noida	4444
DEPT_1005	Finance	Andhra Pradesh	5555

```
CREATE TABLE DEPARTMENT_20BCD7171(
DEPT_NUM VARCHAR(15),
DEPT_ID VARCHAR2(15),
DEPT_NAME VARCHAR2(15),
DEPT_LOCATION VARCHAR2(15),
PHN_NUM NUMERIC(10)
);
SELECT * FROM DEPARTMENT_20BCD7171;

INSERT INTO EMPLOYEE_20BCD7171 VALUES(1008, 'Kiran', 'Principal',1008,'1-FEB1987', 'DEPT_1004',99000.00, 'M');
```

ipt Output × | Query Result × | Query Result 1 ×

SQL | All Rows Fetched: 0 in 0.009 seconds

DEPT_N...	DEPT_ID	DEPT_N...	DEPT_L...	PHN_NUM

```
INSERT INTO DEPARTMENT_20BCD7171 VALUES ('DEPT_1001', 'Human Resource','DEPT_1001','Delhi',1111);
INSERT INTO DEPARTMENT_20BCD7171 VALUES('DEPT_1002', 'Production','DEPT_1002','Kolkata',2222);
INSERT INTO DEPARTMENT_20BCD7171 VALUES ('DEPT_1003', 'Marketing','DEPT_1003','Kerala',3333);
INSERT INTO DEPARTMENT_20BCD7171 VALUES ('DEPT_1004', 'Audit','DEPT_1004','Noida',4444);
INSERT INTO DEPARTMENT_20BCD7171 VALUES ('DEPT_1005', 'Finance','DEPT_1005','Andhra Pradesh',5555);
SELECT * FROM DEPARTMENT_20BCD7171;

ALTER TABLE EMPLOYEE_20BCD7171 ADD PRIMARY KEY (EMP_ID);
```

cript Output × | Query Result × | Query Result 1 × | Query Result 2 × | Query Result 3 × | Query Result 4 ×

SQL | All Rows Fetched: 5 in 0.004 seconds

	DEPT_NUM	DEPT_ID	DEPT_NAME	DEPT_LOCATION	PHN_NUM
1	DEPT_1001	Human Resource	DEPT_1001	Delhi	1111
2	DEPT_1002	Production	DEPT_1002	Kolkata	2222
3	DEPT_1003	Marketing	DEPT_1003	Kerala	3333
4	DEPT_1004	Audit	DEPT_1004	Noida	4444
5	DEPT_1005	Finance	DEPT_1005	Andhra Pradesh	5555

Questions

1. Write a SQL query to create Employee and Department tables with the following fields and values. **Constraints:**

   i) EMP_ID is the Primary Key of EMPLOYEE Table.

```
ALTER TABLE EMPLOYEE_20BCD7171 ADD PRIMARY KEY (EMP_ID);
SELECT * FROM EMPLOYEE_20BCD7171;
```

cript Output × | Query Result × | Query Result 1 × | Query Result 2 × | Query Result 3 × | Query R

SQL | All Rows Fetched: 7 in 0.007 seconds

	EMP_ID	EMP_NAME	DESIGNATION	MANAGER_ID	DOJ	DEPT_ID	SALARY	GENDER
1	1008	Kiran	Principal	1008	01-FEB-87	DEPT_1004	99000	M
2	1001	Akash	Salesman	1008	15-JUL-91	DEPT_1003	35000	M
3	1002	Rishabh	Manager	1008	23-MAY-92	DEPT_1001	65000	M
4	1003	Rihan	Analyst	1004	15-JUL-91	DEPT_1001	55000	M
5	1007	Seema	Manager	1008	15-JUL-91	DEPT_1001	65000	F
6	1004	Ridhi	Manager	1008	22-NOV-87	DEPT_1001	85000	F
7	1005	Sajal	Salesman	1007	15-JUL-91	DEPT_1003	35000	M

   ii) MANAGER_ID is the Foreign Key referring to the Primary key EMP_ID.

```
ALTER TABLE EMPLOYEE_20BCD7171 ADD CONSTRAINT FK_EID FOREIGN KEY (MANAGER_ID) REFERENCES EMPLOYEE_20BCD7171 (EMP_ID);
SELECT * FROM EMPLOYEE_20BCD7171;

ALTER TABLE DEPARTMENT_20BCD7171 ADD PRIMARY KEY (DEPT_NUM);
```

Query Result | Query Result 1 | Query Result 2 | Query Result 3 | Query Result 4 | Query Result 5

SQL | All Rows Fetched: 7 in 0.009 seconds

	EMP_ID	EMP_NAME	DESIGNATION	MANAGER_ID	DOJ	DEPT_ID	SALARY	GENDER
1	1008	Kiran	Principal	1008	01-FEB-87	DEPT_1004	99000	M
2	1001	Akash	Salesman	1008	15-JUL-91	DEPT_1003	35000	M
3	1002	Rishabh	Manager	1008	23-MAY-92	DEPT_1001	65000	M
4	1003	Rihan	Analyst	1004	15-JUL-91	DEPT_1001	55000	M
5	1007	Seema	Manager	1008	15-JUL-91	DEPT_1001	65000	F
6	1004	Ridhi	Manager	1008	22-NOV-87	DEPT_1001	85000	F
7	1005	Sajal	Salesman	1007	15-JUL-91	DEPT_1003	35000	M

iii) DEPT_ID is the Foreign key referring to the Primary key DEPT_NUM of DEPARTMENT table.

```
ALTER TABLE DEPARTMENT_20BCD7171 ADD PRIMARY KEY (DEPT_NUM);
ALTER TABLE DEPARTMENT_20BCD7171 ADD CONSTRAINT fk_DEPT FOREIGN KEY(DEPT_ID) REFERENCES DEPARTMENT_20BCD7171(DEPT_NUM);
SELECT * FROM DEPARTMENT_20BCD7171;
```

Query Result | Query Result 1 | Query Result 2 | Query Result 3 | Query Result 4 | Query Result 5

SQL | All Rows Fetched: 5 in 0.009 seconds

	DEPT_NUM	DEPT_ID	DEPT_NAME	DEPT_LOCATION	PHN_NUM
1	DEPT_1001	Human Resource	DEPT_1001	Delhi	1111
2	DEPT_1002	Production	DEPT_1002	Kolkata	2222
3	DEPT_1003	Marketing	DEPT_1003	Kerala	3333
4	DEPT_1004	Audit	DEPT_1004	Noida	4444
5	DEPT_1005	Finance	DEPT_1005	Andhra Pradesh	5555

2. Write a SQL query to find out the names of all employees who belongs to the same department as the employee 'Rishabh' who has an emp_ID 1002.

select emp_name from employee where dept_id = (select dept_id from employee where emp_name = 'Rishabh' AND emp_id = 1002).

```
select emp_name from employee_20BCD7171 where dept_id = (select dept_id from employee_20BCD7171 where emp_name = 'Rishabh' AND emp_id = 1002);
```

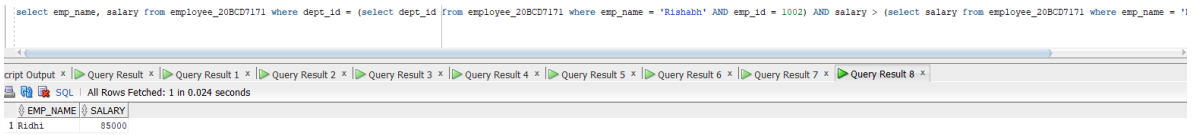
Query Result | Query Result 1 | Query Result 2 | Query Result 3 | Query Result 4 | Query Result 5 | Query Result 6

SQL | All Rows Fetched: 4 in 0.029 seconds

	EMP_NAME
1	Rishabh
2	Rihan
3	Seema
4	Ridhi

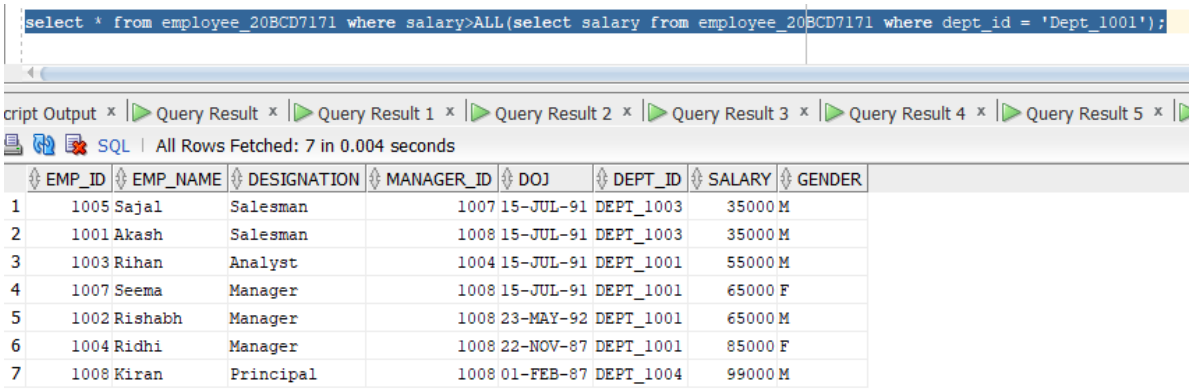
3. Write a SQL query to find out the employees who belongs to the department of 'Rishabh' and have salary greater than the salary of 'Rishabh' who has an emp_ID 1002.

select emp_name, salary from employee where dept_id = (select dept_id from employee where emp_name = 'Rishabh' AND emp_id = 1002) AND salary > (select salary from employee where emp_name = 'Rishabh' AND emp_id = 1002);



4. Write a SQL query to find out all the employees who have salary greater than all the employees in the department Dept_1001.

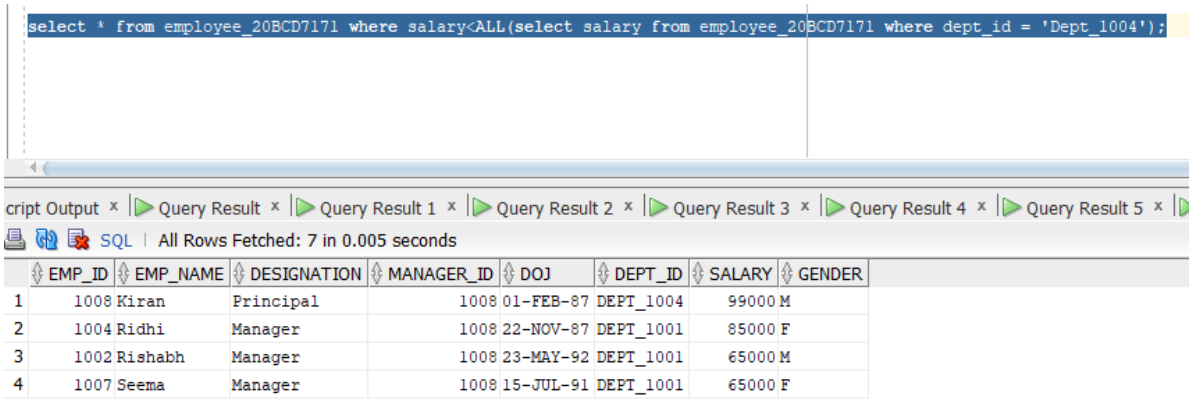
select * from employee where salary>ALL (select salary from employee where dept_id = 'Dept_1001');



	EMP_ID	EMP_NAME	DESIGNATION	MANAGER_ID	DOJ	DEPT_ID	SALARY	GENDER
1	1005	Sajal	Salesman	1007	15-JUL-91	DEPT_1003	35000	M
2	1001	Akash	Salesman	1008	15-JUL-91	DEPT_1003	35000	M
3	1003	Rihan	Analyst	1004	15-JUL-91	DEPT_1001	55000	M
4	1007	Seema	Manager	1008	15-JUL-91	DEPT_1001	65000	F
5	1002	Rishabh	Manager	1008	23-MAY-92	DEPT_1001	65000	M
6	1004	Ridhi	Manager	1008	22-NOV-87	DEPT_1001	85000	F
7	1008	Kiran	Principal	1008	01-FEB-87	DEPT_1004	99000	M

5. Write a SQL query to find out all the employees who have salary lesser than the salary of all the employees in the department Dept_1004.

select * from employee where salary<ALL(select salary from employee where dept_id = 'Dept_1004');



	EMP_ID	EMP_NAME	DESIGNATION	MANAGER_ID	DOJ	DEPT_ID	SALARY	GENDER
1	1008	Kiran	Principal	1008	01-FEB-87	DEPT_1004	99000	M
2	1004	Ridhi	Manager	1008	22-NOV-87	DEPT_1001	85000	F
3	1002	Rishabh	Manager	1008	23-MAY-92	DEPT_1001	65000	M
4	1007	Seema	Manager	1008	15-JUL-91	DEPT_1001	65000	F
5	1003	Rihan	Analyst	1004	15-JUL-91	DEPT_1001	55000	M
6	1001	Akash	Salesman	1008	15-JUL-91	DEPT_1003	35000	M
7	1005	Sajal	Salesman	1007	15-JUL-91	DEPT_1003	35000	M

6. Write a SQL query to display the employee id and name for all employees who work in a department with any employee whose name contains a letter J.

select emp_name, emp_id from employee where dept_id = (select dept_id from employee where emp_name Like '%J%');

```
select emp_name, emp_id from employee_20BCD7171 where dept_id = (select dept_id from employee_20BCD7171 where emp_name Like '%J%');
```

Query Result | Query Result 1 | Query Result 2 | Query Result 3 | Query Result 4 | Query Result 5 | Query Result 6

SQL | All Rows Fetched: 7 in 0.005 seconds

	EMP_ID	EMP_NAME	DESIGNATION	MANAGER_ID	DOJ	DEPT_ID	SALARY	GENDER
1	1008	Kiran	Principal	1008	01-FEB-87	DEPT_1004	99000	M
2	1004	Ridhi	Manager	1008	22-NOV-87	DEPT_1001	85000	F
3	1002	Rishabh	Manager	1008	23-MAY-92	DEPT_1001	65000	M
4	1007	Seema	Manager	1008	15-JUL-91	DEPT_1001	65000	F
5	1003	Rihan	Analyst	1004	15-JUL-91	DEPT_1001	55000	M
6	1001	Akash	Salesman	1008	15-JUL-91	DEPT_1003	35000	M
7	1005	Sajal	Salesman	1007	15-JUL-91	DEPT_1003	35000	M

7. Write a SQL query to display 4th max salary of the employee using subquery.
SELECT emp_name, salary FROM Employee e1 WHERE 4-1 = (SELECT COUNT(DISTINCT (salary)) FROM Employee e2 WHERE e2.salary > e1.salary);

******** Nth highest salary*************

SELECT name, salary FROM Employee e1 WHERE N-1 = (SELECT COUNT (DISTINCT salary) FROM Employee e2 WHERE e2.salary > e1.salary)

```
SELECT emp_name, salary FROM Employee_20BCD7171 e1 WHERE 4-1= (SELECT COUNT(DISTINCT (salary)) FROM Employee_20BCD7171 e2 WHERE e2.salary > e1.salary);
```

Query Result | Query Result 1 | Query Result 2 | Query Result 3 | Query Result 4 | Query Result 5 | Query Result 6 | Query Result 7

SQL | All Rows Fetched: 1 in 0.013 seconds

	EMP_NAME	SALARY
1	Rihan	55000

8. Find out department details like department name, department location and phone number having the employee who get maximum salary.

select dept_name, dept_location, phn_num from department where dept_num = (select dept_id from employee where salary = (select max(salary) from employee));

```
select dept_name, dept_location, phn_num from department_20BCD7171 where dept_num = (select dept_id from employee_20BCD7171 where salary = (select max(salary) from employee_20BCD7171));
```

Query Result | Query Result 1 | Query Result 2 | Query Result 3 | Query Result 4 | Query Result 5 | Query Result 6 | Query Result 7 | Query Result 8

SQL | All Rows Fetched: 1 in 0.009 seconds

	DEPT_NAME	DEPT_LOCATION	PHN_NUM
1	DEPT_1004	Noida	4444

9. Write a SQL query to list the department names which are having more than 2 employees using subquery.

select dept_num, dept_name, dept_location from department where dept_num IN (select dept_id from employee group by dept_id having count(dept_id)>2);