KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY (KIIT)

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DBMS LAB ASSIGNMENT 6

Name :- Abhishek Kumar Tiwari

Roll No:- 21051449

Date:- 23rd March 2023

Sec:- CSE19

Q. Use the Corporation database tables to design the following subqueries.

```
CREATE TABLE Employee (
 EmployeeID INTEGER PRIMARY KEY,
 Lname VARCHAR(50),
 Fname VARCHAR(50),
 DepartmentID INTEGER,
 SupervisorID INTEGER,
 Qualification VARCHAR(50),
 HireDate DATE,
 Salary decimal(10,2)
);
```

```
INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (101, 'Shaw', 'Jinku', 10, 102, 'BSc', '2010-07-16', 50000);

INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (102, 'Jones', 'Jane', 10, NULL, 'MSc', '2005-06-14', 75000);

INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (201, 'Davis', 'David', 20, 202, 'PhD', '2005-03-19', 80000);

INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (202, 'Lee', 'Lisa', 20, NULL, 'MBA', '2012-08-12', 60000);

INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (301, 'Garcia', 'Gabriel', 30, 302, 'MSc', '2009-09-12', 90000);
```

INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (302, 'Kim', 'Karen', 30, NULL, 'BSc', '2005-12-14', 70000);

INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (401, 'Brown', 'Brian', 40, 402, 'MBA', '2021-06-14', 95000);

INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (402, 'Taylor', 'Tyler', 40, NULL, 'BSc', '2012-12-12', 65000);

INSERT INTO Employee (EmployeeID, Lname, Fname, DepartmentID, SupervisorID, Qualification, HireDate, Salary) VALUES (403, 'Tay', 'Tyler', 40, NULL, 'BSc', '2008-12-12', 6500);

EmployeeID	Lname	Fname	DepartmentID	SupervisorID	Qualification	HireDate	Salary
101	Shaw	Jinku	10	102	BSc	2010-07-16	50000.00
102	Jones	Jane	10	NULL	MSc	2005-06-14	75000.00
201	Davis	David	20	202	PhD	2005-03-19	80000.00
202	Lee	Lisa	20	NULL	MBA	2012-08-12	60000.00
301	Garcia	Gabriel	30	302	MSc	2009-09-12	90000.00
302	Kim	Karen	30	NULL	BSc	2005-12-14	70000.00
401	Brown	Brian	40	402	MBA	2021-06-14	95000.00
402	Taylor	Tyler	40	NULL	BSc	2012-12-12	65000.00
403	Tay	Tyler	40	NULL	BSc	2008-12-12	6500.00
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

CREATE TABLE Department (

DepartmentID INTEGER PRIMARY KEY,

DepartmentName VARCHAR(50)

);

INSERT INTO Department (DepartmentID, DepartmentName) VALUES (10, 'Sales');

INSERT INTO Department (DepartmentID, DepartmentName) VALUES (20, 'Marketing');

INSERT INTO Department (DepartmentID, DepartmentName) VALUES (30, 'Engineering');

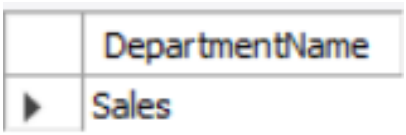
INSERT INTO Department (DepartmentID, DepartmentName) VALUES (40, 'Finance');

DepartmentID	DepartmentName
10	Sales
20	Marketing
30	Engineering
40	Finance
NULL	NULL

1. **Display employee Jinku Shaw's department name.**

```
SELECT DepartmentName
FROM Employee
JOIN Department ON Employee.DepartmentID = Department.DepartmentID
```

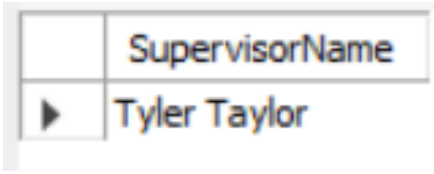
```
WHERE Employee.Lname = 'Shaw' AND Employee.Fname = 'Jinku';
```



	DepartmentName
▶	Sales

2. Find name of the supervisor for employee number 401.

```
SELECT CONCAT(e1.Fname, ' ', e1.Lname) AS SupervisorName
FROM Employee e1
JOIN Employee e2 ON e1.EmployeeID = e2.SupervisorID
WHERE e2.EmployeeID = 401;
```



	SupervisorName
▶	Tyler Taylor

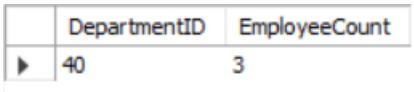
3. Who has same qualification as Stanley Garner?

```
SELECT CONCAT(Fname, ' ', Lname) AS EmployeeName
FROM Employee
WHERE Qualification = (
   SELECT Qualification
   FROM Employee
   WHERE Lname = 'Shaw' AND Fname = 'Jinku'
);
```

	EmployeeName
▶	Jinku Shaw
	Karen Kim
	Tyler Taylor
	Tyler Tay

4. Which department has more employees than department 20?

```
SELECT DepartmentID, COUNT(*) AS EmployeeCount
FROM Employee
GROUP BY DepartmentID
HAVING COUNT(*) > (
   SELECT COUNT(*)
   FROM Employee
   WHERE DepartmentID = 20
);
```



	DepartmentID	EmployeeCount
▶	40	3

5. Which employees are working in the company longer than Larry Houston?

```
SELECT CONCAT(Fname, ' ', Lname) AS EmployeeName, HireDate
FROM Employee
WHERE HireDate < (
   SELECT HireDate
   FROM Employee
   WHERE Lname = 'Kim' AND Fname = 'Karen'
);
```

EmployeeName	HireDate
Jane Jones	2005-06-14
David Davis	2005-03-19

6. Find all employees in the sales department by using a nested query.

```
SELECT CONCAT(Fname, ' ', Lname) AS EmployeeName
FROM Employee
WHERE DepartmentID = (
   SELECT DepartmentID
   FROM Department
   WHERE DepartmentName = 'Sales'
);
```

EmployeeName
Jinku Shaw
Jane Jones

7. Create a new table, EMP30, and populate it with employees in department 30, using an existing table and a subquery. Use EmployeeId, Lname, Fname, HireDate and Salary columns.

```
CREATE TABLE EMP30 (
   EmployeeID INT,
   Lname VARCHAR(50),
   Fname VARCHAR(50),
   HireDate DATE,
   Salary DECIMAL(10,2)
);

INSERT INTO EMP30 (EmployeeID, Lname, Fname, HireDate, Salary)
SELECT EmployeeID, Lname, Fname, HireDate, Salary
FROM Employee
WHERE DepartmentID = (
   SELECT DepartmentID
   FROM Department
   WHERE DepartmentName = 'Marketing'
```

);

EmployeeID	Lname	Fname	HireDate	Salary
201	Davis	David	2005-03-19	80000.00
202	Lee	Lisa	2012-08-12	60000.00

8. Add more rows to EMP30 table with employee in department 40. Do not transfer employee's salary.

```
INSERT INTO EMP30 (EmployeeID, Lname, Fname, HireDate)
SELECT EmployeeID, Lname, Fname, HireDate
FROM Employee
WHERE DepartmentID = 40;
```

EmployeeID	Lname	Fname	HireDate	Salary
201	Davis	David	2005-03-19	80000.00
202	Lee	Lisa	2012-08-12	60000.00
201	Davis	David	2005-03-19	80000.00
202	Lee	Lisa	2012-08-12	60000.00
401	Brown	Brian	2021-06-14	NULL
402	Taylor	Tyler	2012-12-12	NULL
403	Tay	Tyler	2008-12-12	NULL

9. Find employees with minimum salary in their own department with the use of correlated subquery.

```
SELECT E1.EmployeeID, E1.Lname, E1.Fname, E1.DepartmentID, E1.Salary
FROM Employee E1
WHERE E1.Salary = (
   SELECT MIN(E2.Salary)
   FROM Employee E2
   WHERE E2.DepartmentID = E1.DepartmentID
);
```

EmployeeID	Lname	Fname	DepartmentID	Salary
101	Shaw	Jinku	10	50000.00
202	Lee	Lisa	20	60000.00
302	Kim	Karen	30	70000.00
403	Tay	Tyler	40	6500.00
NULL	NULL	NULL	NULL	NULL

10. Use multiple level subquery to display dependent information for employees, who belong to FINANCE department.

```
SELECT E.EmployeeID, E.Lname, E.Fname, D.Name AS Department,
     (SELECT COUNT(*) FROM Dependent WHERE EmployeeID = E.EmployeeID) AS
DependentCount,
     (SELECT COUNT(*) FROM Dependent WHERE EmployeeID = E.EmployeeID) / COUNT(*)
OVER() AS DependentRatio
FROM Employee E
JOIN Department D ON E.DepartmentID = D.DepartmentID
WHERE D.Name = 'FINANCE';
```

11. Write a subquery that finds average salary by each department. Check to find if employee 543's salary satisfies =ANY, ANY, ALL condition against those departmental average salaries.

```
SELECT DepartmentID, AVG(Salary) AS AvgSalary
FROM Employee
GROUP BY DepartmentID;
```

DepartmentID	AvgSalary
10	62500.000000
20	70000.000000
30	80000.000000
40	55500.000000

```
SELECT e.EmployeeID, e.Lname, e.Fname, e.DepartmentID, e.Salary,
    AVG(s.Salary) AS AvgSalary
FROM Employee e
INNER JOIN Employee s ON e.DepartmentID = s.DepartmentID
WHERE e.EmployeeID = 543
GROUP BY e.EmployeeID, e.Lname, e.Fname, e.DepartmentID, e.Salary
HAVING e.Salary = ANY(SELECT AVG(Salary) FROM Employee WHERE
DepartmentID = e.DepartmentID)
  OR e.Salary < ANY(SELECT AVG(Salary) FROM Employee WHERE DepartmentID =
e.DepartmentID)
  OR e.Salary > ANY(SELECT AVG(Salary) FROM Employee WHERE DepartmentID =
e.DepartmentID)
  OR e.Salary < ALL(SELECT AVG(Salary) FROM Employee WHERE DepartmentID =
e.DepartmentID)
  OR e.Salary > ALL(SELECT AVG(Salary) FROM Employee WHERE DepartmentID =
e.DepartmentID);
```

EmployeeID	Lname	Fname	DepartmentID	Salary	AvgSalary
401	Brown	Brian	40	95000.00	55500.000000