TASK4:- Independent and correlated Nested queries

Aim:-

To implement and understand Nested queries in SQL, including independent and correlated subqueries, with practical examples in a university database scenario.

PROCEDURE

1. Create required tables (eg, students, Departments, courses, Enrollments).
2. Insert Sample data.
3. Write and execute independent nested queries.
4. Write and execute correlated nested queries.

EXPLANATION

A nested query (subquery) is a query written inside another query. It is used when the output of one query is required for another query.

Types of Nested queries

1. Independent (Simple) Nested queries

- The inner query runs once independently of the outer query.
- the result of the inner query is passed to the outer query.

Syntax:

```
SELECT column_list
FROM table
WHERE column OPERATOR (SELECT column FROM table WHERE condition)
```

Example 1: independent Nested query
Find student who belong to the same department as Alice.

```
SELECT student Name
FROM students
```

Answer output

Alice
charlie

output

Alice
Bob
charlie
David

O/P verified

```
SELECT DEPT ID
FROM Students
WHERE StudentName = "Alice"
);
```

Explanation.

- **Inner query**: gets Alice's DEPTID (say 101).
- **outer query**: finds all students with DEPT D = 101.

2. Correlated Nested Queries
   - The inner query is executed repeatedly, once for each row of the outer query.
   - inner query depends on a value from the outer query.

Syntax:
```
SELECT column - list
FROM table t1
WHERE EXISTS
  select t1
  from table. 2t2
  WHER EXIST SC
  SELECT 1
  FROM Enrollment se
  WHERE student condition involving t1. column = t2 Column,
);
```

Example 2: Correlated Nested Query
Find student who have enrolled in at least one course

```
SELECT 9, studentName
FROM students ss
WHERE EXIST.SC
  SELECT 1
  FROM Enrollment se
WHERE e StudentID = S, student ID
);
```

Explanation:
- for each student in the outer query the inner checks if that student exist in enrollment

Answered output :

Alice
Bob
Charlie
David

Result :

A list of employees whose salary is greater than the

average salary.