Experiment 2

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* Aim:

Department-Course Subquery and Access Control

* Theory:
* A **subquery** is a SELECT statement embedded within another SQL query. It executes before the main query and its output is used by the outer query—typically within the WHERE clause—for dynamic filtering. For example, it can help retrieve all employees working in the same department as 'John' without manually identifying his department ID first.
* **Access control** in databases ensures security by regulating user permissions. Using commands like GRANT to provide rights (e.g., SELECT, UPDATE) or REVOKE to withdraw them, administrators control who can view or modify specific data. This safeguards sensitive information and maintains the integrity of the database.
* SQL Queries:

1. To create two tables- Departments and courses:

create table departments(dept\_id int primary key,dept\_name varchar(50));

create table courses(course\_id int primary key, course\_name varchar(100), dept\_id int, foreign key(dept\_id) references departments(dept\_id));

1. To insert values into Departments and Courses and display the table:

insert into departments values(1,’Computer Science’),

(2,’Electrical’),(3,’Mechanical’),(4,’Civil’),(5,’Electronics’);

insert into courses values(101,'DBMS',1),(102,'Operating Systems',1),(103,'Power Systems',2),(104,'Digital Circuits',2),(105,'Thermodynamics',3),(106,'Fluid Mechanics',3),(107,'Structural Engineering',3),(108,'Surveying',4),(109,'Embedded Systems',5),(110,'VLSI Design',5);

select \* from departments;

select \* from courses;

1. Retrieve Departments Offering More Than Two Courses Using Subquery:

select dept\_name from departments where dept\_id in (select dept\_id from courses group by dept\_id having count(course\_name)>2);

1. Grant SELECT Access on Courses Table Using DCL

create user viewer\_user with password '123';

grant select on courses to viewer\_user;

* Result:









