

# Islamic University of Technology

**CSE 4308**

**Database Management Systems Lab**

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**Program: Software Engineering**

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## **Introduction:**

To ensure data security, view and role-based systems are employed in databases. A view is a technique for building a virtual table from one or more tables to grant a certain user access to view a specific area of the database. The goal of a view is to offer encapsulation, and a user cannot save data or make adjustments that last. SQL, however, offers server-level roles to control server permissions. It is a technique for managing rights when there are many users of the database.

## **Tasks:**

### **Task -1:**

```
CREATE OR REPLACE VIEW ADVISOR_SELECTION AS  
SELECT ID, NAME , dept_name  
FROM instructor;
```

### **Task- 2:**

```
CREATE OR REPLACE VIEW STUDENT_COUNT AS  
SELECT NAME, COUNT(s_ID) AS STD_COUNT  
FROM ADVISOR_SELECTION NATURAL JOIN ADVISOR  
WHERE ADVISOR_SELECTION.ID=ADVISOR.i_ID  
GROUP BY NAME;
```

### **Task -3:**

```
CREATE ROLE STUDENT;  
GRANT SELECT ON ADVISOR TO STUDENT;  
GRANT SELECT ON course TO STUDENT;  
GRANT CREATE SESSION TO STUDENT;
```

```
CREATE ROLE COURSE_TEACHER;  
GRANT SELECT ON student TO COURSE_TEACHER;  
GRANT SELECT ON course TO COURSE_TEACHER;  
GRANT CREATE SESSION TO COURSE_TEACHER;
```

```
CREATE ROLE HEAD_OF_THE_DEPARTMENT;  
GRANT COURSE_TEACHER TO HEAD_OF_THE_DEPARTMENT;  
GRANT INSERT ON instructor to HEAD_OF_THE_DEPARTMENT;  
GRANT CREATE SESSION TO HEAD_OF_THE_DEPARTMENT;
```

```
CREATE ROLE ADMINISTRATOR;  
GRANT SELECT ON department TO ADMINISTRATOR;  
GRANT SELECT ON instructor TO ADMINISTRATOR;  
GRANT UPDATE(budget) ON department TO ADMINISTRATOR;  
GRANT SESSION TO ADMINISTRATOR;
```

#### **Task-4:**

```
CREATE USER STD IDENTIFIED BY STD;  
GRANT STUDENT TO STD;
```

```
CREATE USER CT IDENTIFIED BY CT;  
GRANT COURSE_TEACHER TO CT;
```

```
CREATE USER HD IDENTIFIED BY HD;  
GRANT HEAD_OF_THE_DEPARTMENT TO HD;
```

```
CREATE USER ADMIN1 IDENTIFIED BY ADMIN1;  
GRANT ADMINISTRATOR TO ADMIN1;
```

```
CONN MUKIT/7445;  
SELECT * FROM mokit_200042170.advisor;  
SELECT * FROM mokit_200042170.course;  
SELECT * FROM mokit_200042170.section; /* DOES NOT WORK */  
DISC;
```

```
connect mokit_200042170/7445;
```

```
CONN CT/CT;  
SELECT * FROM mokit_200042170.student;  
SELECT * FROM mokit_200042170.course;  
SELECT * FROM mokit_200042170.department; /* DOES NOT WORK */  
DISC;
```

```
connect mokit_200042170/7445;  
CONN HD/HD;  
INSERT INTO instructor values('101','Abrar','LINEAR ALGEBRA',160000);  
SELECT * FROM mokit_200042170.student;  
SELECT * FROM mokit_200042170.course;  
DISC;
```

```
connect mokit_200042170/7445;  
CONN ADMIN1/ADMIN1;  
UPDATE mokit_200042170.DEPARTMENT SET BUDGET = 210000;  
SELECT * FROM mokit_200042170.DEPARTMENT;  
SELECT * FROM mokit_200042170.instructor;  
DISC;
```