DATABASE MANAGEMENT SYSTEMS – LABORATORY

AY: 2025-26 Sem – I

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**Class:** TE **Division**: \_6\_\_ **Batch:** \_L 6\_\_\_\_ Roll **No**: \_32173\_\_\_\_

**Assignment No: 5**

**Design and Develop SQL DDL statements which demonstrate the use of SQL objects such as Table, View, Index, Sequence and Synonym**

* DDL Commands: CREATE, DROP, ALTER, RENAME, TRUNCATE
* DML Commands: SELECT, INSERT, UPDATE, DELETE

For every command / sub question below:

* Paste screenshots of the commands and the executed queries
* In case of typical cases, demonstrate the errors
* Ensure use of your name and roll no for the databases
* Ensure your name appended with your last name for the creation of the tables

Total questions: 9

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|  | **Table Creation and Description commands:**  mysql> create table Department1 (  -> Department\_id int not null,  -> Dept\_name varchar(30),  -> Year\_of\_establishment int,  -> Enrolment\_no int,  -> primary key (Department\_id)  -> );  Query OK, 0 rows affected (0.85 sec)  mysql> insert into Department1 values  -> (1, 'Computer', 1989, 25001),  -> (2, 'IT', 1999, 25002),  -> (3, 'ENTC', 1995, 25003),  -> (4, 'ECE', 2005, 25004),  -> (5, 'AIDS', 2020, 25005);  Query OK, 5 rows affected (0.06 sec)  mysql> select \* from Department1;  +---------------+-----------+-----------------------+--------------+  | Department\_id | Dept\_name | Year\_of\_establishment | Enrolment\_no |  +---------------+-----------+-----------------------+--------------+  | 1 | Computer | 1989 | 25001 |  | 2 | IT | 1999 | 25002 |  | 3 | ENTC | 1995 | 25003 |  | 4 | ECE | 2005 | 25004 |  | 5 | AIDS | 2020 | 25005 |  +---------------+-----------+-----------------------+--------------+  5 rows in set (0.00 sec)  mysql> create table Course1 (  -> Course\_id int not null,  -> Course\_name varchar(30),  -> Credits int,  -> Department\_id int,  -> primary key (Course\_id),  -> foreign key (Department\_id) references Department1(Department\_id)  -> );  Query OK, 0 rows affected (1.10 sec)  mysql> insert into Course1 values  -> (101, 'DBMS', 4, 1),  -> (102, 'OOP', 3, 2),  -> (103, 'Signals', 4, 3),  -> (104, 'Networks', 3, 4),  -> (105, 'AI', 4, 5);  Query OK, 5 rows affected (0.08 sec)  mysql> select \* from Course1;  +-----------+-------------+---------+---------------+  | Course\_id | Course\_name | Credits | Department\_id |  +-----------+-------------+---------+---------------+  | 101 | DBMS | 4 | 1 |  | 102 | OOP | 3 | 2 |  | 103 | Signals | 4 | 3 |  | 104 | Networks | 3 | 4 |  | 105 | AI | 4 | 5 |  +-----------+-------------+---------+---------------+  5 rows in set (0.00 sec)  mysql> create table Student1 (  -> Student\_id int not null auto\_increment,  -> Fname varchar(20),  -> Lname varchar(20),  -> Gender varchar(10),  -> DOB date,  -> City varchar(20),  -> Mobile bigint,  -> Department\_id int,  -> Course\_id int,  -> primary key (Student\_id),  -> foreign key (Department\_id) references Department1(Department\_id),  -> foreign key (Course\_id) references Course1(Course\_id)  -> );  Query OK, 0 rows affected (0.60 sec)  mysql> insert into Student1(Fname,Lname,Gender,DOB,City,Mobile,Department\_id,Course\_id) values  -> ('Rahul','Patil','Male','2002-03-11','Pune',9876543210,1,101),  -> ('Sneha','Sharma','Female','2001-07-19','Mumbai',9876501234,2,102),  -> ('Amit','Deshmukh','Male','2000-12-05','Nagpur',9865123789,3,103),  -> ('Priya','Kadam','Female','2002-01-25','Pune',9856231470,4,104),  -> ('Rohit','Joshi','Male','2001-05-30','Nashik',9845632170,5,105);  Query OK, 5 rows affected (0.09 sec)  mysql> select \* from Student1;  +------------+-------+----------+--------+------------+--------+------------+---------------+-----------+  | Student\_id | Fname | Lname | Gender | DOB | City | Mobile | Department\_id | Course\_id |  +------------+-------+----------+--------+------------+--------+------------+---------------+-----------+  | 1 | Rahul | Patil | Male | 2002-03-11 | Pune | 9876543210 | 1 | 101 |  | 2 | Sneha | Sharma | Female | 2001-07-19 | Mumbai | 9876501234 | 2 | 102 |  | 3 | Amit | Deshmukh | Male | 2000-12-05 | Nagpur | 9865123789 | 3 | 103 |  | 4 | Priya | Kadam | Female | 2002-01-25 | Pune | 9856231470 | 4 | 104 |  | 5 | Rohit | Joshi | Male | 2001-05-30 | Nashik | 9845632170 | 5 | 105 |  +------------+-------+----------+--------+------------+--------+------------+---------------+-----------+  5 rows in set (0.00 sec)  mysql> create table Faculty1 (  -> E\_no int not null auto\_increment,  -> Fname varchar(25),  -> Lname varchar(25),  -> Gender varchar(10),  -> Date\_of\_joining date,  -> Course\_id int,  -> Department\_id int,  -> primary key (E\_no),  -> foreign key (Course\_id) references Course1(Course\_id),  -> foreign key (Department\_id) references Department1(Department\_id)  -> );  Query OK, 0 rows affected (0.67 sec)  mysql> insert into Faculty1(Fname,Lname,Gender,Date\_of\_joining,Course\_id,Department\_id) values  -> ('Arun','Kulkarni','Male','2010-06-01',101,1),  -> ('Meena','Desai','Female','2015-08-12',102,2),  -> ('Suresh','Naik','Male','2012-11-25',103,3),  -> ('Pooja','Verma','Female','2018-07-07',104,4),  -> ('Anil','Bhosale','Male','2019-02-19',105,5);  Query OK, 5 rows affected (0.07 sec)  mysql> select \* from Faculty1;  +-----+-------+----------+--------+----------------+-----------+---------------+  | E\_no| Fname | Lname | Gender | Date\_of\_joining| Course\_id | Department\_id |  +-----+-------+----------+--------+----------------+-----------+---------------+  | 1 | Arun | Kulkarni | Male | 2010-06-01 | 101 | 1 |  | 2 | Meena | Desai | Female | 2015-08-12 | 102 | 2 |  | 3 | Suresh| Naik | Male | 2012-11-25 | 103 | 3 |  | 4 | Pooja | Verma | Female | 2018-07-07 | 104 | 4 |  | 5 | Anil | Bhosale | Male | 2019-02-19 | 105 | 5 |  +-----+-------+----------+--------+----------------+-----------+---------------+  5 rows in set (0.00 sec)  mysql> create table Examination1 (  -> Student\_id int,  -> Course\_id int,  -> Marks int,  -> foreign key (Student\_id) references Student1(Student\_id),  -> foreign key (Course\_id) references Course1(Course\_id)  -> );  Query OK, 0 rows affected (0.40 sec)  mysql> insert into Examination1 values  -> (1,101,85),  -> (2,102,90),  -> (3,103,78),  -> (4,104,88),  -> (5,105,92);  Query OK, 5 rows affected (0.05 sec)  mysql> select \* from Examination1;  +------------+-----------+-------+  | Student\_id | Course\_id | Marks |  +------------+-----------+-------+  | 1 | 101 | 85 |  | 2 | 102 | 90 |  | 3 | 103 | 78 |  | 4 | 104 | 88 |  | 5 | 105 | 92 |  +------------+-----------+-------+  5 rows in set (0.00 sec)  mysql> create table Employee\_account1 (  -> E\_no int,  -> Salary\_month varchar(10),  -> Basic int,  -> HRA int,  -> Allowance int,  -> PF int,  -> Income\_tax int,  -> Salary int,  -> foreign key (E\_no) references Faculty1(E\_no)  -> );  Query OK, 0 rows affected (0.48 sec)  mysql> insert into Employee\_account1 values  -> (1,'Jan',30000,5000,2000,1500,1000,36500),  -> (2,'Jan',32000,6000,2500,1800,1200,39500),  -> (3,'Jan',28000,4000,2200,1600,900,33500),  -> (4,'Jan',35000,7000,3000,2000,1500,43500),  -> (5,'Jan',36000,6500,2800,1900,1400,43000);  Query OK, 5 rows affected (0.09 sec)  mysql> select \* from Employee\_account1;  +-----+--------------+-------+-----+-----------+-----+------------+--------+  | E\_no| Salary\_month | Basic | HRA | Allowance | PF | Income\_tax | Salary |  +-----+--------------+-------+-----+-----------+-----+------------+--------+  | 1 | Jan | 30000 | 5000| 2000 |1500 | 1000 | 36500 |  | 2 | Jan | 32000 | 6000| 2500 |1800 | 1200 | 39500 |  | 3 | Jan | 28000 | 4000| 2200 |1600 | 900 | 33500 |  | 4 | Jan | 35000 | 7000| 3000 |2000 | 1500 | 43500 |  | 5 | Jan | 36000 | 6500| 2800 |1900 | 1400 | 43000 |  +-----+--------------+-------+-----+-----------+-----+------------+--------+  5 rows in set (0.00 sec)  mysql> create table Student\_account1 (  -> Student\_id int,  -> Year int,  -> Tuition\_fee int,  -> Library\_fee int,  -> Total\_amount int,  -> foreign key (Student\_id) references Student1(Student\_id)  -> );  Query OK, 0 rows affected (0.50 sec)  mysql> insert into Student\_account1 values  -> (1,2023,40000,2000,42000),  -> (2,2023,38000,1500,39500),  -> (3,2023,35000,1800,36800),  -> (4,2023,42000,2200,44200),  -> (5,2023,41000,2000,43000);  Query OK, 5 rows affected (0.06 sec)  mysql> select \* from Student\_account1;  +------------+------+-------------+-------------+--------------+  | Student\_id | Year | Tuition\_fee | Library\_fee | Total\_amount |  +------------+------+-------------+-------------+--------------+  | 1 | 2023 | 40000 | 2000 | 42000 |  | 2 | 2023 | 38000 | 1500 | 39500 |  | 3 | 2023 | 35000 | 1800 | 36800 |  | 4 | 2023 | 42000 | 2200 | 44200 |  | 5 | 2023 | 41000 | 2000 | 43000 |  +------------+------+-------------+-------------+--------------+   1. rows in set (0.00 sec) |
|  | **4. Show faculty names with their course titles.** |
|  | mysql> SELECT Faculty.F\_Name, Course.Course\_Name  -> FROM Faculty  -> JOIN Course ON Faculty.Course\_ID = Course.Course\_ID;  +----------+-------------+  | F\_Name | Course\_Name |  +----------+-------------+  | Sharma | DBMS |  | Kulkarni | DSA |  | Patil | Networks |  +----------+-------------+  3 rows in set (0.00 sec) |
|  | **5. List departments and the number of courses they offer.** |
|  | mysql> SELECT Department.Dept\_Name, COUNT(Course.Course\_ID) AS No\_of\_Courses  -> FROM Department  -> JOIN Course ON Department.Dept\_ID = Course.Dept\_ID  -> GROUP BY Department.Dept\_Name;  +-------------------+---------------+  | Dept\_Name | No\_of\_Courses |  +-------------------+---------------+  | Computer Science | 2 |  | Information Tech | 1 |  +-------------------+---------------+  2 rows in set (0.00 sec) |
|  | **Q6. Get students along with their marks in each course.** |
|  | mysql> SELECT S.Fname, S.Lname, C.Cname, M.Marks  FROM Student1 S  JOIN Marks1 M ON S.Student\_id = M.Student\_id  JOIN Course1 C ON M.Course\_id = C.Course\_id;  +-------+----------+---------------------+-------+  | Fname | Lname | Cname | Marks |  +-------+----------+---------------------+-------+  | Rahul | Patil | Database Management | 78 |  | Sneha | Sharma | Data Structures | 82 |  | Amit | Deshmukh | Operating Systems | 69 |  | Priya | Kadam | Computer Networks | 91 |  | Rohit | Joshi | Software Engg | 55 |  +-------+----------+---------------------+-------+  5 rows in set (0.00 sec) |
|  | **Q9. Get students who appeared in more than 2 exams.** |
|  | mysql> SELECT S.Fname, S.Lname, COUNT(E.Exam\_id) AS Exam\_Count  FROM Student1 S  JOIN Exam1 E ON S.Student\_id = E.Student\_id  GROUP BY S.Student\_id  HAVING COUNT(E.Exam\_id) > 2;  +-------+---------+-------------+  | Fname | Lname | Exam\_Count |  +-------+---------+-------------+  | Sneha | Sharma | 3 |  +-------+---------+-------------+  1 row in set (0.00 sec) |
|  | **Q12. Show names of faculty teaching more than one course.** |
|  | mysql> SELECT F.Fname, F.Lname, COUNT(C.Course\_id) AS Courses\_Taught  FROM Faculty1 F  JOIN Course1 C ON F.Faculty\_id = C.Faculty\_id  GROUP BY F.Faculty\_id  HAVING COUNT(C.Course\_id) > 1;  +-------+--------+---------------+  | Fname | Lname | Courses\_Taught|  +-------+--------+---------------+  | Meera | Kulkarni | 2 |  +-------+--------+---------------+  1 row in set (0.00 sec) |
|  | **Q3. List faculty whose salary is more than any faculty in another department.** |
|  | **mysql> SELECT F.Fname, F.Lname, EA.Salary**  FROM Faculty1 F  JOIN Employee\_account1 EA ON F.E\_no = EA.E\_no  WHERE EA.Salary > ALL (SELECT Salary  FROM Employee\_account1  WHERE E\_no <> F.E\_no);  +-------+---------+--------+  | Fname | Lname | Salary |  +-------+---------+--------+  | Pooja | Verma | 43500 |  +-------+---------+--------+  1 row in set (0.00 sec) |
|  | **Q7. Find students who have appeared for all the courses in their department.** |
|  | mysql> SELECT S.Fname, S.Lname  FROM Student1 S  WHERE NOT EXISTS (  SELECT C.Course\_id  FROM Course1 C  WHERE C.Department\_id = S.Department\_id  AND C.Course\_id NOT IN (  SELECT E.Course\_id  FROM Examination1 E  WHERE E.Student\_id = S.Student\_id  )  );  +-------+----------+  | Fname | Lname |  +-------+----------+  | Rahul | Patil |  | Sneha | Sharma |  | Amit | Deshmukh |  | Priya | Kadam |  | Rohit | Joshi |  +-------+----------+  5 rows in set (0.00 sec) |
|  | **Q9. Show faculty who joined in the same year their department was established.** |
|  | mysql> SELECT F.Fname, F.Lname, F.Date\_of\_joining, D.Year\_of\_establishment  FROM Faculty1 F  JOIN Department1 D ON F.Department\_id = D.Department\_id  WHERE YEAR(F.Date\_of\_joining) = D.Year\_of\_establishment;  Empty set (0.00 sec) |
|  | **Q11. List faculty with total salary paid over time.** |
|  | mysql> SELECT F.Fname, F.Lname, SUM(EA.Salary) AS Total\_Salary  FROM Faculty1 F  JOIN Employee\_account1 EA ON F.E\_no = EA.E\_no  GROUP BY F.E\_no, F.Fname, F.Lname;  +-------+---------+--------------+  | Fname | Lname | Total\_Salary |  +-------+---------+--------------+  | Arun | Kulkarni| 36500 |  | Meena | Desai | 39500 |  | Suresh| Naik | 33500 |  | Pooja | Verma | 43500 |  | Anil | Bhosale | 43000 |  +-------+---------+--------------+  5 rows in set (0.00 sec) |