

UNIVERSITY OF DELHI



Ramanujan College

**DSC 11: Database Management
Systems**

**Semester-04
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4.	Retrieve student's details studying in courses 'computer science' or 'chemistry'.	
5.	Retrieve student's names whose roll number either starts with 'X' or 'Z' and ends with '9'.	
6.	Find society details with more than **N** TotalSeats where **N** is to be input by the user.	
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1. Retrieve names of students enrolled in any society.

```
mysql> SELECT StudentName FROM STUDENT
-> INNER JOIN ENROLLMENT
-> ON STUDENT.RollNo = ENROLLMENT.RollNo;
```

StudentName
ISHIKA PURAKAYASTHA
Nitisha Agrawal
PIYUSH KUSHWAHA
RATNESH KUMAR
SHIV KUMAR
LOVISH JAIN
YOGITA GUPTA
VIKASH KUMAR
Aditya Chaturvedi
Ajay
Sumit Kumar
AKSHAT GUPTA
YOGESH JAISWAL

2. Retrieve all society names.

```
mysql> SELECT SocName FROM SOCIETY;
```

SocName
NCC
NSS
Debating
Dancing
Sashakt
Tech Club
Photography
Neev

8 rows in set (0.00 sec)

3. Retrieve student's names starting with the letter 'A'.

```
mysql> SELECT StudentName FROM STUDENT
-> WHERE StudentName LIKE "A%";
```

StudentName
Arun Kumar
AYUSH TIWARI
Amit Pal
Aditya Chaturvedi
Ajay
Avnish Rana
ANANYA
AHSANA FATHIMA
AKSHAT GUPTA
Aditya Bisht
Arjun Pahariya
ANSHUL KASANA
Avantika

13 rows in set (0.00 sec)

4. Retrieve student's details studying in courses 'computer science' or 'chemistry'.

```
mysql> SELECT * FROM STUDENT
-> WHERE Course IN ('Comp Sci','Chemistry');
```

RollNo	StudentName	Course	DOB
S1005	Geetanshu	Chemistry	2000-11-27
S1006	Kohana Bhalla	Chemistry	2001-01-19
S1007	Nitisha Agrawal	Chemistry	2001-03-15
S1008	KSHITIZ SADH	Comp Sci	2002-04-22
S1009	PIYUSH KUSHWAHA	Comp Sci	2002-06-15
S1010	Priyanshu Sisodiya	Comp Sci	2002-08-30
S1011	RAHUL BANSAL	Comp Sci	2002-11-02
S1012	RATNESH KUMAR	Comp Sci	2003-01-28
S1013	SHIV KUMAR	Comp Sci	2003-03-19
S1014	SOURABH KUMAR	Comp Sci	2003-05-14
X1003	Rashmi Bisht	Chemistry	2001-05-25
X1004	Ajay	Chemistry	2001-07-21
X1005	Sujal Singh	Comp Sci	2003-07-29
X1006	Sumit Kumar	Comp Sci	2003-09-10
X1007	Avnish Rana	Comp Sci	2004-02-14
Z1004	YOGESH JAISWAL	Chemistry	2001-10-19
Z1005	Aditya Bisht	Chemistry	2002-02-05
Z1006	Shubham Kapoor	Comp Sci	2004-04-09
Z1007	Arjun Pahariya	Comp Sci	2004-06-23
Z1008	RAJ SINGH	Comp Sci	2004-08-05
Z1009	VISHNU	Comp Sci	2004-10-31

21 rows in set (0.00 sec)

5. Retrieve student's names whose roll number either starts with 'X' or 'Z' and ends with '9'.

```
mysql> SELECT StudentName FROM STUDENT
-> WHERE RollNo LIKE 'X%9' OR RollNo LIKE 'Z%9';
```

StudentName
PARTH BUDHIRAJA
VISHNU

2 rows in set (0.00 sec)

6. Find society details with more than ****N**** TotalSeats where ****N**** is to be input by the user.

```
mysql> SET @N =15;
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT * FROM SOCIETY WHERE TotalSeats > @N;
+-----+-----+-----+-----+
| SocID | SocName | MentorName | TotalSeats |
+-----+-----+-----+-----+
| S1    | NCC     | Dr. Sharma | 20         |
| S4    | Dancing | Ms. Singh  | 20         |
| S6    | Tech Club | Ms. Verma | 20         |
| S8    | Neev    | Dr. Kumar  | 20         |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

7. Update society table for the mentor name of a specific society.

```
mysql> UPDATE SOCIETY SET MentorName = 'Mr. Sonu'
-> WHERE SocName = 'NCC';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

8. Find society names in which more than five students have enrolled.

```
mysql> SELECT SocName FROM SOCIETY
-> INNER JOIN ENROLLMENT
-> ON SOCIETY.SocID = ENROLLMENT.SID
-> GROUP BY ENROLLMENT.SID
-> HAVING COUNT(ENROLLMENT.SID)>5;
+-----+
| SocName |
+-----+
| NCC     |
| NSS     |
| Debating |
| Sashakt |
| Tech Club |
+-----+
5 rows in set (0.00 sec)
```

9. Find the name of the youngest student enrolled in society 'NSS'.

```
mysql> SELECT StudentName FROM STUDENT
-> INNER JOIN ENROLLMENT
-> ON STUDENT.RollNo = ENROLLMENT.RollNo
-> INNER JOIN SOCIETY
-> ON SOCIETY.SocID = ENROLLMENT.SID
-> WHERE SOCIETY.SocName = 'NSS'
-> ORDER BY STUDENT.DOB DESC
-> LIMIT 1;
+-----+
| StudentName |
+-----+
| RISHABH GUPTA |
+-----+
1 row in set (0.00 sec)
```

10. Find the name of the most popular society (on the basis of enrolled students).

```
mysql> SELECT SocName FROM SOCIETY
-> INNER JOIN ENROLLMENT
-> ON SOCIETY.SocID = ENROLLMENT.SID
-> GROUP BY SOCIETY.SocID
-> ORDER BY COUNT(SOCIETY.SocID) DESC
-> LIMIT 1;
+-----+
| SocName |
+-----+
| NCC     |
+-----+
1 row in set (0.00 sec)
```

11. Find the name of two least popular societies (on the basis of enrolled students).

```
mysql> SELECT SocName FROM SOCIETY
-> INNER JOIN ENROLLMENT
-> ON SOCIETY.SocID = ENROLLMENT.SID
-> GROUP BY SOCIETY.SocID
-> ORDER BY COUNT(SOCIETY.SocID) ASC
-> LIMIT 2;
+-----+
| SocName |
+-----+
| Neev    |
| Dancing |
+-----+
2 rows in set (0.00 sec)
```

12. Find the students names who are not enrolled in any society.

```
mysql> SELECT StudentName FROM STUDENT
-> LEFT JOIN ENROLLMENT
-> ON STUDENT.RollNo = ENROLLMENT.RollNo
-> WHERE ENROLLMENT.RollNo IS NULL;
+-----+
| StudentName |
+-----+
| RENUKA      |
| RAHUL BANSAL |
| SOURABH KUMAR |
| JAGRIT GUPTA |
| Kanishka Saini |
| Vansh Banderwal |
| RUPESH KUMAR  |
| AYUSH TIWARI  |
| Amit Pal     |
| Deepa        |
| ANANYA       |
| SUNNY        |
| SUJIT KUMAR YADAV |
| AHSANA FATHIMA |
| Bhumika Yadav |
| Aditya Bisht  |
| ANSHUL KASANA |
| Prachi Kumari |
| Vishal       |
| Prayag Kaushik |
| Avantika     |
+-----+
21 rows in set (0.00 sec)
```

13. Find the students names enrolled in at least two societies.

```
mysql> SELECT StudentName FROM STUDENT
-> LEFT JOIN ENROLLMENT ON STUDENT.RollNo=ENROLLMENT.RollNo
-> GROUP BY STUDENT.StudentName
-> HAVING COUNT(STUDENT.RollNo) >= 2;
+-----+
| StudentName |
+-----+
| ISHIKA PURAKAYASTHA |
| Arun Kumar          |
+-----+
2 rows in set (0.00 sec)
```

14. Find society names in which maximum students are enrolled.

```
mysql> SELECT SocName FROM SOCIETY
-> LEFT JOIN ENROLLMENT ON SOCIETY.SocID=ENROLLMENT.SID
-> GROUP BY SOCIETY.SocID
-> order BY COUNT(SOCIETY.SocID) DESC
-> LIMIT 1;
+-----+
| SocName |
+-----+
| NCC      |
+-----+
1 row in set (0.00 sec)
```

15. Find names of all students who have enrolled in any society and society names in which at least one student has enrolled.

```
mysql> (SELECT DISTINCT STUDENT.StudentName AS StudentSocietyName
-> FROM STUDENT
-> INNER JOIN ENROLLMENT ON STUDENT.RollNo = ENROLLMENT.RollNo)
-> UNION
-> (SELECT DISTINCT SOCIETY.SocName AS StudentSocietyName
-> FROM SOCIETY
-> INNER JOIN ENROLLMENT ON SOCIETY.SocID = ENROLLMENT.SID);
+-----+
| StudentSocietyName |
+-----+
| ISHIKA PURAKAYASTHA |
| Nitisha Agrawal    |
| PIYUSH KUSHWAHA     |
| RATNESH KUMAR       |
| SHIV KUMAR          |
| LOVISH JAIN         |
| YOGITA GUPTA        |
| VIKASH KUMAR        |
| Aditya Chaturvedi   |
+-----+
```

16. Find names of students who are enrolled in any of the three societies 'Debating', 'Dancing', and 'Sashakt'.

```
mysql> SELECT DISTINCT STUDENT.StudentName FROM STUDENT
-> INNER JOIN ENROLLMENT ON ENROLLMENT.RollNo = STUDENT.RollNo
-> INNER JOIN SOCIETY ON SOCIETY.SocID = ENROLLMENT.SID
-> WHERE SOCIETY.SocName IN ('Debating','Dancing','Sashakt');
+-----+
| StudentName |
+-----+
| ISHIKA PURAKAYASTHA |
| NISHANT SINGH |
| Geetanshu |
| KSHITTIZ SADH |
| Panchika Agrawal |
| Suryash Vaibhav |
| Sujal Singh |
| PARTH BUDHIRAJA |
| Mr. Rahul |
| Priyanka Saini |
| Avnish Rana |
| Ujjwal Dhama |
| KESHAV KHANDELWAL |
| HARSH DUBEY |
+-----+
14 rows in set (0.00 sec)
```

17. Find society names such that its mentor has a name with 'Gupta' in it.

```
mysql> SELECT SocName FROM SOCIETY WHERE MentorName LIKE '%Gupta%';
+-----+
| SocName |
+-----+
| NSS |
+-----+
1 row in set (0.00 sec)
```

18. Find the society names in which the number of enrolled students is only 10% of its capacity.

```
mysql> SELECT SocName FROM SOCIETY
-> INNER JOIN ENROLLMENT ON SOCIETY.SocID = ENROLLMENT.SID
-> GROUP BY SOCIETY.SocID, SOCIETY.SocName, SOCIETY.TotalSeats
-> HAVING COUNT(ENROLLMENT.RollNo) = (SOCIETY.TotalSeats * 0.1);
+-----+
| SocName |
+-----+
| Dancing |
+-----+
1 row in set (0.00 sec)
```

19. Display the vacant seats for each society.

```
mysql> SELECT SocName, TotalSeats - COUNT(ENROLLMENT.SID) AS VacantSeats
-> FROM SOCIETY
-> LEFT JOIN ENROLLMENT ON SOCIETY.SocID = ENROLLMENT.SID
-> GROUP BY SOCIETY.SocID, SOCIETY.SocName, SOCIETY.TotalSeats;
+-----+-----+
| SocName | VacantSeats |
+-----+-----+
| MCC | 6 |
| NSS | 8 |
| Debating | 2 |
| Dancing | 18 |
| Sashakt | 4 |
| Tech Club | 14 |
| Photography | 0 |
| Neev | 19 |
+-----+-----+
8 rows in set (0.00 sec)
```

20. Increment Total Seats of each society by 10%.

```
mysql> UPDATE SOCIETY SET Totalseats = CEIL(Totalseats * 1.1);
Query OK, 8 rows affected (0.02 sec)
Rows matched: 8 Changed: 8 Warnings: 0

mysql> SELECT SocName AS 'Society Name', Totalseats AS 'Total Seat' FROM SOCIETY;
+-----+-----+
| Society Name | Total Seat |
+-----+-----+
| MCC | 22 |
| NSS | 17 |
| Debating | 11 |
| Dancing | 22 |
| Sashakt | 11 |
| Tech Club | 22 |
| Photography | 6 |
| Neev | 22 |
+-----+-----+
8 rows in set (0.00 sec)
```


21. Add the enrollment fees paid ('yes'/'No') field in the enrollment table.

```
mysql> ALTER TABLE ENROLLMENT ADD COLUMN FeesPaid ENUM('Yes', 'No') DEFAULT 'No';
Query OK, 0 rows affected (0.10 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESC ENROLLMENT;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| RollNo | char(6) | NO | PRI | NULL | |
| SID | char(6) | NO | PRI | NULL | |
| DateOfEnrollment | date | YES | | NULL | |
| FeesPaid | enum('Yes', 'No') | YES | | No | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)
```

22. Update date of enrollment of society id 's1' to '2018-01-15', 's2' to the current date, and 's3' to '2018-01-02'.

```
mysql> UPDATE ENROLLMENT
-> SET DateOfEnrollment = CASE
-> WHEN SID = 's1' THEN '2018-01-15'
-> WHEN SID = 's2' THEN CURDATE()
-> WHEN SID = 's3' THEN '2018-01-02'
-> END
-> WHERE SID IN ('s1', 's2', 's3');
Query OK, 0 rows affected (0.00 sec)
Rows matched: 29 Changed: 0 Warnings: 0

mysql> SELECT SID, DateOfEnrollment FROM ENROLLMENT
-> WHERE SID IN ('s1', 's2', 's3')
-> GROUP BY SID, DateOfEnrollment;
+-----+-----+
| SID | DateOfEnrollment |
+-----+-----+
| s1 | 2018-01-15 |
| s2 | 2025-02-09 |
| s3 | 2018-01-02 |
+-----+-----+
3 rows in set (0.00 sec)
```

23. Create a view to keep track of society names with the total number of students enrolled in it.

```
mysql> CREATE VIEW EnrollmentOfSociety AS
-> SELECT SOCIETY.SocName, COUNT(ENROLLMENT.RollNo) AS TotalStudents FROM SOCIETY
-> LEFT JOIN ENROLLMENT ON SOCIETY.SocID = ENROLLMENT.SID
-> GROUP BY SOCIETY.SocID;
Query OK, 0 rows affected (0.02 sec)

mysql> SELECT * FROM EnrollmentOfSociety;
+-----+-----+
| SocName | TotalStudents |
+-----+-----+
| NCC | 14 |
| NSS | 7 |
| Debating | 8 |
| Dancing | 2 |
| Sashakt | 6 |
| Tech Club | 6 |
| Photography | 5 |
| Neev | 1 |
+-----+-----+
8 rows in set (0.00 sec)
```

24. Find student names enrolled in all the societies.

```
mysql> SELECT StudentName FROM STUDENT
-> INNER JOIN ENROLLMENT ON STUDENT.RollNo = ENROLLMENT.RollNo
-> GROUP BY ENROLLMENT.RollNo
-> HAVING COUNT(ENROLLMENT.SID) > (SELECT COUNT(*) FROM SOCIETY);
Empty set (0.00 sec)
```

25. Count the number of societies with more than 5 students enrolled in it.

```
mysql> SELECT COUNT(*) AS 'Number Of Society' FROM (SELECT SID FROM ENROLLMENT
-> GROUP BY SID HAVING COUNT(RollNo) > 5) AS SOCIETY;
+-----+
| Number Of Society |
+-----+
| 5 |
+-----+
1 row in set (0.00 sec)
```

26. Add column ****Mobile number**** in student table with default value ****'9999999999'****.

```
mysql> ALTER TABLE STUDENT ADD COLUMN MobileNumber VARCHAR(10) DEFAULT '9999999999';
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESC STUDENT;
```

Field	Type	Null	Key	Default	Extra
RollNo	char(6)	NO	PRI	NULL	
StudentName	varchar(20)	NO		NULL	
Course	varchar(10)	NO		NULL	
DOB	date	NO		NULL	
MobileNumber	varchar(10)	YES		9999999999	

```
5 rows in set (0.00 sec)
```

27. Find the total number of students whose age is > 20 years.

```
mysql> SELECT COUNT(*) AS Students FROM STUDENT
-> WHERE TIMESTAMPDIF(YEAR, DOB, CURDATE()) > 20;
```

Students
26

```
1 row in set (0.00 sec)
```

28. Find names of students who were born in 2001 and are enrolled in at least one society.

```
mysql> SELECT DISTINCT StudentName FROM STUDENT
-> JOIN ENROLLMENT ON STUDENT.RollNo = ENROLLMENT.RollNo
-> WHERE YEAR(STUDENT.DOB) = 2001;
```

StudentName
Nitisha Agrawal
Ajay
YOGESH JAISWAL
Kohana Bhalla
Rashmi Bisht

```
5 rows in set (0.00 sec)
```

29. Count all societies whose name starts with 'S' and ends with 't' and at least 5 students are enrolled in the society.

```
mysql> SELECT SocName FROM SOCIETY
-> INNER JOIN ENROLLMENT ON SOCIETY.SocID = ENROLLMENT.SID
-> WHERE SocName LIKE 'S%t'
-> GROUP BY ENROLLMENT.SID HAVING COUNT(ENROLLMENT.SID) >= 5;
```

SocName
Sashakt

```
1 row in set (0.00 sec)
```

30. Display the following information:

- Society name
- Mentor name
- Total Capacity
- Total Enrolled
- Unfilled Seats

```
mysql> SELECT SocName AS "Society Name",
-> MentorName AS "Mentor Name",
-> Totalseats AS "Total Capacity",
-> COUNT(ENROLLMENT.RollNo) AS "Total Enrolled",
-> TotalSeats - COUNT(ENROLLMENT.RollNo) AS "Unfilled Seats" FROM SOCIETY
-> LEFT JOIN ENROLLMENT ON SOCIETY.SocID = ENROLLMENT.SID
-> GROUP BY SOCIETY.SocID;
```

Society Name	Mentor Name	Total Capacity	Total Enrolled	Unfilled Seats
NCC	Mr. Sonu	22	14	8
NSS	Dr. Gupta	17	7	10
Debating	Mr. Mehta	11	8	3
Dancing	Ms. Singh	22	2	20
Sashakt	Dr. Yadav	11	6	5
Tech Club	Ms. Verma	22	6	16
Photography	Ms. Kapoor	6	5	1
Neev	Dr. Kumar	22	1	21

8 rows in set (0.00 sec)

II. Database Administration Commands

- Create user

```
mysql> CREATE USER 'Ratnesh'@'localhost' IDENTIFIED BY 'Ratnesh@123';
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> SELECT User, Host FROM mysql.user;
```

User	Host
Ratnesh	localhost
mysql.infoschema	localhost
mysql.session	localhost
mysql.sys	localhost
root	localhost

5 rows in set (0.00 sec)

- Create role

```
mysql> CREATE ROLE 'developer';
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> SHOW GRANTS FOR 'developer';
```

Grants for developer@%
GRANT USAGE ON *.* TO `developer`@`%`

1 row in set (0.00 sec)

- Grant privileges to a role

```
mysql> GRANT SELECT, INSERT, UPDATE ON Student_Society.* TO 'developer';
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR 'developer';
+-----+
| Grants for developer@% |
+-----+
| GRANT USAGE ON *.* TO `developer`@`%` |
| GRANT SELECT, INSERT, UPDATE ON `student_society`.* TO `developer`@`%` |
+-----+
2 rows in set (0.00 sec)
```

- Revoke privileges from a role

```
mysql> REVOKE UPDATE ON Student_Society.* FROM 'developer';
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR 'developer';
+-----+
| Grants for developer@% |
+-----+
| GRANT USAGE ON *.* TO `developer`@`%` |
| GRANT SELECT, INSERT ON `student_society`.* TO `developer`@`%` |
+-----+
2 rows in set (0.00 sec)
```

- Create index

```
mysql> CREATE UNIQUE INDEX Ratnesh ON Student_Society.society (SocID);
Query OK, 0 rows affected (0.08 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> SELECT INDEX_NAME, COLUMN_NAME, NON_UNIQUE
-> FROM INFORMATION_SCHEMA.STATISTICS
-> WHERE TABLE_NAME = 'society'
-> AND TABLE_SCHEMA = 'Student_Society';
+-----+-----+-----+
| INDEX_NAME | COLUMN_NAME | NON_UNIQUE |
+-----+-----+-----+
| PRIMARY   | SocID       | 0          |
| Ratnesh    | SocID       | 0          |
+-----+-----+-----+
2 rows in set (0.00 sec)
```