ADVANCED DBMS LAB

CYCLE -1

DDL Commands

1. Create the database named CYBERCOLLEGE and the above tables in the CYBERCOLLEGE database; include the Primary Key Constraint, Referential Integrity Constraints, and Check Constraints.
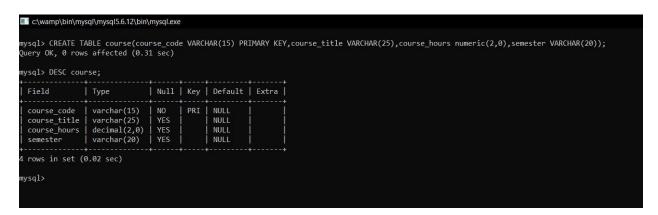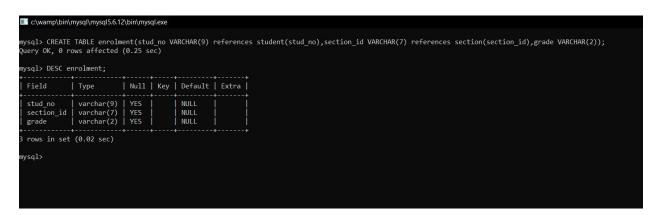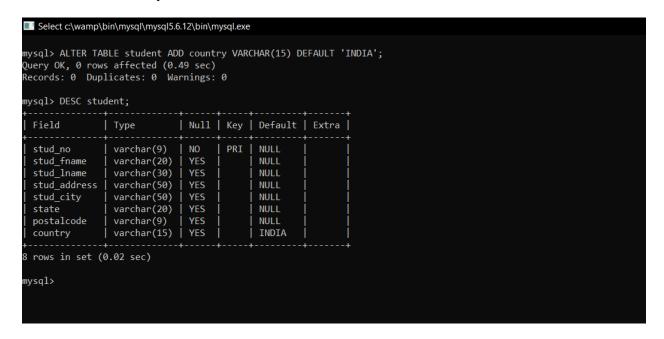
TABLE STUDENT

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> create database cybercollege;
Query OK, 1 row affected (0.05 sec)

mysql> use cybercollege
Database changed
mysql> CREATE TABLE student(stud_no VARCHAR(9) PRIMARY KEY,stud_fname VARCHAR(20),stud_lname VARCHAR(30),stud_address VARCHAR(50),stud_city VARCHAR(50),state VARCHAR(20),postalcode VARCHAR(9));
Query OK, 0 rows affected (2.00 sec)

mysql> DESC student;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| stud_no      | varchar(9)  | NO   | PRI | NULL    |       |
| stud_fname   | varchar(20) | YES  |     | NULL    |       |
| stud_lname   | varchar(30) | YES  |     | NULL    |       |
| stud_address | varchar(50) | YES  |     | NULL    |       |
| stud_city    | varchar(50) | YES  |     | NULL    |       |
| state        | varchar(20) | YES  |     | NULL    |       |
| postalcode   | varchar(9)  | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
7 rows in set (0.10 sec)

mysql>
```

TABLE INSTRUCTOR

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> CREATE TABLE instructor(instructor_id VARCHAR(9) PRIMARY KEY,instructor_fname VARCHAR(20),instructor_lname VARCHAR(30),instructor_phone VARCHAR(15));
Query OK, 0 rows affected (0.27 sec)

mysql> DESC instructor;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| instructor_id    | varchar(9)  | NO   | PRI | NULL    |       |
| instructor_fname | varchar(20) | YES  |     | NULL    |       |
| instructor_lname | varchar(30) | YES  |     | NULL    |       |
| instructor_phone | varchar(15) | YES  |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
4 rows in set (0.43 sec)
```

TABLE COURSE

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> CREATE TABLE course(course_code VARCHAR(15) PRIMARY KEY,course_title VARCHAR(25),course_hours numeric(2,0),semester VARCHAR(20));
Query OK, 0 rows affected (0.31 sec)

mysql> DESC course;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| course_code  | varchar(15) | NO   | PRI | NULL    |       |
| course_title | varchar(25) | YES  |     | NULL    |       |
| course_hours | decimal(2,0)| YES  |     | NULL    |       |
| semester     | varchar(20) | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
4 rows in set (0.02 sec)

mysql>
```

TABLE SECTION

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                                                                    —  □  ×

mysql> CREATE TABLE section(section_id VARCHAR(7) PRIMARY KEY,time_offered VARCHAR(10),days_offered VARCHAR(10),section_room VARCHAR(8),class_size numeric(3,0) check (class_size >=0),number_enrolled numeric(3,0)
 check (number_enrolled >=0),instructor_id VARCHAR(9) references instructor(instructor_id),course_code VARCHAR(15) references course(course_code));
Query OK, 0 rows affected (0.25 sec)

mysql> DESC section;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| section_id     | varchar(7)  | NO   | PRI | NULL    |       |
| time_offered   | varchar(10) | YES  |     | NULL    |       |
| days_offered   | varchar(10) | YES  |     | NULL    |       |
| section_room   | varchar(8)  | YES  |     | NULL    |       |
| class_size     | decimal(3,0)| YES  |     | NULL    |       |
| number_enrolled| decimal(3,0)| YES  |     | NULL    |       |
| instructor_id  | varchar(9)  | YES  |     | NULL    |       |
| course_code    | varchar(15) | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
8 rows in set (0.02 sec)

mysql>
```

TABLE ENROLMENT

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> CREATE TABLE enrolment(stud_no VARCHAR(9) references student(stud_no),section_id VARCHAR(7) references section(section_id),grade VARCHAR(2));
Query OK, 0 rows affected (0.25 sec)

mysql> DESC enrolment;
+------------+------------+------+-----+---------+-------+
| Field      | Type       | Null | Key | Default | Extra |
+------------+------------+------+-----+---------+-------+
| stud_no    | varchar(9) | YES  |     | NULL    |       |
| section_id | varchar(7) | YES  |     | NULL    |       |
| grade      | varchar(2) | YES  |     | NULL    |       |
+------------+------------+------+-----+---------+-------+
3 rows in set (0.02 sec)

mysql>
```

2.Add a field Country to the STUDENT table with the default value set to 'India'.

```
Select c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> ALTER TABLE student ADD country VARCHAR(15) DEFAULT 'INDIA';
Query OK, 0 rows affected (0.49 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC student;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| stud_no      | varchar(9)  | NO   | PRI | NULL    |       |
| stud_fname   | varchar(20) | YES  |     | NULL    |       |
| stud_lname   | varchar(30) | YES  |     | NULL    |       |
| stud_address | varchar(50) | YES  |     | NULL    |       |
| stud_city    | varchar(50) | YES  |     | NULL    |       |
| state        | varchar(20) | YES  |     | NULL    |       |
| postalcode   | varchar(9)  | YES  |     | NULL    |       |
| country      | varchar(15) | YES  |     | INDIA   |       |
+--------------+-------------+------+-----+---------+-------+
8 rows in set (0.02 sec)

mysql>
```
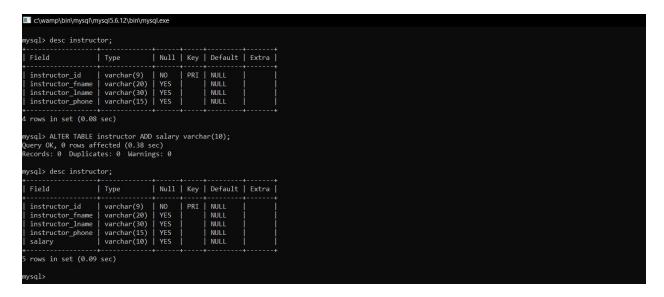
3. Add a constraint to the Grade field in the ENROLMENT table that accepts only the values 'A', 'B' , 'C' and 'D.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                    —    □    ✕

mysql> ALTER TABLE enrolment ADD CONSTRAINT grade CHECK (grade IN ('A', 'B', 'C'));
Query OK, 0 rows affected (0.11 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>
```
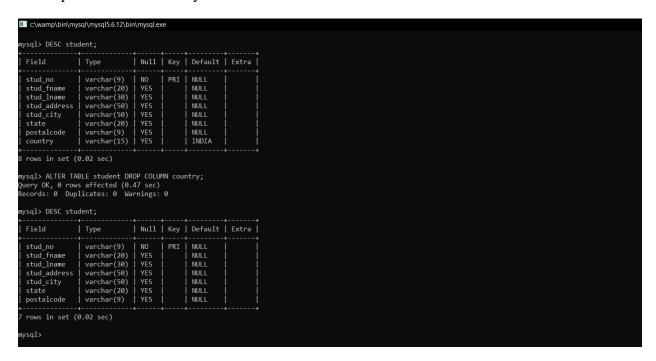
4. Modify the ENROLMENT table by changing the width of the field Grade to 2 .

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> ALTER TABLE enrolment MODIFY grade varchar(2);
Query OK, 0 rows affected (0.08 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC enrolment;
+------------+------------+------+-----+---------+-------+
| Field      | Type       | Null | Key | Default | Extra |
+------------+------------+------+-----+---------+-------+
| stud_no    | varchar(9) | YES  |     | NULL    |       |
| section_id | varchar(7) | YES  |     | NULL    |       |
| grade      | varchar(2) | YES  |     | NULL    |       |
+------------+------------+------+-----+---------+-------+
3 rows in set (0.02 sec)

mysql>
```

5. Add a new column, salary to the INSTRUCTOR table and display its modified schema

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> desc instructor;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| instructor_id    | varchar(9)  | NO   | PRI | NULL    |       |
| instructor_fname | varchar(20) | YES  |     | NULL    |       |
| instructor_lname | varchar(30) | YES  |     | NULL    |       |
| instructor_phone | varchar(15) | YES  |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
4 rows in set (0.08 sec)

mysql> ALTER TABLE instructor ADD salary varchar(10);
Query OK, 0 rows affected (0.38 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc instructor;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| instructor_id    | varchar(9)  | NO   | PRI | NULL    |       |
| instructor_fname | varchar(20) | YES  |     | NULL    |       |
| instructor_lname | varchar(30) | YES  |     | NULL    |       |
| instructor_phone | varchar(15) | YES  |     | NULL    |       |
| salary           | varchar(10) | YES  |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
5 rows in set (0.09 sec)

mysql>
```

6. Drop the column Country from the STUDENT table.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> DESC student;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| stud_no      | varchar(9)  | NO   | PRI | NULL    |       |
| stud_fname   | varchar(20) | YES  |     | NULL    |       |
| stud_lname   | varchar(30) | YES  |     | NULL    |       |
| stud_address | varchar(50) | YES  |     | NULL    |       |
| stud_city    | varchar(50) | YES  |     | NULL    |       |
| state        | varchar(20) | YES  |     | NULL    |       |
| postalcode   | varchar(9)  | YES  |     | NULL    |       |
| country      | varchar(15) | YES  |     | INDIA   |       |
+--------------+-------------+------+-----+---------+-------+
8 rows in set (0.02 sec)

mysql> ALTER TABLE student DROP COLUMN country;
Query OK, 0 rows affected (0.47 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC student;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| stud_no      | varchar(9)  | NO   | PRI | NULL    |       |
| stud_fname   | varchar(20) | YES  |     | NULL    |       |
| stud_lname   | varchar(30) | YES  |     | NULL    |       |
| stud_address | varchar(50) | YES  |     | NULL    |       |
| stud_city    | varchar(50) | YES  |     | NULL    |       |
| state        | varchar(20) | YES  |     | NULL    |       |
| postalcode   | varchar(9)  | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
7 rows in set (0.02 sec)

mysql>
```

7. Create a view for instructors to display the courses taught by an instructor. Display the personal details but by hiding salary information.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                                                              -  □  ×

mysql> create view inst as select i.instructor_id,i.instructor_fname,i.instructor_lname,i.instructor_phone,c.course_title from instructor i join course c join section s where i.instructor_id=s.instructor_id and
s.course_code=c.course_code;
Query OK, 0 rows affected (0.06 sec)

mysql> desc inst;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| instructor_id   | varchar(9)  | NO   |     | NULL    |       |
| instructor_fname| varchar(20) | YES  |     | NULL    |       |
| instructor_lname| varchar(30) | YES  |     | NULL    |       |
| instructor_phone| varchar(15) | YES  |     | NULL    |       |
| course_title    | varchar(25) | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
5 rows in set (0.02 sec)

mysql> select * from inst;
+---------------+------------------+------------------+------------------+--------------+
| instructor_id | instructor_fname | instructor_lname | instructor_phone | course_title |
+---------------+------------------+------------------+------------------+--------------+
| 1005          | George           | G                | 9234561659       | AOS          |
| 1004          | Asifa            | Aisha            | 966253659        | ADBMS        |
+---------------+------------------+------------------+------------------+--------------+
2 rows in set (0.00 sec)

mysql>
```
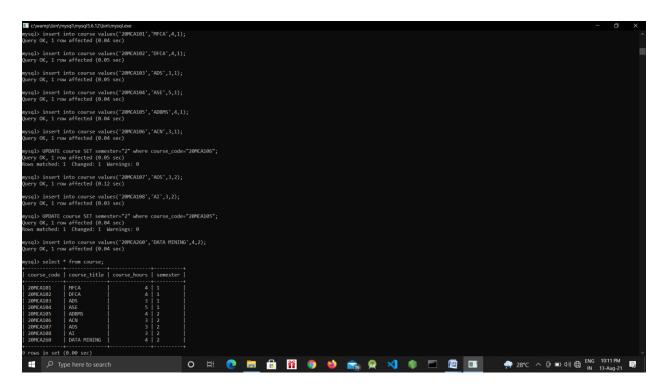
DML Commands

8. Insert details of you and your 5 friends in STUDENT table and the details of 5 instructors with names (Asha, Ashna, Sandeep , Asifa , George)in INSTRUCTOR table.

9. Add details of the first and second semester courses. Also add a new course for Data Mining with a course code of 20MCA260 worth with credit of 4 hour.

10. Add a new section for this new course with section ID as 301.The section should meet in 2-4 on MW in BLGNG102.The class size should be 35, and number enrolled should be 0.The instructor should be 3, and the course is 20MCA260. Also add sections 302 and 303 for the courses AOS and OB and enroll 5 students each to these courses.

11. Register yourself along with your 3 friends for this new course by adding a row to the ENROLMENT table. The grade should be null.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> insert into enrolment values(1,301,'');
Query OK, 1 row affected (0.05 sec)

mysql> insert into enrolment values(2,302,'');
Query OK, 1 row affected (0.05 sec)

mysql> insert into enrolment values(3,305,'');
Query OK, 1 row affected (0.43 sec)

mysql> insert into enrolment values(4,305,'');
Query OK, 1 row affected (0.04 sec)

mysql> select * from enrolment;
+---------+------------+-------+
| stud_no | section_id | grade |
+---------+------------+-------+
| 1       | 301        |       |
| 2       | 302        |       |
| 3       | 305        |       |
| 4       | 305        |       |
+---------+------------+-------+
4 rows in set (0.00 sec)

mysql>
```

12. Update the 301 section, and increase the class sizes by 10%.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> update section set class_size=(class_size*1.1) where section_id="301";
Query OK, 1 row affected, 1 warning (1.45 sec)
Rows matched: 1  Changed: 1  Warnings: 1

mysql> select * from section;
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
| section_id | time_offered | days_offered | section_room | class_size | number_enrolled | instructor_id | course_code |
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
| 301        | 2-4         | mon,wed     | BLGNG102     | 39         | 0               | 3             | 20MCA260    |
| 302        | 9-10        | mon,fri     | BLGNL119     | 35         | 0               | 1005          | 20MCA107    |
| 305        | 9-10        | mon,fri     | BLGNL109     | 35         | 0               | 1004          | 20MCA105    |
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
3 rows in set (0.00 sec)

mysql>
```

13. Give a 10% increment in salary for all instructors.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> update instructor set salary=salary+(salary * 10/100);
Query OK, 5 rows affected (0.05 sec)
Rows matched: 5  Changed: 5  Warnings: 0

mysql> select * from instructor;
+---------------+-----------------+-----------------+-----------------+--------+
| instructor_id | instructor_fname | instructor_lname | instructor_phone | salary |
+---------------+-----------------+-----------------+-----------------+--------+
| 1001          | Asha            | K               | 9686955659      | 38500  |
| 1002          | Ashna           | John            | 9682233659      | 35200  |
| 1003          | Sandeep         | Roy             | 9685887759      | 36300  |
| 1004          | Asifa           | Aisha           | 966253659       | 49500  |
| 1005          | George          | G               | 9234561659      | 44000  |
+---------------+-----------------+-----------------+-----------------+--------+
5 rows in set (0.00 sec)

mysql>
```

14. Delete Section 302and verify for the rows in ENROLMENT table for that section

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> select * from section;
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
| section_id | time_offered | days_offered | section_room | class_size | number_enrolled | instructor_id | course_code |
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
| 301        | 2-4         | mon,wed     | BLGNG102     |         39 |               0 | 3             | 20MCA260    |
| 302        | 9-10        | mon,fri     | BLGNL119     |         35 |               0 | 1005          | 20MCA107    |
| 305        | 9-10        | mon,fri     | BLGNL109     |         35 |               0 | 1004          | 20MCA105    |
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
3 rows in set (0.00 sec)

mysql> delete from section where section_id=302;
Query OK, 1 row affected (0.06 sec)

mysql> select * from section;
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
| section_id | time_offered | days_offered | section_room | class_size | number_enrolled | instructor_id | course_code |
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
| 301        | 2-4         | mon,wed     | BLGNG102     |         39 |               0 | 3             | 20MCA260    |
| 305        | 9-10        | mon,fri     | BLGNL109     |         35 |               0 | 1004          | 20MCA105    |
+------------+-------------+-------------+--------------+------------+-----------------+---------------+-------------+
2 rows in set (0.00 sec)

mysql>
```

TCL COMMANDS

15. Undo the previous delete operation

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> rollback;
Query OK, 0 rows affected (0.00 sec)

mysql>
```

16. Save all the transactions to the database.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> commit;
Query OK, 0 rows affected (0.00 sec)

mysql>
```
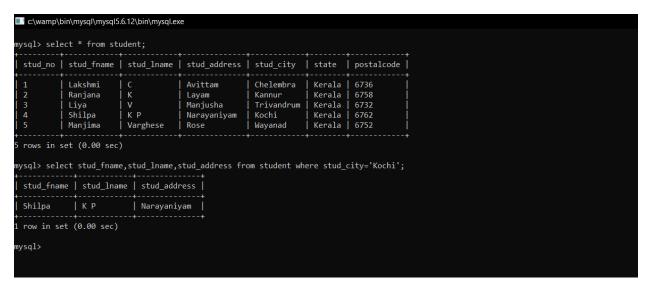
17. Grant the privilege to read and delete from the ENROLMENT table to the User U1.

18. Revoke the delete privilege from U1.

Accessing database (SELECT, Filtering using WHERE, HAVING, GROUP BY, ORDER BY Clauses, Subquery)

19. Display the full name and contact details of students living in Kochi.

20. List the student details who has longest first name.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> select * from student;
+---------+------------+------------+--------------+------------+--------+------------+
| stud_no | stud_fname | stud_lname | stud_address | stud_city  | state  | postalcode |
+---------+------------+------------+--------------+------------+--------+------------+
| 1       | Lakshmi    | C          | Avittam      | Chelembra  | Kerala | 6736       |
| 2       | Ranjana    | K          | Layam        | Kannur     | Kerala | 6758       |
| 3       | Liya       | V          | Manjusha     | Trivandrum | Kerala | 6732       |
| 4       | Shilpa     | K P        | Narayaniyam  | Kochi      | Kerala | 6762       |
| 5       | Manjima    | Varghese   | Rose         | Wayanad    | Kerala | 6752       |
+---------+------------+------------+--------------+------------+--------+------------+
5 rows in set (0.00 sec)

mysql> select * from student where length(stud_fname)=(select max(length(stud_fname)) from student);
+---------+------------+------------+--------------+------------+--------+------------+
| stud_no | stud_fname | stud_lname | stud_address | stud_city  | state  | postalcode |
+---------+------------+------------+--------------+------------+--------+------------+
| 1       | Lakshmi    | C          | Avittam      | Chelembra  | Kerala | 6736       |
| 2       | Ranjana    | K          | Layam        | Kannur     | Kerala | 6758       |
| 5       | Manjima    | Varghese   | Rose         | Wayanad    | Kerala | 6752       |
+---------+------------+------------+--------------+------------+--------+------------+
3 rows in set (0.05 sec)

mysql>
```

21. Display the name and phone number of the instructors who is handling the courses AOS and ADBMS.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                    —    □    ✕

mysql> select instructor_fname,instructor_phone from instructor i join course c join section s where
i.instructor_id=s.instructor_id and s.course_code=c.course_code and c.course_title='AOS' or 'ADBMS';
+------------------+------------------+
| instructor_fname | instructor_phone |
+------------------+------------------+
| George           | 9234561659       |
+------------------+------------------+
1 row in set, 1 warning (0.00 sec)

mysql>
```

22. List the codes, titles, and credit hours for courses worth 4 hours. Order the results in descending order of course cod

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> select course_code,course_title,course_hours from course where course_hours=4 order by course_code desc;
+-------------+--------------+--------------+
| course_code | course_title | course_hours |
+-------------+--------------+--------------+
| 20MCA260    | DATA MINING  |            4 |
| 20MCA105    | ADBMS        |            4 |
| 20MCA102    | DFCA         |            4 |
| 20MCA101    | MFCA         |            4 |
+-------------+--------------+--------------+
4 rows in set (0.00 sec)

mysql>
```

23. Display the names of the students in the descending order along with their phone number.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe

mysql> select * from student;
+---------+------------+------------+--------------+------------+--------+------------+
| stud_no | stud_fname | stud_lname | stud_address | stud_city  | state  | postalcode |
+---------+------------+------------+--------------+------------+--------+------------+
| 1       | Lakshmi    | C          | Avittam      | Chelembra  | Kerala | 6736       |
| 2       | Ranjana    | K          | Layam        | Kannur     | Kerala | 6758       |
| 3       | Liya       | V          | Manjusha     | Trivandrum | Kerala | 6732       |
| 4       | Shilpa     | K P        | Narayaniyam  | Kochi      | Kerala | 6762       |
| 5       | Manjima    | Varghese   | Rose         | Wayanad    | Kerala | 6752       |
+---------+------------+------------+--------------+------------+--------+------------+
5 rows in set (0.00 sec)

mysql> select stud_fname,stud_lname from student order by stud_fname desc;
+------------+------------+
| stud_fname | stud_lname |
+------------+------------+
| Shilpa     | K P        |
| Ranjana    | K          |
| Manjima    | Varghese   |
| Liya       | V          |
| Lakshmi    | C          |
+------------+------------+
5 rows in set (0.00 sec)

mysql>
```

24. List the student's name, course code and section id grouping the students by their grade.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                    —   □   ✕

mysql> select * from student;
+---------+------------+------------+--------------+------------+--------+------------+
| stud_no | stud_fname | stud_lname | stud_address | stud_city  | state  | postalcode |
+---------+------------+------------+--------------+------------+--------+------------+
| 1       | Lakshmi    | C          | Avittam      | Chelembra  | Kerala | 6736       |
| 2       | Ranjana    | K          | Layam        | Kannur     | Kerala | 6758       |
| 3       | Liya       | V          | Manjusha     | Trivandrum | Kerala | 6732       |
| 4       | Shilpa     | K P        | Narayaniyam  | Kochi      | Kerala | 6762       |
| 5       | Manjima    | Varghese   | Rose         | Wayanad    | Kerala | 6752       |
+---------+------------+------------+--------------+------------+--------+------------+
5 rows in set (0.00 sec)

mysql> select student.stud_fname,student.stud_lname,section.course_code,enrolment.section_id from student inner join
 section inner join enrolment on student.stud_no=enrolment.stud_no and section.section_id=enrolment.section_id group
 by enrolment.grade;
+------------+------------+-------------+------------+
| stud_fname | stud_lname | course_code | section_id |
+------------+------------+-------------+------------+
| Lakshmi    | C          | 20MCA260    | 301        |
+------------+------------+-------------+------------+
1 row in set (0.04 sec)

mysql>
```

Optimizing databases (Join, Aggregate & Set operations, Other operators like arithmetic, logical, special etc)

25. Use an inner join between the STUDENT and ENROLMENT tables for showing the

full name, Section id and Grade.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                      —    □    ✕

mysql> select student.stud_fname,student.stud_lname,enrolment.section_id,enrolment.grade from student inner
join enrolment on student.stud_no=enrolment.stud_no;
+------------+------------+------------+-------+
| stud_fname | stud_lname | section_id | grade |
+------------+------------+------------+-------+
| Lakshmi    | C          | 301        |       |
| Ranjana    | K          | 302        |       |
| Liya       | V          | 305        |       |
| Shilpa     | K P        | 305        |       |
+------------+------------+------------+-------+
4 rows in set (0.00 sec)

mysql>
```

26. Use an outer join between the STUDENT and ENROLMENT tables for showing the full name, Section id and Grade. Include all the students regardless of whether they have a matching section.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                      —    □    ✕

mysql> select student.stud_fname,student.stud_lname,enrolment.section_id,enrolment.grade from student left join
 enrolment on student.stud_no=enrolment.stud_no;
+------------+------------+------------+-------+
| stud_fname | stud_lname | section_id | grade |
+------------+------------+------------+-------+
| Lakshmi    | C          | 301        |       |
| Ranjana    | K          | 302        |       |
| Liya       | V          | 305        |       |
| Shilpa     | K P        | 305        |       |
| Manjima    | Varghese   | NULL       | NULL  |
+------------+------------+------------+-------+
5 rows in set (0.00 sec)

mysql>
```

27. Give a 7% salary raise to instructors whose salary is less than the average.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                          —    □    ✕

mysql> update instructor set salary=salary+(salary*7/100) where salary < (select avg(salary));
Query OK, 0 rows affected (0.00 sec)
Rows matched: 0  Changed: 0  Warnings: 0

mysql> select * from instructor;
+---------------+------------------+------------------+------------------+---------+
| instructor_id | instructor_fname | instructor_lname | instructor_phone | salary  |
+---------------+------------------+------------------+------------------+---------+
| 1001          | Asha             | K                | 9686955659       | 38500   |
| 1002          | Ashna            | John             | 9682233659       | 35200   |
| 1003          | Sandeep          | Roy              | 9685887759       | 36300   |
| 1004          | Asifa            | Aisha            | 966253659        | 49500   |
| 1005          | George           | G                | 9234561659       | 44000   |
+---------------+------------------+------------------+------------------+---------+
5 rows in set (0.00 sec)

mysql>
```

28. List full name and salary of instructors whose last name ends with 'a' and earns highest salary.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                                          —    □    ✕

mysql> select instructor_fname,salary from instructor where salary=(select max(salary) from instructor) and
instructor_fname in(select instructor_fname from instructor where instructor_fname like '%a');
+------------------+--------+
| instructor_fname | salary |
+------------------+--------+
| Asifa            | 49500  |
+------------------+--------+
1 row in set (0.02 sec)

mysql>
```

29 .Display the details of instructor who draws lowest salary.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                         —    □    ✕

mysql> select * from instructor;
+---------------+-----------------+-----------------+-----------------+--------+
| instructor_id | instructor_fname | instructor_lname | instructor_phone | salary |
+---------------+-----------------+-----------------+-----------------+--------+
| 1001          | Asha            | K               | 9686955659      | 38500  |
| 1002          | Ashna           | John            | 9682233659      | 35200  |
| 1003          | Sandeep         | Roy             | 9685887759      | 36300  |
| 1004          | Asifa           | Aisha           | 966253659       | 49500  |
| 1005          | George          | G               | 9234561659      | 44000  |
+---------------+-----------------+-----------------+-----------------+--------+
5 rows in set (0.00 sec)

mysql> select * from instructor where salary=(select min(salary) from instructor);
+---------------+-----------------+-----------------+-----------------+--------+
| instructor_id | instructor_fname | instructor_lname | instructor_phone | salary |
+---------------+-----------------+-----------------+-----------------+--------+
| 1002          | Ashna           | John            | 9682233659      | 35200  |
+---------------+-----------------+-----------------+-----------------+--------+
1 row in set (0.00 sec)

mysql>
```

30. List the students details who lived in Kochi, Kerala or in Bangalore, Karnataka or both.

```
c:\wamp\bin\mysql\mysql5.6.12\bin\mysql.exe                         —    □    ✕

mysql> select * from student;
+---------+-----------+-----------+-------------+------------+---------+------------+
| stud_no | stud_fname | stud_lname | stud_address | stud_city  | state   | postalcode |
+---------+-----------+-----------+-------------+------------+---------+------------+
| 1       | Lakshmi   | C         | Avittam     | Chelembra  | Kerala  | 6736       |
| 2       | Ranjana   | K         | Layam       | Kannur     | Kerala  | 6758       |
| 3       | Liya      | V         | Manjusha    | Trivandrum | Kerala  | 6732       |
| 4       | Shilpa    | K P       | Narayaniyam | Kochi      | Kerala  | 6762       |
| 5       | Manjima   | Varghese  | Rose        | Kerala     | Kerala  | 6752       |
+---------+-----------+-----------+-------------+------------+---------+------------+
5 rows in set (0.00 sec)

mysql> select * from student where stud_city='Kerala' and 'Kochi' or 'Banglore' and 'Karnataka' or stud_city
in('Kochi','Kerala','Banglore','Karnataka');
+---------+-----------+-----------+-------------+-----------+---------+------------+
| stud_no | stud_fname | stud_lname | stud_address | stud_city | state   | postalcode |
+---------+-----------+-----------+-------------+-----------+---------+------------+
| 4       | Shilpa    | K P       | Narayaniyam | Kochi     | Kerala  | 6762       |
| 5       | Manjima   | Varghese  | Rose        | Kerala    | Kerala  | 6752       |
+---------+-----------+-----------+-------------+-----------+---------+------------+
2 rows in set, 2 warnings (0.00 sec)

mysql>
```