DDL Commands:

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

Output

```
mysql> create database CYBERCOLLEGE;
 Query OK, 1 row affected (0.13 sec)
 mysql> use cybercollege;
 Database changed
 mysql> create table STUDENT(Stud_No varchar(9) primary key , Stud_lname varchar(30) , Stud_fname varchar(20) , Stud_address varchar(50) , Stud_City varchar(30) , State
 varchar(2) , PostalCode varchar(9));
 Query OK, 0 rows affected (0.38 sec)
 mysql> create table INSTRUCTOR(Instructor_id varchar(5) primary key , Instructor_lname varchar(30) , Instructor_fname varchar(20) , Instructor_phone varchar(8));
  uery OK, 0 rows affected (0.23 sec)
 mysql> create table COURSE(Course Code varchar(6) primary key , Course Title varchar(25) , Course Hours numeric(2,0) , Semester varchar(20));
  uery OK, 0 rows affected (0.17 sec)
mysql> create table SECTION(Section_id int , 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(5) REFERENCES INSTRUCTOR(Instructor_id) , Course_Code varchar(6) REFERENCES COURSE(Course_Code);
Query OK, 0 rows affected (0.25 sec)
 nysql>
                                                        c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> create table ENROLMENT(Stud_No varchar(9) NOT NULL REFERENCES STUDENT(Stud_no) , Section_id varchar(7) NOT NULL R
EFERENCES SECTION(Section_id), Grade varchar(2), PRIMARY KEY(Stud_no,Section_id)); ERROR 2006 (HY000): MySQL server has gone away
No connection. Trying to reconnect...
Connection id: 4
Current database: cybercollege
Query OK, 0 rows affected (0.49 sec)
```

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> desc STUDENT;
Field
                     | Type | Null | Key | Default | Extra |
 Stud_No | varchar(9)
Stud_lname | varchar(30)
Stud_fname | varchar(20)
Stud_address | varchar(50)
Stud_City | varchar(30)
State | varchar(2)
                                        NO
Stud No
                                                  | PRI | NULL
                                           YES
                                                             NULL
                                           YES
                                                             NULL
                                           YES
                                                             NULL
                                          YES
                                                             NULL
                     | varchar(2)
| varchar(9)
                                          YES
  State
                                                             NULL
 PostalCode
                                           YES
                                                           NULL
7 rows in set (0.88 sec)
mysql> DESC INSTRUCTOR;
Field
                          Type
                                            | Null | Key | Default | Extra |
| Instructor_id | varchar(5) | NO
| Instructor_lname | varchar(30) | YES
| Instructor_fname | varchar(20) | YES
| Instructor_phone | varchar(8) | YES
                                                       | PRI |
                                                                  NULL
                                                                  NULL
                                                                  NULL
                                                                NULL
4 rows in set (0.09 sec)
mysql> DESC COURSE;
                                         | Null | Key | Default | Extra |
Field
                     Type
| Course_Code | varchar(6) | NO
| Course_Title | varchar(25) | YES
| Course_Hours | decimal(2,0) | YES
                                                    PRI
                                                              NULL
                                                              NULL
                                                              NULL
                     varchar(20)
                                          YES
Semester
                                                              NULL
4 rows in set (0.07 sec)
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
```

Field Type			Null	Key	Default	Extra
Days_Offered var Section_Room var Class_Size dec Number_Enrolled dec Instructor_id var		(10) r(10) r(10) r(8) l(3,0) l(3,0) r(5) r(6)	YES		NULL NULL NULL NULL NULL NULL NULL	
3 rows in set						
Field	Туре	Null	Key	Defaul	t Extr	a
Stud_No Section_id Grade	varchar(9) varchar(7) varchar(2)	NO NO YES	PRI	NULL NULL NULL		

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

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> alter table STUDENT ADD Country varchar(10)    DEFAULT 'India';
Query OK, 0 rows affected (0.44 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> DESC STUDENT;
 Field
                             | Null | Key | Default | Extra
               Type
 Stud No
                varchar(9)
                               NO
                                            NULL
 Stud Iname
                varchar(30)
                               YES
                                             NULL
                               YES
 Stud_fname
                varchar(20)
                                             NULL
 Stud_address |
                varchar(50)
                               YES
                                             NULL
 Stud City
                 varchar(30)
                               YES
                                             NULL
 State
                 varchar(2)
                               YES
                                             NULL
                 varchar(9)
 PostalCode
                               YES
                                             NULL
                varchar(10)
                               YES
                                             India
 Country
8 rows in set (0.08 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:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe

mysql> alter table ENROLMENT ADD CONSTRAINT Grade CHECK(Grade IN ('A','B','C','D'));

Query OK, 0 rows affected (0.19 sec)

Records: 0 Duplicates: 0 Warnings: 0
```

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

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> alter table ENROLMENT MODIFY Grade varchar(2);
Query OK, 0 rows affected (0.36 sec)
Records: 0 Duplicates: 0 Warnings:
                                 Warnings: 0
mysql> DESC ENROLMENT;
 Field
           Type
                                | Null | Key | Default | Extra |
                 varchar(9) |
varchar(7) |
varchar(2) |
  Stud No
                                  NO
                                           PRI
                                                  NULL
  Section_id |
                                           PRI
                                                  NULL
                                  NO
  Grade
                | varchar(2)
                                  YES
                                                  NULL
3 rows in set (0.03 sec)
mysql>
```

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

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> alter table INSTRUCTOR ADD salary varchar(20);
Query OK, 0 rows affected (0.41 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> DESC INSTRUCTOR;
 Field
                                        | Null | Key | Default | Extra |
  Instructor_id
                         varchar(5)
                                          NO
                                                   PRI
                                                          NULL
  Instructor_lname
Instructor_fname
                         varchar(30)
varchar(20)
                                           YES
                                                           NULL
                                                          NULL
                                          YES
  Instructor_phone |
                         varchar(8)
                                          YES
                                                          NULL
  salary
                       | varchar(20)
                                          YES
                                                          NULL
5 rows in set (0.06 sec)
mysql>
```

6. Drop the column Country from the STUDENT table.

c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe

```
mysql> alter table STUDENT DROP Country;
Query OK, 0 rows affected (0.24 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> DESC STUDENT;
               Type
 Field
                             | Null | Key | Default | Extra
                                      PRI |
 Stud No
                varchar(9)
                                            NULL
                               NO
 Stud lname
               | varchar(30)
                               YES
                                            NULL
 Stud fname
               varchar(20)
                               YES
                                            NULL
 Stud_address | varchar(50)
                               YES
                                            NULL
 Stud_City
                varchar(30)
                               YES
                                            NULL
                                            NULL
  State
                varchar(2)
                               YES
                               YES
                                            NULL
 PostalCode
               varchar(9)
 rows in set (0.01 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:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> create view inst as SELECT i.Instructor_id , i.Instructor_fname , i.Instructor_lname , i.Instructor_phone , c.Cou
mysql> create view inst as SELECT instructor_id , i.instructor_id=s.Instructor_id AND s.Course_Code=c.Course_Code;
rse_Title FROM Instructor i join SECTION s WHERE i.Instructor_id=s.Instructor_id AND s.Course_Code=c.Course_Code;
ERROR 1054 (42S22): Unknown column 'c.Course_Title' in 'field list'
mysql> create view inst as SELECT i.Instructor_id , i.Instructor_fname , i.Instructor_lname , i.Instructor_phone , c.Cou
rse_Title FROM Instructor i join COURSE c join SECTION s WHERE i.Instructor_id=s.Instructor_id AND s.Course_Code=c.Cours
  Code;
 Query OK, 0 rows affected (0.11 sec)
 mysql> select * from inst;
Empty set (0.26 sec)
 nysql> desc inst;
   Field
                                                           | Null | Key | Default | Extra |
                                    Type
    Instructor id
                                     varchar(5)
                                                                                     NULL
   Instructor_fname
Instructor_lname
                                     varchar(20)
                                     varchar(30)
    Instructor phone
                                    varchar(8)
                                                              YES
   Course_Title
                                    varchar(25)
                                                                                     NULL
   rows in set (0.04 sec)
   ysql>
```

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.

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> insert into STUDENT values(1,'joshy','Anna','abc','cky','ke',680307);
Query OK, 1 row affected (0.11 sec)
mysql> insert into STUDENT values(2,'Paul','Mariya','def','cky','ke',680307);
Query OK, 1 row affected (0.00 sec)
mysql> insert into STUDENT values(3,'Chand','Sree','ghi','cky','ke',680307);
Query OK, 1 row affected (0.00 sec)
mysql> insert into STUDENT values(4,'Shaji','Ann','jkl','cky','ke',680307);
Query OK, 1 row affected (0.00 sec)
mysql> insert into STUDENT values(5,'K','David','mno','cky','ke',680307);
Query OK, 1 row affected (0.00 sec)
mysql> insert into STUDENT values(6,'Sevi','Snephia','pqr','cky','ke',680307);
Query OK, 1 row affected (0.01 sec)
mysql> select * from STUDENT;
 Stud_No | Stud_lname
                       | Stud_fname | Stud_address | Stud_City | State | PostalCode
            joshy
                          Anna
                                       abc
                                                       cky
                                                                    ke
                                                                            680307
            Paul
                         Mariya
                                       def
                                                       cky
                                                                    ke
                                                                            680307
  2
                                       ghi
jkl
                                                       cky
            Chand
                          Sree
                                                                    ke
                                                                            680307
                                                       cky
 4
            Shaji
                          Ann
                                                                    ke
                                                                            680307
                                                       cky
                          David
                                                                            680307
                                       mno
                                                                    ke
            Sevi
                                                                    ke
                                                                            680307
 6
                          Snephia
                                       pqr
                                                       cky
 rows in set (0.00 sec)
```

```
×
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> insert into INSTRUCTOR values(1,'KA','Asha',98345274,24000);
Query OK, 1 row affected (0.12 sec)
mysql> insert into INSTRUCTOR values(2,'P','Ashna',98341274,22000);
Query OK, 1 row affected (0.00 sec)
mysql> insert into INSTRUCTOR values(3,'K','Sandeep',98461274,21000);
Query OK, 1 row affected (0.00 sec)
mysql> insert into INSTRUCTOR values(4,'AS','Asifa',98461864,20000);
Query OK, 1 row affected (0.00 sec)
mysql> insert into INSTRUCTOR values(5,'Mathew','George',98331864,18000);
Query OK, 1 row affected (0.00 sec)
mysql> select * from INSTRUCTOR;
 Instructor id | Instructor lname | Instructor fname | Instructor phone | salary |
                  KA
                                      Asha
                                                         98345274
                                                                             24000
                                      Ashna
                                                         98341274
                                                                            22000
                  K
                                      Sandeep
                                                         98461274
                                                                            21000
  4
                  AS
                                      Asifa
                                                         98461864
                                                                             20000
                  Mathew
                                     George
                                                       98331864
                                                                            18000
 rows in set (0.00 sec)
```

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 hours

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> desc course;
                               | Null | Key | Default | Extra |
Field
               Type
 Course_Code
Course_Title
                 varchar(6)
varchar(25)
                                 NO
                                        PRI
                                              NULL
                                 YES
                                              NULL
 Course_Hours
                 decimal(2,0)
                                 YES
                                              NULL
 Semester
                 varchar(20)
                                 YES
                                              NULL
4 rows in set (0.01 sec)
mysql> insert into COURSE values('20MCA1','ADS',7,1);
Query OK, 1 row affected (0.04 sec)
mysql> insert into COURSE values('20MCA2','ASE',8,1);
Query OK, 1 row affected (0.00 sec)
mysql> insert into COURSE values('20MCA3','MFC',9,1);
Query OK, 1 row affected (0.00 sec)
mysql> insert into COURSE values('20MCA4','Digital',11,1);
Query OK, 1 row affected (0.00 sec)
mysql> insert into COURSE values('20MCA5','ADBMS',11,2);
Query OK, 1 row affected (0.00 sec)
mysql> insert into COURSE values('20MCA6','ACN',9,2);
Query OK, 1 row affected (0.00 sec)
mysql> insert into COURSE values('20MCA7','AI',8,2);
Query OK, 1 row affected (0.00 sec)
mysql> insert into COURSE values('20MCA8','AOS',7,2);
Query OK, 1 row affected (0.00 sec)
mysql> insert into COURSE values('20MC26','Data Mining',4,2);
Query OK, 1 row affected (0.00 sec)
```

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> select * from COURSE;
                                                  Semester
  Course_Code | Course_Title | Course_Hours |
                                                   1
  20MCA1
                 ADS
                                                   1
  20MCA2
                 ASE
                                              8
  20MCA3
                 MFC
                                              9
                                                   1
  20MCA4
                 Digital
                                                   1
                                             11
                                                   2
  20MCA5
                 ADBMS
                                             11
                 ACN
                                              9
                                                   2
  20MCA6
  20MCA7
                 AI
                                              8
                                                   2
  20MCA8
                 AOS
                                                   2
  20MC26
                 Data Mining
                                              4
                                                   2
9 rows in set (0.03 sec)
mysql>
```

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 enrol 5 students each to these courses.

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> insert into SECTION values(301,2-4,'MW','BLGNG102',35,0,3,'20MC26');
Query OK, 1 row affected (0.06 sec)
mysql> insert into COURSE values('20MCA9','0B',4,2);
Query OK, 1 row affected (0.00 sec)
mysql> insert into SECTION values(302,2,'MW','BLGNG103',35,0,1,'20MCA8');
Query OK, 1 row affected (0.00 sec)
mysql> insert into SECTION values(303,2,'MW','BLGNG104',35,0,2,'20MCA9');
Query OK, 1 row affected (0.00 sec)
mysql> select * from SECTION;
 Section_id | Time_Offered | Days_Offered | Section_Room | Class_Size | Number_Enrolled | Instructor_id | Course_Code
         301
                              MW
                                             BLGNG102
                                                                                        0 | 3
                                                                                                             20MC26
         302
                              MW
                                             BLGNG103
                                                                                        0
                                                                                                             20MCA8
                                                                                        0 2
                                                                                                             20MCA9
         303 | 2
                              MW
                                             BLGNG104
3 rows in set (0.00 sec)
mysql> _
```

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> insert into ENROLMENT values(1,302,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(2,302,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(3,302,'');
Ouery OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(4,302,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(5,302,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(1,303,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(2,303,'');
Query OK, 1 row affected (0.01 sec)
mysql> insert into ENROLMENT values(3,303,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(4,303,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(5,303,'');
Query OK, 1 row affected (0.00 sec)
```

c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe

```
mysql> select * from ENROLMENT;
 Stud No | Section id | Grade |
 1
            302
  2
            302
            302
  3
 4
            302
  5
            302
  1
            303
  2
            303
  3
            303
 4
            303
 5
          303
10 rows in set (0.00 sec)
mysql>
```

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:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> insert into ENROLMENT values(6,301,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(1,301,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(2,301,'');
Query OK, 1 row affected (0.00 sec)
mysql> insert into ENROLMENT values(3,301,'');
Query OK, 1 row affected (0.00 sec)
mysql> select * from ENROLMENT;
| Stud_No | Section_id | Grade |
            302
            302
 2
            302
 4
            302
 5
            302
 1
            303
 2
            303
            303
 4
            303
            303
 6
            301
 1
            301
 2
            301
 3
            301
14 rows in set (0.00 sec)
mysql>
```

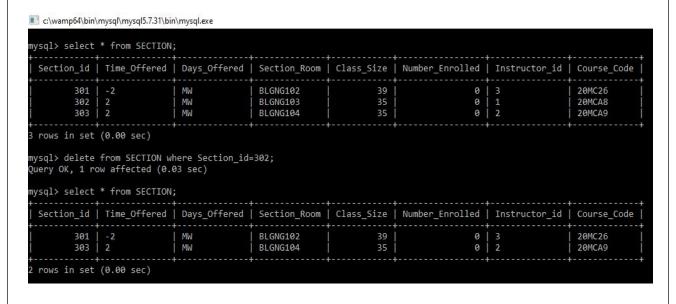
12. Update the 301 section, and increase the class sizes by 10%.

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> update section set Class_Size=Class_Size+(Class_Size* 10/100) where Section_id=301;
Query OK, 1 row affected, 1 warning (0.12 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
                                                                                      0 | 3
                                                                   39
        301 | -2
                             MW
                                           BLGNG102
                                                                                                          20MC26
        302
                             MW
                                            BLGNG103
                                                                                                          20MCA8
        303 | 2
                                                                                      0 2
                                                                                                          20MCA9
                             MW
                                            BLGNG104
                                                                   35
3 rows in set (0.01 sec)
mysql>_
```

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

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
                                                                                   X
nysql> select * from INSTRUCTOR;
 Instructor_id | Instructor_lname | Instructor_fname | Instructor_phone | salary
                  KA
                                      Asha
                                                          98345274
 1
                                                                             24000
                                                          98341274
                                                                             22000
                                      Ashna
                                      Sandeep
                                                          98461274
                                                                             21000
                                      Asifa
                                                          98461864
                                                                             20000
                                                          98331864
                  Mathew
                                      George
                                                                             18000
 rows in set (0.00 sec)
mysql> update INSTRUCTOR set salary=salary+(salary* 10/100);
Query OK, 5 rows affected (0.14 sec)
Rows matched: 5 Changed: 5 Warnings: 0
mysql> select * from INSTRUCTOR;
 Instructor_id | Instructor_lname | Instructor_fname | Instructor_phone |
                                                                             salary
                                                          98345274
 1
                  KA
                                      Asha
                                                                             26400
                                      Ashna
                                                          98341274
                                                                             24200
                                      Sandeep
                                                          98461274
                                                                             23100
                                      Asifa
                                                          98461864
                  AS
                                                                             22000
                                                          98331864
                                                                             19800
                  Mathew
                                      George
 rows in set (0.00 sec)
```

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



TCL Commands:

- 15. Undo the previous delete operation
 - c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe

 mysql> rollback;

 Query OK, 0 rows affected (0.00 sec)

 mysql> _
- 16. Save all the transactions to the database.
 - c:\wamp64\bin\mysql\mysql5.7.31\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.

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> create user 'U1' identified by '12345678';
Query OK, 0 rows affected (0.42 sec)
mysql> select user from mysql.user;
  user
  U1
  mysql.session
  mysql.sys
  root
4 rows in set (0.00 sec)
mysql> grant select , update on ENROLMENT to U1;
Query OK, 0 rows affected (0.10 sec)
mysql> show grants for 'U1';
Grants for U1@%
GRANT USAGE ON *.* TO 'U1'@'%'
 GRANT SELECT, UPDATE ON `cybercollege`.`enrolment` TO 'U1'@'%'
2 rows in set (0.04 sec)
mysql>
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
                                                                                                           ×
mysql> grant select,delete on ENROLMENT to U1;
Query OK, 0 rows affected (0.01 sec)
mysql> show grant for U1;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version
for the right syntax to use near 'grant for U1' at line 1
mysql> show grants for 'U1';
Grants for U1@%
GRANT USAGE ON *.* TO 'U1'@'%'
GRANT SELECT, UPDATE, DELETE ON `cybercollege`.`enrolment` TO 'U1'@'%'
2 rows in set (0.00 sec)
```

18. Revoke the delete privilege from U1

nysql>

```
GRANT USAGE ON *.* TO 'U1'@'%'

GRANT SELECT, UPDATE, DELETE ON `cybercollege`.`enrolment` TO 'U1'@'%'

rows in set (0.00 sec)

mysql> revoke delete on ENROLMENT from 'U1';

Query OK, 0 rows affected (0.00 sec)

mysql> show grants for 'U1';

Grants for U1@%

GRANT USAGE ON *.* TO 'U1'@'%'

GRANT SELECT, UPDATE ON `cybercollege`.`enrolment` TO 'U1'@'%'

2 rows in set (0.00 sec)

mysql>
```

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

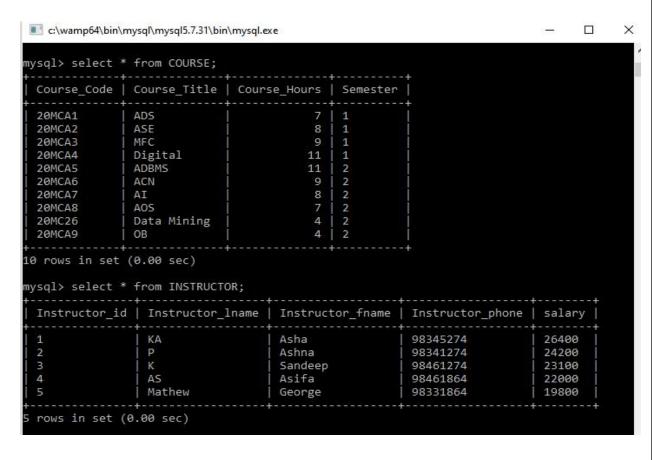
19. Display the full name and contact details of students living in Kochi.

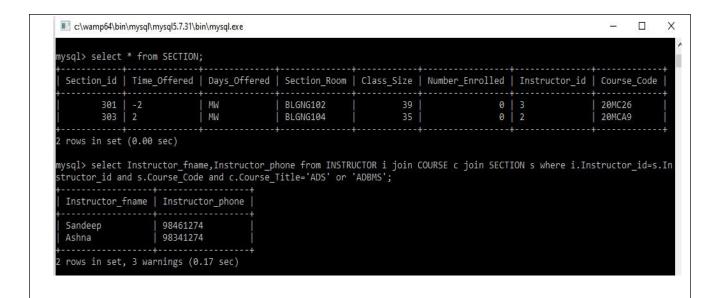
```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> select * from STUDENT;
 Stud No | Stud lname | Stud fname | Stud address | Stud City | State | PostalCode
            joshy
 1
                                                                    ke
                                                                             680307
                          Anna
                                        abc
                                                       cky
            Paul
                          Mariya
                                        def
                                                        cky
                                                                    ke
                                                                             680307
  3
                                        ghi
                                                                             680307
            Chand
                          Sree
                                                       cky
                                                                    ke
                                                       cky
                                        jkl
                                                                    ke
            Shaji
                          Ann
                                                                             680307
                          David
                                        mno
                                                        cky
                                                                    ke
                                                                             680307
 6
            Sevi
                                                       cky
                          Snephia
                                        pqr
                                                                    ke
                                                                             680307
6 rows in set (0.00 sec)
mysql> select Stud_fname,Stud_lname,Stud_address from STUDENT where Stud_City='kochi';
Empty set (0.04 sec)
mysql>
```

20. List the student details who has longest first name

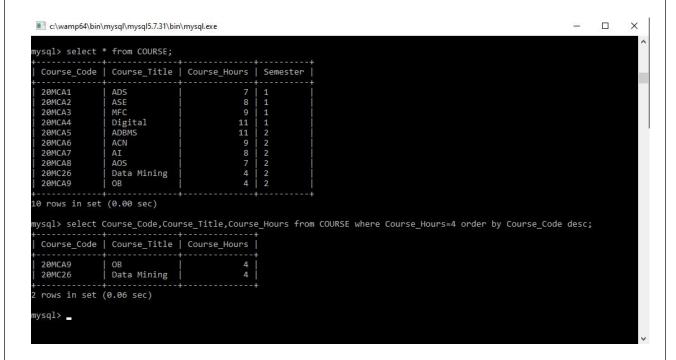
```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
mysql> select * from STUDENT;
 Stud_No |
           Stud_Iname |
                         Stud_fname | Stud_address | Stud_City | State | PostalCode
            joshy
Paul
                         Anna
                                                       cky
                                                                    ke
                                                                            680307
                                       abc
                         Mariya
                                       def
                                                       cky
                                                                    ke
                                                                            680307
                                       ghi
                                                       cky
            Chand
                         Sree
                                                                            680307
                                                                    ke
                                       jkl
                                                       cky
            Shaji
                         Ann
                                                                    ke
                                                                            680307
                                                                            680307
 5
                         David
                                       mno
                                                       cky
                                                                    ke
           Sevi
                         Snephia
                                       pqr
                                                                            680307
6 rows in set (0.00 sec)
nysql> select * from STUDENT where length(Stud_fname)=(select max(length(Stud_fname))from STUDENT);
 Stud_No | Stud_lname | Stud_fname | Stud_address | Stud_City | State | PostalCode
          Sevi
                         Snephia
                                     pqr
                                                      cky
                                                                           680307
 row in set (0.31 sec)
mysql>
```

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

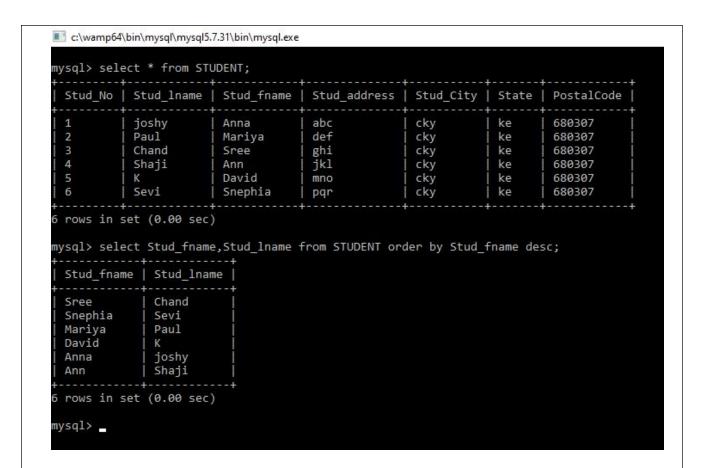




22. List the codes, titles, and credit hours for courses worth 4 hours. Order the results in descending order of course code.



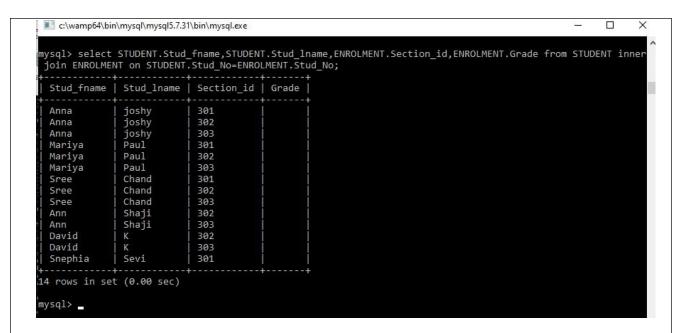
23. Display the names of the students in the descending order along with their phone number.



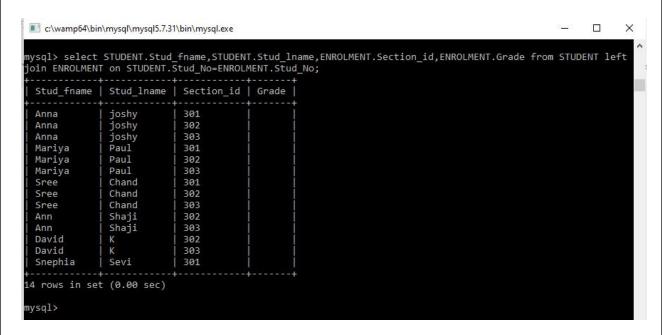
24. List the student's name, course code and section id grouping the students by their grade.

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.



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.



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

```
c:\wamp64\bin\mysql\mysql5.7.31\bin\mysql.exe
                                                                                                  ysql> select * from INSTRUCTOR;
  Instructor_id |
                   Instructor_lname
                                        Instructor_fname
                                                             Instructor_phone
                                        Asha
                                                             98345274
                                                                                   26400
                                                              98341274
                                                                                   24200
                                        Ashna
                                                              98461274
                                                                                   23100
                                        Sandeep
                                        Asifa
                                                              98461864
                                                                                   22000
                   Mathew
                                                             98331864
                                                                                   19800
                                        George
 rows in set (0.00 sec)
nysql> update INSTRUCTOR set salary=salary+(salary* 7/100) where salary < (select avg(salary));
Query OK, 0 rows affected (0.13 sec)
Rows matched: 0 Changed: 0 Warnings: 0
nysql> select * from INSTRUCTOR;
 Instructor_id | Instructor_Iname |
                                        Instructor fname
                                                           | Instructor_phone | salary
                                                             98345274
                   KA
                                        Asha
                                                                                   26400
                                        Ashna
                                                             98341274
                                                                                   24200
                                        Sandeep
                                                             98461274
                                                                                  23100
                                        Asifa
 4
                   AS
                                                             98461864
                                                                                   22000
                   Mathew
                                                             98331864
                                                                                   19800
                                        George
 rows in set (0.00 sec)
```

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

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

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

