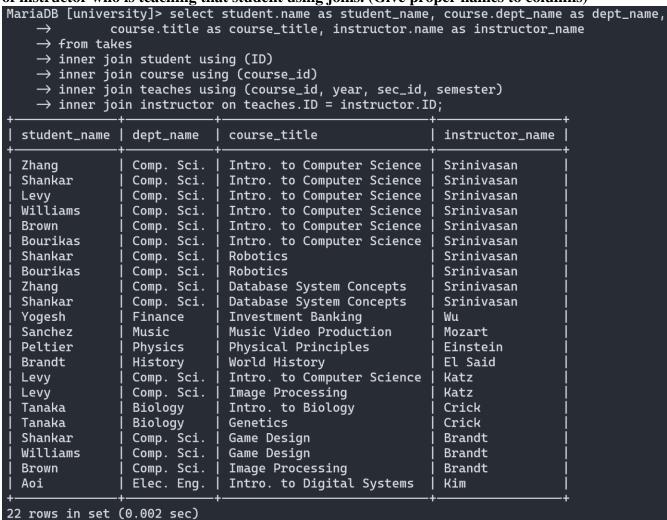
S3120 Database Management Systems Laboratory

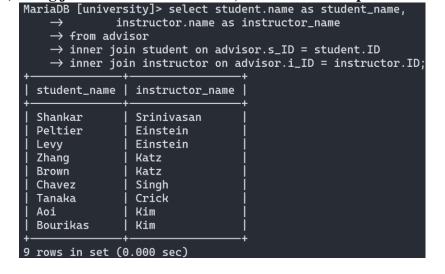
Assignment – 6

Yogesh R, 111801047

1. Show student name, department name course title for course id the student has chosen and of instructor who is teaching that student using joins. (Give proper names to columns)



(a) Using join show a student name, instructor name pair where the instructor advises student.



2.

(b) Create a view to show the students names and their advisors names

```
MariaDB [university]> create view advisor_names as (

→ select student.name as student_name,

→ instructor.name as instructor_name

→ from advisor

→ inner join student on advisor.s_ID = student.ID

→ inner join instructor on advisor.i_ID = instructor.ID

→ );

Query OK, 0 rows affected (0.007 sec)
```

(c) Update the student as '< Your name>' for the advisor 'Singh' and write what happens to the view and advisor table

The advisor table will have no change as only the student's name is changed and not the ID but the advisor table consists of only student ID and instructor ID.

(d) Delete the updated record and write what happens to the view and advisor table

```
MariaDB [university]> delete from advisor_names

→ where student_name='Yogesh';
ERROR 1395 (HY000): Can not delete from join view 'university.advisor_names'
```

Deleting from a complex view is not allowed and thus will result in an error. The view and advisor table will remain the same.

(e) Insert a record with values 'Advisor1','<Your name>' into the view and write what happens to the view and advisor table

```
MariaDB [university]> insert into advisor_names

→ values ('Yogesh', 'Advisor1');
ERROR 1394 (HY000): Can not insert into join view 'university.advisor_names' without fields list
```

Insertion into a complex view is not allowed and thus will result in an error. The view and advisor will remain the same.

3. Display all student names, student id their advisor names and advisor id also including those students who are not advised by any advisor.

```
MariaDB [university]> select student.name, student.ID, instructor.name, instructor.ID

ightarrow from student
    → left join advisor on student.ID = advisor.s_ID
    → left join instructor on advisor.i_ID = instructor.ID;
             ID
                      name
                                   ID
  Zhang
             00128
                      Katz
                                   45565
  Shankar
             12345
                      Srinivasan
                                   10101
             19991
  Brandt
                      NULL
                                   NULL
             23121
                                   76543
  Yogesh
                      Singh
             44553
  Peltier
                      Einstein
                                   22222
             45678
                      Einstein
                                   22222
  Levy
  Williams
             54321
                                   NULL
                      NULL
             55739
                      NULL
                                   NULL
  Sanchez
  Snow
             70557
                      NULL
                                   NULL
  Brown
              76543
                      Katz
                                   45565
  Aoi
              76653
                      Kim
                                   98345
  Bourikas
              98765
                      Kim
                                   98345
  Tanaka
             98988
                      Crick
                                   76766
13 rows in set (0.002 sec)
```

4. (a) Create view advisor_dept_budg containing advisors' ID,name, department name, salary where advisors in a department with a total salary of more than 100000.

```
MariaDB [university]> select *
    → from advisor_dept_budg;
  ID
                                       salarv
                        dept_name
          name
          Srinivasan
  10101
                        Comp. Sci.
                                       65000.00
                        Physics
          Einstein
  22222
                                       95000.00
  45565
          Katz
                         Comp. Sci.
                                       75000.00
          Singh
  76543
                         Finance
                                       80000.00
4 rows in set (0.008 sec)
```

(b) Increase the salary of each instructor by 10% and check in the view

```
MariaDB [university]> update instructor

→ set salary=salary*1.1;
Query OK, 12 rows affected (0.002 sec)
Rows matched: 12 Changed: 12 Warnings: 0
```

```
MariaDB [university]> select *
    → from advisor_dept_budg;
                       dept_name
                                    salarv
 ID
          name
  10101 | Srinivasan
                     Comp. Sci.
                                     71500.00
 22222 | Einstein
                       Physics
                                    104500.00
                       Comp. Sci.
 45565 | Katz
                                     82500.00
  76543
        Singh
                       Finance
                                     88000.00
4 rows in set (0.001 sec)
```

5. Create a view to display the ID, instructor name, course_id, sec_id, semester, building.room number of all the courses taught in the year 2009

```
MariaDB [university]> create view courses_in_2009 as (

→ select instructor.ID, instructor.name, course_id,

→ sec_id, semester, section.building, section.room_number

→ from teaches

→ inner join instructor using (ID)

→ inner join section using (sec_id, course_id, semester, year)

→ where year=2009

→ );

Query OK, 0 rows affected (0.004 sec)
```

```
MariaDB [university]> select *
    → from courses_in_2009;
                      course_id | sec_id | semester | building | room_number
 ID
         name
 10101 | Srinivasan | CS-101
                                  1
                                            Fall
                                                       Packard
                                                                  101
 10101 | Srinivasan
                       CS-347
                                   1
                                            Fall
                                                       Taylor
                                                                  3128
                                   1
                                            Fall
 22222 | Einstein
                       PHY-101
                                                       Watson
                                                                  100
 76766 | Crick
                       BIO-101
                                   1
                                                       Painter
                                                                  514
                                            Summer
                       CS-190
                                   1
 83821 | Brandt
                                            Spring
                                                       Taylor
                                                                  3128
 83821 | Brandt
                       CS-190
                                  2
                                            Spring
                                                       Taylor
                                                                  3128
 98345 | Kim
                                                       Taylor
                      EE-181
                                  1
                                            Spring
                                                                  3128
7 rows in set (0.017 sec)
```

6. Display student id, student name and their department name for all students who have not taken any course?

7. Create a view to display all the students (along with the corresponding courseID) who got an 'A' grade in the year 2009.

```
MariaDB [university]> select *
    \rightarrow from A_graders_2009;
| ID
                   | course_id |
        l name
 00128 | Zhang
                    CS-101
  12345
          Shankar
                     CS-190
  12345 | Shankar
                     CS-347
  76543 | Brown
                     CS-101
 98988 | Tanaka
                   | BIO-101
5 rows in set (0.020 sec)
```

8. Using nested query display all the instructors who have taught two or more courses.

```
MariaDB [university]> select instructor.ID, name,number_of_courses

ightarrow from
      (select ID, count(course_id) as number_of_courses
             from teaches
             group by ID
             having number_of_courses≥2
           ) as two_or_more
                inner join instructor on two_or_more.ID=instructor.ID;
                       number_of_courses
         name
 10101
          Srinivasan
                                        3
 45565
                                        2
          Katz
                                        2
 76766
         Crick
                                        3
 83821 | Brandt
 rows in set (0.001 sec)
```

9. Create a view to display the instructors who doesn't taught in the year 2010 (without using set operators).

```
MariaDB [university]> create view not_teach_2010 as (
    → select instructor.*
    \rightarrow from (
               select ID
    \rightarrow
               from teaches
               where year=2010
           ) as teaches_2010
               right join instructor on instructor.ID=teaches_2010.ID
    \rightarrow where teaches_2010.ID is null
    \rightarrow );
Query OK, 0 rows affected (0.007 sec)
MariaDB [university]> select *
     \rightarrow from not_teach_2010;
                        dept_name
 ID
                                       salary
          name
                        Physics
                                       104500.00
  22222
          Einstein
           Gold
                        Physics
  33456
                                        95700.00
                        History
  58583
           Califieri
                                        68200.00
                        Finance
  76543
           Singh
                                        88000.00
  98345
         | Kim
                        Elec. Eng.
                                        88000.00
5 rows in set (0.017 sec)
```

10. Using inner join on department table, display the list of all department name, building such that each building has more than one department.

```
MariaDB [university]> select dept_name, department.building
    \rightarrow from (
             select building
             from department
             group by building
             having count(dept_name)>1
    \rightarrow
    \rightarrow ) as more_than_one
    \rightarrow inner join department on
        department.building=more_than_one.building;
 dept_name
                building
 Biology
                Watson
 Comp. Sci.
                Taylor
  Elec. Eng.
                Taylor
  Finance
                Painter
  History
                Painter
  Physics
                Watson
6 rows in set (0.001 sec)
```

11. Display the student-advisor pairs(names) in which both the student and instructor took atleast one course in the year 2010.

```
MariaDB [university]> select student.name,instructor.name
    \rightarrow from (

ightarrow select s_ID, i_ID

ightarrow from advisor
                 inner join (
            select ID
            from teaches
            where year=2010
            group by ID
            having count(course_id)≥1
       ) as teaches_2010_gte1 on advisor.i_ID=teaches_2010_gte1.ID
                 inner join (
          select ID
           from takes
           where year=2010
            group by ID
            having count(course_id)≥1
    → ) as takes_2010_gte1 on advisor.s_ID=takes_2010_gte1.ID
   → ) as desired_ID_pairs
   → inner join student on student.ID=desired_ID_pairs.s_ID
   → inner join instructor on instructor.ID=desired_ID_pairs.i_ID;
          name
 name
 Shankar |
            Srinivasan
 Brown
            Katz
 Tanaka
          | Crick
3 rows in set (0.001 sec)
```