

DBMS Assignment 3

1.

```
MariaDB [university]> create table book_from_library(  
-> BOOK_ID varchar(5) not null primary key,  
-> name varchar(10),  
-> publication varchar(10),  
-> ID varchar(5));  
Query OK, 0 rows affected (0.038 sec)
```

```
MariaDB [university]> show tables;
```

Tables_in_university
advisor
book_from_library
classroom
course
department
instructor
prereq
section
student
takes
teaches
time_slot

12 rows in set (0.001 sec)

```
MariaDB [university]> describe book_from_library;
```

Field	Type	Null	Key	Default	Extra
BOOK_ID	varchar(5)	NO	PRI	NULL	
name	varchar(10)	YES		NULL	
publication	varchar(10)	YES		NULL	
ID	varchar(5)	YES		NULL	

4 rows in set (0.009 sec)

```
MariaDB [university]> alter table book_from_library add author varchar(10);
```

Query OK, 0 rows affected (0.025 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
MariaDB [university]> describe book_from_library;
```

Field	Type	Null	Key	Default	Extra
BOOK_ID	varchar(5)	NO	PRI	NULL	
name	varchar(10)	YES		NULL	
publication	varchar(10)	YES		NULL	
ID	varchar(5)	YES		NULL	
author	varchar(10)	YES		NULL	

5 rows in set (0.004 sec)

```
MariaDB [university]> drop table book_from_library;
```

Query OK, 0 rows affected (0.007 sec)

2.

a.

```
MariaDB [University]> INSERT INTO student VALUES('1045', 'Sai Vipul', 'Comp. Sci.', 95);
Query OK, 1 row affected (0.002 sec)
```

```
MariaDB [University]> select * from student;
+-----+-----+-----+-----+
| ID    | name   | dept_name | tot_cred |
+-----+-----+-----+-----+
| 00128 | Zhang  | Comp. Sci. | 102      |
| 1045  | Sai Vipul | Comp. Sci. | 95       |
| 12345 | Shankar | Comp. Sci. | 32       |
| 19991 | Brandt  | History    | 80       |
| 23121 | Chavez  | Finance    | 110      |
| 44553 | Peltier | Physics    | 56       |
| 45678 | Levy    | Physics    | 46       |
| 54321 | Williams | Comp. Sci. | 54       |
| 55739 | Sanchez | Music      | 38       |
| 70557 | Snow    | Physics    | 0        |
| 76543 | Brown   | Comp. Sci. | 58       |
| 76653 | Aoi     | Elec. Eng. | 60       |
| 98765 | Bourikas | Elec. Eng. | 98       |
| 98988 | Tanaka  | Biology    | 120      |
+-----+-----+-----+-----+
14 rows in set (0.001 sec)
```

b.

```
MariaDB [University]> UPDATE student SET tot_cred = 90 where ID = '1045';
Query OK, 1 row affected (0.015 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
MariaDB [University]> select * from student
-> ;
+-----+-----+-----+-----+
| ID    | name   | dept_name | tot_cred |
+-----+-----+-----+-----+
| 00128 | Zhang  | Comp. Sci. | 102      |
| 1045  | Sai Vipul | Comp. Sci. | 90       |
| 12345 | Shankar | Comp. Sci. | 32       |
| 19991 | Brandt  | History    | 80       |
| 23121 | Chavez  | Finance    | 110      |
| 44553 | Peltier | Physics    | 56       |
| 45678 | Levy    | Physics    | 46       |
| 54321 | Williams | Comp. Sci. | 54       |
| 55739 | Sanchez | Music      | 38       |
| 70557 | Snow    | Physics    | 0        |
| 76543 | Brown   | Comp. Sci. | 58       |
| 76653 | Aoi     | Elec. Eng. | 60       |
| 98765 | Bourikas | Elec. Eng. | 98       |
| 98988 | Tanaka  | Biology    | 120      |
+-----+-----+-----+-----+
14 rows in set (0.000 sec)
```

c.

```
MariaDB [University]> DELETE FROM student WHERE ID = '1045';  
Query OK, 1 row affected (0.002 sec)
```

```
MariaDB [University]> select * from student;  
+-----+-----+-----+-----+  
| ID | name | dept_name | tot_cred |  
+-----+-----+-----+-----+  
| 00128 | Zhang | Comp. Sci. | 102 |  
| 12345 | Shankar | Comp. Sci. | 32 |  
| 19991 | Brandt | History | 80 |  
| 23121 | Chavez | Finance | 110 |  
| 44553 | Peltier | Physics | 56 |  
| 45678 | Levy | Physics | 46 |  
| 54321 | Williams | Comp. Sci. | 54 |  
| 55739 | Sanchez | Music | 38 |  
| 70557 | Snow | Physics | 0 |  
| 76543 | Brown | Comp. Sci. | 58 |  
| 76653 | Aoi | Elec. Eng. | 60 |  
| 98765 | Bourikas | Elec. Eng. | 98 |  
| 98988 | Tanaka | Biology | 120 |  
+-----+-----+-----+-----+  
13 rows in set (0.001 sec)
```

3.

```
MariaDB [University]> select * from student;  
+-----+-----+-----+-----+  
| ID | name | dept_name | tot_cred |  
+-----+-----+-----+-----+  
| 00128 | Zhang | Comp. Sci. | 102 |  
| 12345 | Shankar | Comp. Sci. | 32 |  
| 19991 | Brandt | History | 80 |  
| 23121 | Chavez | Finance | 110 |  
| 44553 | Peltier | Physics | 56 |  
| 45678 | Levy | Physics | 46 |  
| 54321 | Williams | Comp. Sci. | 54 |  
| 55739 | Sanchez | Music | 38 |  
| 70557 | Snow | Physics | 0 |  
| 76543 | Brown | Comp. Sci. | 58 |  
| 76653 | Aoi | Elec. Eng. | 60 |  
| 98765 | Bourikas | Elec. Eng. | 98 |  
| 98988 | Tanaka | Biology | 120 |  
+-----+-----+-----+-----+  
13 rows in set (0.001 sec)
```

```
MariaDB [University]> UPDATE student  
-> SET tot_cred = tot_cred + 10  
-> WHERE tot_cred < 100;  
Query OK, 10 rows affected (0.004 sec)  
Rows matched: 10 Changed: 10 Warnings: 0
```

```
MariaDB [University]> select * from student
-> ;
```

ID	name	dept_name	tot_cred
00128	Zhang	Comp. Sci.	102
12345	Shankar	Comp. Sci.	42
19991	Brandt	History	90
23121	Chavez	Finance	110
44553	Peltier	Physics	66
45678	Levy	Physics	56
54321	Williams	Comp. Sci.	64
55739	Sanchez	Music	48
70557	Snow	Physics	10
76543	Brown	Comp. Sci.	68
76653	Aoi	Elec. Eng.	70
98765	Bourikas	Elec. Eng.	108
98988	Tanaka	Biology	120

13 rows in set (0.000 sec)

4.

```
MariaDB [University]> SELECT instructor.ID as ID
-> FROM instructor, teaches
-> WHERE instructor.ID = teaches.ID and teaches.year = 2009
-> GROUP BY teaches.ID
-> HAVING COUNT(teaches.ID) = 1;
```

ID
22222
76766
98345

3 rows in set (0.004 sec)

5.

```
MariaDB [University]> SELECT student.dept_name as dept_name, student.name as name, MAX(student.tot_cred) as tot_cred
-> FROM student
-> GROUP BY dept_name;
```

dept_name	name	tot_cred
Biology	Tanaka	120
Comp. Sci.	Zhang	102
Elec. Eng.	Aoi	108
Finance	Chavez	110
History	Brandt	90
Music	Sanchez	48
Physics	Peltier	66

7 rows in set (0.001 sec)

6.

```
MariaDB [University]> SELECT DISTINCT prereq.prereq_id as id, course.title as title
-> FROM prereq, course
-> WHERE prereq.prereq_id = course.course_id;
```

id	title
BIO-101	Intro. to Biology
CS-101	Intro. to Computer Science
PHY-101	Physical Principles

3 rows in set (0.001 sec)

7.

```
MariaDB [University]> SELECT DISTINCT instructor.ID, instructor.name
-> FROM instructor, advisor, student
-> WHERE instructor.ID = advisor.i_ID and advisor.s_ID = student.ID and student.dept_name = 'Comp. Sci.';
```

ID	name
45565	Katz
10101	Srinivasan

2 rows in set (0.001 sec)

8.

```
MariaDB [University]> SELECT instructor.dept_name as dept_name,
-> COUNT(instructor.ID) as number_of_instructors,
-> AVG(instructor.salary) as average_salary_spent
-> FROM instructor
-> GROUP BY instructor.dept_name;
```

dept_name	number_of_instructors	average_salary_spent
Biology	1	72000.000000
Comp. Sci.	3	77333.333333
Elec. Eng.	1	80000.000000
Finance	2	85000.000000
History	2	61000.000000
Music	1	40000.000000
Physics	2	91000.000000

7 rows in set (0.001 sec)