

DBMS Assignment 04

1.

```
MariaDB [university]> SELECT dept_name, AVG(salary) AS avg_salary
-> FROM instructor
-> WHERE instructor.ID IN (SELECT DISTINCT ID FROM teaches WHERE year = 2010)
-> GROUP BY dept_name
-> HAVING AVG(salary) > 50000;
```

dept_name	avg_salary
Biology	72000.000000
Comp. Sci.	77333.333333
Finance	90000.000000
History	60000.000000

4 rows in set (0.006 sec)

2.

a.

```
MariaDB [university]> SELECT * FROM student;
```

ID	name	dept_name	tot_cred
00128	Zhang	Comp. Sci.	102
12345	Shankar	Comp. Sci.	42
19991	Brandt	History	80
23121	Chavez	Finance	110
44553	Peltier	Physics	56
45678	Levy	Physics	46
54321	Williams	Comp. Sci.	64
55739	Sanchez	Music	38
70557	Snow	Physics	0
76543	Brown	Comp. Sci.	68
76653	Aoi	Elec. Eng.	60
98765	Bourikas	Elec. Eng.	98
98988	Tanaka	Biology	120

```
13 rows in set (0.001 sec)
```

```
MariaDB [university]> INSERT INTO student VALUES ('1045', 'Sai Vipul Mohan', 'Comp. Sci.', 12);  
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 Mohan	Comp. Sci.	12
12345	Shankar	Comp. Sci.	42
19991	Brandt	History	80
23121	Chavez	Finance	110
44553	Peltier	Physics	56
45678	Levy	Physics	46
54321	Williams	Comp. Sci.	64
55739	Sanchez	Music	38
70557	Snow	Physics	0
76543	Brown	Comp. Sci.	68
76653	Aoi	Elec. Eng.	60
98765	Bourikas	Elec. Eng.	98
98988	Tanaka	Biology	120

```
14 rows in set (0.000 sec)
```

b.

```

MariaDB [university]> WITH my_cred(cred) AS (SELECT tot_cred FROM student WHERE student.name = 'Sai Vipul Mohan'),
-> max_cred(cred) AS (SELECT MAX(tot_cred) FROM student),
-> min_cred(cred) AS (SELECT MIN(tot_cred) FROM student)
-> SELECT student.name
-> FROM student, my_cred, max_cred, min_cred
-> WHERE CASE WHEN max_cred.cred + min_cred.cred >= 2*my_cred.cred THEN student.tot_cred BETWEEN my_cred.cred AND max_cred.cred
-> ELSE student.tot_cred BETWEEN min_cred.cred AND my_cred.cred END
-> ORDER BY student.tot_cred DESC;

```

name
Tanaka
Chavez
Zhang
Bourikas
Brandt
Brown
Williams
Aoi
Peltier
Levy
Shankar
Sanchez
Sai Vipul Mohan

13 rows in set (0.002 sec)

C.

```
MariaDB [university]> SELECT * FROM student;
```

ID	name	dept_name	tot_cred
00128	Zhang	Comp. Sci.	102
1045	Sai Vipul Mohan	Comp. Sci.	12
12345	Shankar	Comp. Sci.	42
19991	Brandt	History	80
23121	Chavez	Finance	110
44553	Peltier	Physics	56
45678	Levy	Physics	46
54321	Williams	Comp. Sci.	64
55739	Sanchez	Music	38
70557	Snow	Physics	0
76543	Brown	Comp. Sci.	68
76653	Aoi	Elec. Eng.	60
98765	Bourikas	Elec. Eng.	98
98988	Tanaka	Biology	120

14 rows in set (0.001 sec)

```
MariaDB [university]> DELETE FROM student WHERE student.name = 'Sai Vipul Mohan';  
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.	42
19991	Brandt	History	80
23121	Chavez	Finance	110
44553	Peltier	Physics	56
45678	Levy	Physics	46
54321	Williams	Comp. Sci.	64
55739	Sanchez	Music	38
70557	Snow	Physics	0
76543	Brown	Comp. Sci.	68
76653	Aoi	Elec. Eng.	60
98765	Bourikas	Elec. Eng.	98
98988	Tanaka	Biology	120

13 rows in set (0.000 sec)

3.

```

MariaDB [university]> SELECT SUM(salary)
  -> FROM instructor
  -> WHERE instructor.ID IN (SELECT DISTINCT i_ID FROM advisor) AND instructor.name LIKE 'K%';
+-----+
| SUM(salary) |
+-----+
| 155000.00 |
+-----+
1 row in set (0.001 sec)

```

4.

```

MariaDB [university]> SELECT CONCAT(UPPER(SUBSTRING(name, 1, 4)), '_', SUBSTRING(dept_name, 1, 4))
  -> FROM student;
+-----+
| CONCAT(UPPER(SUBSTRING(name, 1, 4)), '_', SUBSTRING(dept_name, 1, 4)) |
+-----+
| ZHAN_Comp |
| SHAN_Comp |
| BRAN_Hist |
| CHAV_Fina |
| PELT_Phys |
| LEVY_Phys |
| WILL_Comp |
| SANC_Musi |
| SNOW_Phys |
| BROW_Comp |
| AOI_Elec  |
| BOUR_Elec |
| TANA_Biol |
+-----+
13 rows in set (0.001 sec)

```

5.

```

MariaDB [university]> SELECT *
  -> FROM section CROSS JOIN course
  -> WHERE section.building REGEXP 'ta|at|ka'
  -> AND section.course_id REGEXP '[:<:]CS'
  -> AND course.course_id REGEXP '[:<:]CS'
  -> AND course.dept_name = 'Comp. Sci.';

```



```

MariaDB [university]> SELECT *
-> FROM section CROSS JOIN course
-> WHERE section.building REGEXP 'ta|at|ka' AND course.course_id REGEXP '[:<:]CS' AND section.course_id REGEXP '[:<:]CS' AND course.dept_name = 'Comp. Sci.';

```

course_id	sec_id	semester	year	building	room_number	time_slot_id	course_id	title	dept_name	credits
CS-101	1	Fall	2009	Packard	101	H	CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-101	1	Fall	2009	Packard	101	H	CS-190	Game Design	Comp. Sci.	4
CS-101	1	Fall	2009	Packard	101	H	CS-315	Robotics	Comp. Sci.	3
CS-101	1	Fall	2009	Packard	101	H	CS-319	Image Processing	Comp. Sci.	3
CS-101	1	Fall	2009	Packard	101	H	CS-347	Database System Concepts	Comp. Sci.	3
CS-101	1	Spring	2010	Packard	101	F	CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-101	1	Spring	2010	Packard	101	F	CS-190	Game Design	Comp. Sci.	4
CS-101	1	Spring	2010	Packard	101	F	CS-315	Robotics	Comp. Sci.	3
CS-101	1	Spring	2010	Packard	101	F	CS-319	Image Processing	Comp. Sci.	3
CS-101	1	Spring	2010	Packard	101	F	CS-347	Database System Concepts	Comp. Sci.	3
CS-190	1	Spring	2009	Taylor	3128	E	CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-190	1	Spring	2009	Taylor	3128	E	CS-190	Game Design	Comp. Sci.	4
CS-190	1	Spring	2009	Taylor	3128	E	CS-315	Robotics	Comp. Sci.	3
CS-190	1	Spring	2009	Taylor	3128	E	CS-319	Image Processing	Comp. Sci.	3
CS-190	1	Spring	2009	Taylor	3128	E	CS-347	Database System Concepts	Comp. Sci.	3
CS-190	2	Spring	2009	Taylor	3128	A	CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-190	2	Spring	2009	Taylor	3128	A	CS-190	Game Design	Comp. Sci.	4
CS-190	2	Spring	2009	Taylor	3128	A	CS-315	Robotics	Comp. Sci.	3
CS-190	2	Spring	2009	Taylor	3128	A	CS-319	Image Processing	Comp. Sci.	3
CS-190	2	Spring	2009	Taylor	3128	A	CS-347	Database System Concepts	Comp. Sci.	3
CS-315	1	Spring	2010	Watson	120	D	CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-315	1	Spring	2010	Watson	120	D	CS-190	Game Design	Comp. Sci.	4
CS-315	1	Spring	2010	Watson	120	D	CS-315	Robotics	Comp. Sci.	3
CS-315	1	Spring	2010	Watson	120	D	CS-319	Image Processing	Comp. Sci.	3
CS-315	1	Spring	2010	Watson	120	D	CS-347	Database System Concepts	Comp. Sci.	3
CS-319	1	Spring	2010	Watson	100	B	CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-319	1	Spring	2010	Watson	100	B	CS-190	Game Design	Comp. Sci.	4
CS-319	1	Spring	2010	Watson	100	B	CS-315	Robotics	Comp. Sci.	3
CS-319	1	Spring	2010	Watson	100	B	CS-319	Image Processing	Comp. Sci.	3
CS-319	1	Spring	2010	Watson	100	B	CS-347	Database System Concepts	Comp. Sci.	3
CS-319	2	Spring	2010	Taylor	3128	C	CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-319	2	Spring	2010	Taylor	3128	C	CS-190	Game Design	Comp. Sci.	4
CS-319	2	Spring	2010	Taylor	3128	C	CS-315	Robotics	Comp. Sci.	3
CS-319	2	Spring	2010	Taylor	3128	C	CS-319	Image Processing	Comp. Sci.	3
CS-319	2	Spring	2010	Taylor	3128	C	CS-347	Database System Concepts	Comp. Sci.	3
CS-347	1	Fall	2009	Taylor	3128	A	CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-347	1	Fall	2009	Taylor	3128	A	CS-190	Game Design	Comp. Sci.	4
CS-347	1	Fall	2009	Taylor	3128	A	CS-315	Robotics	Comp. Sci.	3
CS-347	1	Fall	2009	Taylor	3128	A	CS-319	Image Processing	Comp. Sci.	3
CS-347	1	Fall	2009	Taylor	3128	A	CS-347	Database System Concepts	Comp. Sci.	3

40 rows in set (0.001 sec)

6.

```

MariaDB [university]> SELECT name, salary
-> FROM instructor
-> WHERE instructor.dept_name = 'Finance' OR instructor.dept_name = 'Biology'
-> ORDER BY salary DESC;

```

name	salary
Wu	90000.00
Singh	80000.00
Crick	72000.00

3 rows in set (0.001 sec)

7.

```
MariaDB [university]> select * from instructor;
```

ID	name	dept_name	salary
00001	Feynman	Physics	NULL
00002	Curie	Physics	NULL
00003	Sheldon	Physics	NULL
00004	Leonard	Physics	NULL
10101	Srinivasan	Comp. Sci.	65000.00
12121	Wu	Finance	90000.00
15151	Mozart	Music	40000.00
22222	Einstein	Physics	95000.00
32343	El Said	History	60000.00
33456	Gold	Physics	87000.00
45565	Katz	Comp. Sci.	75000.00
58583	Califieri	History	62000.00
76543	Singh	Finance	80000.00
76766	Crick	Biology	72000.00
83821	Brandt	Comp. Sci.	92000.00
98345	Kim	Elec. Eng.	80000.00

16 rows in set (0.000 sec)

```
MariaDB [university]> SELECT name  
-> FROM instructor  
-> WHERE salary IS NULL;
```

name
Feynman
Curie
Sheldon
Leonard

4 rows in set (0.002 sec)

```

MariaDB [university]> SELECT name
-> FROM instructor
-> WHERE salary IS NOT NULL;

```

name
Srinivasan
Wu
Mozart
Einstein
El Said
Gold
Katz
Califieri
Singh
Crick
Brandt
Kim

```

12 rows in set (0.001 sec)

```

8.

```

MariaDB [university]> SELECT LOWER(name) AS name, CONCAT(name, LOWER(name), LOWER(name)) AS triple_name
-> FROM student;

```

name	triple_name
zhang	Zhangzhangzhang
shankar	Shankarshankarshankar
brandt	Brandtbrandtbrandt
chavez	Chavezchavezchavez
peltier	Peltierpeltierpeltier
levy	Levylevylevy
williams	Williamswilliamswilliams
sanchez	Sanchezsanchezsanchez
snow	Snowsnowsnow
brown	Brownbrownbrown
aoi	Aoiaoi
bourikas	Bourikasbourikasbourikas
tanaka	Tanakatanakatanaka

```

13 rows in set (0.007 sec)

```

9.


```
MariaDB [university]> WITH distinct_takes(ID, grade) AS (SELECT DISTINCT ID, grade FROM takes)
-> SELECT name, length(name) AS length_name, grade
-> FROM student, distinct_takes
-> WHERE student.ID = distinct_takes.ID and grade IN ('A', 'B', 'A-');
```

name	length_name	grade
Zhang	5	A-
Zhang	5	A
Shankar	7	A
Brandt	6	B
Levy	4	B
Williams	8	A-
Sanchez	7	A-
Brown	5	A
Bourikas	8	B
Tanaka	6	A

10 rows in set (0.001 sec)

10.

```
MariaDB [university]> SELECT title FROM course WHERE title LIKE '%Comp%';
```

title
Computational Biology
Intro. to Computer Science

2 rows in set (0.000 sec)