



Database Management Systems

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TY Comp Div-2, T4 Batch**

University Schema

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

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

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

Find the names of all the students whose total credits are greater than 100 .

```
MariaDB [University]> select name from student where tot_cred>100;
```

name
Zhang
Chavez
Tanaka

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

Find the course id and grades of all courses taken by any student named 'Tanaka'.

```
MariaDB [University]> select * from takes where ID=(select ID from student where name="Tanaka");
```

ID	course_id	sec_id	semester	year	grade
98988	BIO-101	1	Summer	2009	A
98988	BIO-301	1	Summer	2010	NULL

2 rows in set (0.001 sec)

```
MariaDB [University]> select takes.* from takes inner join student on takes.Id=student.Id where student.name='Tanaka';
```

ID	course_id	sec_id	semester	year	grade
98988	BIO-101	1	Summer	2009	A
98988	BIO-301	1	Summer	2010	NULL

2 rows in set (0.001 sec)

```
MariaDB [University]> |
```

Find the courses which are offered in both 'Fall' and 'Spring' semester (not necessarily in the same year).

```
MariaDB [University]> select course_id from section where semester in ('Fall','Spring') group by course_id having count(distinct semester)=2;
```

course_id
CS-101

1 row in set (0.001 sec)

Find the names of all the instructors from Comp. Sci. department.

```
MariaDB [University]> select name from instructor where dept_name = 'Comp. Sci.';
```

name
Srinivasan
Katz
Brandt

3 rows in set (0.000 sec)

Find the course id and titles of all courses taught by an instructor named 'Srinivasan'

```
MariaDB [University]> select c.course_id, c.title from instructor as i inner join teaches as t on i.ID = t.ID inner join course as c
on t.course_id = c.course_id where i.name = 'Srinivasan'
→ ;
```

course_id	title
CS-101	Intro. to Computer Science
CS-315	Robotics
CS-347	Database System Concepts

```
3 rows in set (0.001 sec)

MariaDB [University]> |
```

Find the names of instructors who have taught at least one course in Spring 2009.

```
MariaDB [University]> select distinct i.name
→ from instructor i
→ inner join teaches t on i.ID = t.ID
→ inner join section s on t.course_id = s.course_id
→ WHERE s.semester = 'Spring' and s.year = 2009;
```

name
Brandt
Kim

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

Railway Schema

```
MariaDB [Railway]> show tables;
+-----+
| Tables_in_railway |
+-----+
| station            |
| track              |
| train              |
| trainhalts         |
+-----+
4 rows in set (0.001 sec)
```

Find pairs of stations (station codes) that have a track (direct connection) with distance less than 20Kms between them.

```
MariaDB [Railway]> select * from track where distance<20;
+-----+-----+-----+
| stcode1 | stcode2 | distance |
+-----+-----+-----+
| BYC     | DR      | 4        |
| BYC     | KRL     | 11       |
| CST     | BYC     | 5        |
| CST     | DR      | 9        |
| CST     | KRL     | 16       |
| GRP     | TNA     | 14       |
+-----+-----+-----+
6 rows in set (0.001 sec)
```

Find the IDs of all the trains which have a stop at THANE

```
MariaDB [Railway]> select distinct(id) from trainhalts where stcode='TNA';
```

id
A65
KP11

2 rows in set (0.001 sec)

Find the names of all trains that start at MUMBAI.

```
MariaDB [Railway]> select t.name from train t inner join trainhalts h on t.id=h.id
→ where seqno=0 and stcode=(select stcode from station where name="MUMBAI");
```

name
CST-AMR_LOCAL
CST-KYN

2 rows in set (0.001 sec)

List all the stations in order of visit by the train 'CST-AMR_LOCAL'.

```
MariaDB [Railway]> select * from trainhalts where id=(select id from train where name='CST-AMR_LOCAL') order by seqno;
```

id	seqno	stcode	timein	timeout
A65	0	CST	NULL	20.52
A65	1	BYC	21.00	21.01
A65	2	DR	21.10	21.11
A65	3	KRL	21.22	21.23
A65	4	GPR	21.28	21.29
A65	5	TNA	21.49	21.50
A65	6	DL	22.13	22.14
A65	7	KYN	22.22	22.23
A65	8	AMR	22.36	NULL

9 rows in set (0.001 sec)

```
MariaDB [Railway]> select s.name
→ from trainhalts as t
→ join station as s ON t.stcode = s.stcode
→ where t.id = (select id from train where name="CST-AMR_LOCAL")
→ order by t.seqno;
```

name
MUMBAI
BYCULLA
DADAR
KURLA
GHATKOPAR
THANE
DOMBIVALI
KALYAN
AMBARNATH