

1. Find the department names of all instructors, and remove duplicates?

select distinct dept_name from instructor;

←T→				dept_name
<input type="checkbox"/>	Edit	Copy	Delete	Biology
<input type="checkbox"/>	Edit	Copy	Delete	Comp. Sci.
<input type="checkbox"/>	Edit	Copy	Delete	Elec. Eng.
<input type="checkbox"/>	Edit	Copy	Delete	Finance
<input type="checkbox"/>	Edit	Copy	Delete	History
<input type="checkbox"/>	Edit	Copy	Delete	Music
<input type="checkbox"/>	Edit	Copy	Delete	Physics

←T→				dept_name
<input type="checkbox"/>	Edit	Copy	Delete	Biology
<input type="checkbox"/>	Edit	Copy	Delete	Comp. Sci.
<input type="checkbox"/>	Edit	Copy	Delete	Elec. Eng.
<input type="checkbox"/>	Edit	Copy	Delete	Finance
<input type="checkbox"/>	Edit	Copy	Delete	History
<input type="checkbox"/>	Edit	Copy	Delete	Music
<input type="checkbox"/>	Edit	Copy	Delete	Physics

2. The keyword all specifies that duplicates should not be removed?

select all dept_name from instructor;

←T→				dept_name
<input type="checkbox"/>	Edit	Copy	Delete	Biology
<input type="checkbox"/>	Edit	Copy	Delete	Comp. Sci.
<input type="checkbox"/>	Edit	Copy	Delete	Comp. Sci.
<input type="checkbox"/>	Edit	Copy	Delete	Comp. Sci.
<input type="checkbox"/>	Edit	Copy	Delete	Elec. Eng.
<input type="checkbox"/>	Edit	Copy	Delete	Finance

	Edit	Copy	Delete	Finance
<input type="checkbox"/>	Edit	Copy	Delete	History
<input type="checkbox"/>	Edit	Copy	Delete	History
<input type="checkbox"/>	Edit	Copy	Delete	Music
<input type="checkbox"/>	Edit	Copy	Delete	Physics
<input type="checkbox"/>	Edit	Copy	Delete	Physics

	dept_name
<input type="checkbox"/> Delete	Biology
<input type="checkbox"/> Delete	Comp. Sci.
<input type="checkbox"/> Delete	Comp. Sci.
<input type="checkbox"/> Delete	Comp. Sci.
<input type="checkbox"/> Delete	Elec. Eng.
<input type="checkbox"/> Delete	Finance
<input type="checkbox"/> Delete	Finance
<input type="checkbox"/> Delete	History
<input type="checkbox"/> Delete	History
<input type="checkbox"/> Delete	Music

3. An asterisk in the select clause denotes “all attributes”?

```
select * from instructor;
```

				ID	name	dept_name	salary
<input type="checkbox"/>	Edit	Copy	Delete	10101	Srinivasan	Comp. Sci.	65000.00
<input type="checkbox"/>	Edit	Copy	Delete	12121	Wu	Finance	90000.00
<input type="checkbox"/>	Edit	Copy	Delete	15151	Mozart	Music	40000.00
<input type="checkbox"/>	Edit	Copy	Delete	22222	Einstein	Physics	95000.00
<input type="checkbox"/>	Edit	Copy	Delete	32343	El Said	History	60000.00
<input type="checkbox"/>	Edit	Copy	Delete	33456	Gold	Physics	87000.00
<input type="checkbox"/>	Edit	Copy	Delete	45565	Katz	Comp. Sci.	75000.00

	Edit	Copy	Delete	58583	Califieri	History	62000.00
<input type="checkbox"/>	Edit	Copy	Delete	76543	Singh	Finance	80000.00
<input type="checkbox"/>	Edit	Copy	Delete	76766	Crick	Biology	72000.00
<input type="checkbox"/>	Edit	Copy	Delete	83821	Brandt	Comp. Sci.	92000.00
<input type="checkbox"/>	Edit	Copy	Delete	98345	Kim	Elec. Eng.	80000.00

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

4. An attribute can be a literal with no from clause?

```
select '437';
```

- Results is a table with one column and a single row with value "437"

437

437

437

437

- Can give the column a name using:

```
select '437' as FOO;
```

437

437

- An attribute can be a literal with **from** clause?

```
select 'A' from instructor;
```

A

A

A

A

A

A

A

A

A

A

A

A

A

A
A
A
A
A
A
A
A
A
A
A
A
A
A

- Result is a table with one column and N rows (number of tuples in the *instructors* table), each row with value “A”

5. The select clause can contain arithmetic expressions involving the operation, +, −, *, and /, and operating on constants or attributes of tuples?

- The query: `select ID, name, salary/12 from instructor;`

←T→				ID	name	salary/12
<input type="checkbox"/>	Edit	Copy	Delete	10101	Srinivasan	5416.666667
<input type="checkbox"/>	Edit	Copy	Delete	12121	Wu	7500.000000
<input type="checkbox"/>	Edit	Copy	Delete	15151	Mozart	3333.333333
<input type="checkbox"/>	Edit	Copy	Delete	22222	Einstein	7916.666667
<input type="checkbox"/>	Edit	Copy	Delete	32343	El Said	5000.000000
<input type="checkbox"/>	Edit	Copy	Delete	33456	Gold	7250.000000
<input type="checkbox"/>	Edit	Copy	Delete	45565	Katz	6250.000000
<input type="checkbox"/>	Edit	Copy	Delete	58583	Califieri	5166.666667
<input type="checkbox"/>	Edit	Copy	Delete	76543	Singh	6666.666667
<input type="checkbox"/>	Edit	Copy	Delete	76766	Crick	6000.000000
<input type="checkbox"/>	Edit	Copy	Delete	83821	Brandt	7666.666667
<input type="checkbox"/>	Edit	Copy	Delete	98345	Kim	6666.666667

ID	name	salary/12
10101	Srinivasan	5416.666667
12121	Wu	7500.000000
15151	Mozart	3333.333333
22222	Einstein	7916.666667
32343	El Said	5000.000000
33456	Gold	7250.000000
45565	Katz	6250.000000
58583	Califieri	5166.666667
76543	Singh	6666.666667
76766	Crick	6000.000000
83821	Brandt	7666.666667
98345	Kim	6666.666667

6. To find all instructors in Comp. Sci. dept?

```
select name from instructor where dept_name = 'Comp. Sci.';
```

←T→				<u>name</u>
<input type="checkbox"/>	Edit	Copy	Delete	Srinivasan
<input type="checkbox"/>	Edit	Copy	Delete	Katz
<input type="checkbox"/>	Edit	Copy	Delete	Brandt

name

e Srinivasan

e Katz

e Brandt

7. To find all instructors in Comp. Sci. dept with salary > 70000?

```
select name from instructor where dept_name = 'Comp. Sci.' and salary > 70000;
```

←T→				<u>name</u>
<input type="checkbox"/>	Edit	Copy	Delete	Katz

	Edit	Copy	Delete	Brandt
--	------	------	--------	--------

name

te Katz

te Brandt

8. Find the Cartesian product *instructor X teaches?*

```
select * from instructor, teaches;
```

ID	name	dept_name	salary	ID	course_id	sec_id	semester	year
10101	Srinivasan	Comp. Sci.	65000.00	10101	CS-101	1	Fall	2017
12121	Wu	Finance	90000.00	10101	CS-101	1	Fall	2017
15151	Mozart	Music	40000.00	10101	CS-101	1	Fall	2017
22222	Einstein	Physics	95000.00	10101	CS-101	1	Fall	2017
32343	El Said	History	60000.00	10101	CS-101	1	Fall	2017
33456	Gold	Physics	87000.00	10101	CS-101	1	Fall	2017
45565	Katz	Comp. Sci.	75000.00	10101	CS-101	1	Fall	2017
58583	Califieri	History	62000.00	10101	CS-101	1	Fall	2017
76543	Singh	Finance	80000.00	10101	CS-101	1	Fall	2017
76766	Crick	Biology	72000.00	10101	CS-101	1	Fall	2017
83821	Brandt	Comp. Sci.	92000.00	10101	CS-101	1	Fall	2017
98345	Kim	Elec. Eng.	80000.00	10101	CS-101	1	Fall	2017
10101	Srinivasan	Comp. Sci.	65000.00	10101	CS-315	1	Spring	2018
12121	Wu	Finance	90000.00	10101	CS-315	1	Spring	2018
15151	Mozart	Music	40000.00	10101	CS-315	1	Spring	2018
22222	Einstein	Physics	95000.00	10101	CS-315	1	Spring	2018
32343	El Said	History	60000.00	10101	CS-315	1	Spring	2018
33456	Gold	Physics	87000.00	10101	CS-315	1	Spring	2018
45565	Katz	Comp. Sci.	75000.00	10101	CS-315	1	Spring	2018

58583	Califieri	History	62000.00	10101	CS-315	1	Spring	2018
76543	Singh	Finance	80000.00	10101	CS-315	1	Spring	2018
76766	Crick	Biology	72000.00	10101	CS-315	1	Spring	2018
83821	Brandt	Comp. Sci.	92000.00	10101	CS-315	1	Spring	2018
98345	Kim	Elec. Eng.	80000.00	10101	CS-315	1	Spring	2018
10101	Srinivasan	Comp. Sci.	65000.00	10101	CS-347	1	Fall	2017

ID	name	dept_name	salary	ID	course_id	sec_id	semester	year
10101	Srinivasan	Comp. Sci.	65000.00	10101	CS-101	1	Fall	2017
12121	Wu	Finance	90000.00	10101	CS-101	1	Fall	2017
15151	Mozart	Music	40000.00	10101	CS-101	1	Fall	2017
22222	Einstein	Physics	95000.00	10101	CS-101	1	Fall	2017
32343	El Said	History	60000.00	10101	CS-101	1	Fall	2017
33456	Gold	Physics	87000.00	10101	CS-101	1	Fall	2017
45565	Katz	Comp. Sci.	75000.00	10101	CS-101	1	Fall	2017
58583	Califieri	History	62000.00	10101	CS-101	1	Fall	2017
76543	Singh	Finance	80000.00	10101	CS-101	1	Fall	2017
76766	Crick	Biology	72000.00	10101	CS-101	1	Fall	2017
83821	Brandt	Comp. Sci.	92000.00	10101	CS-101	1	Fall	2017
98345	Kim	Elec. Eng.	80000.00	10101	CS-101	1	Fall	2017
10101	Srinivasan	Comp. Sci.	65000.00	10101	CS-315	1	Spring	2018
12121	Wu	Finance	90000.00	10101	CS-315	1	Spring	2018
15151	Mozart	Music	40000.00	10101	CS-315	1	Spring	2018
22222	Einstein	Physics	95000.00	10101	CS-315	1	Spring	2018
32343	El Said	History	60000.00	10101	CS-315	1	Spring	2018
33456	Gold	Physics	87000.00	10101	CS-315	1	Spring	2018

9. Find the names of all instructors who have taught some course and the course_id?

```
select name, course_id from instructor , teaches where instructor.ID = teaches.ID;
```

name	course_id
Srinivasan	CS-101
Srinivasan	CS-315
Srinivasan	CS-347

Wu	FIN-201
Mozart	MU-199
Einstein	PHY-101
El Said	HIS-351
Katz	CS-101
Katz	CS-319
Crick	BIO-101
Crick	BIO-301
Brandt	CS-190
Brandt	CS-190
Brandt	CS-319
Kim	EE-181

name	course_id
Srinivasan	CS-101
Srinivasan	CS-315
Srinivasan	CS-347
Wu	FIN-201
Mozart	MU-199
Einstein	PHY-101
El Said	HIS-351
Katz	CS-101
Katz	CS-319
Crick	BIO-101
Crick	BIO-301
Brandt	CS-190
Brandt	CS-190
Brandt	CS-319
Kim	EE-181

10. Find the names of all instructors in the Art department who have taught some course and the course_id?

```
select name, course_id from instructor , teaches where instructor.ID = teaches.ID and instructor.dept_name= 'Art';
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)


```
select name, course_id from instructor , teaches where instructor.ID = teaches.ID and instructor.dept_name= 'Art';
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

name course_id

11. List in alphabetic order the names of all instructors?

```
select distinct name from instructor order by name;
```

				<u>name_1</u>
<input type="checkbox"/>	Edit	Copy	Delete	Brandt
<input type="checkbox"/>	Edit	Copy	Delete	Califieri
<input type="checkbox"/>	Edit	Copy	Delete	Crick
<input type="checkbox"/>	Edit	Copy	Delete	Einstein
<input type="checkbox"/>	Edit	Copy	Delete	El Said
<input type="checkbox"/>	Edit	Copy	Delete	Gold
<input type="checkbox"/>	Edit	Copy	Delete	Katz
<input type="checkbox"/>	Edit	Copy	Delete	Kim
<input type="checkbox"/>	Edit	Copy	Delete	Mozart
<input type="checkbox"/>	Edit	Copy	Delete	Singh
<input type="checkbox"/>	Edit	Copy	Delete	Srinivasan
<input type="checkbox"/>	Edit	Copy	Delete	Wu

name ▲ 1
Brandt
Califieri
Crick
Einstein
El Said
Gold
Katz
Kim
Mozart
Singh
Srinivasan
Wu

12. Find the names of all instructors whose name includes the substring “dar”.

```
select name from instructor where name like '%dar%';
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0001 seconds.)

```
select name from instructor where name like '%dar%';
```

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

name

13. Find the names of all instructors with salary between \$90,000 and \$100,000 (that is, ³ \$90,000 and £ \$100,000)

```
select name from instructor where salary between 90000 and 100000;
```

←T→				name
<input type="checkbox"/>	Edit	Copy	Delete	Wu
<input type="checkbox"/>	Edit	Copy	Delete	Einstein
<input type="checkbox"/>	Edit	Copy	Delete	Brandt

<u>name</u>
Wu
Einstein
Brandt

14. Tuple comparison

```
select name, course_id from instructor, teaches where (instructor.ID, dept_name) = (teaches.ID, 'Biology');
```

<u>name</u>	<u>course_id</u>
Crick	BIO-101
Crick	BIO-301

<u>name</u>	<u>course_id</u>
Crick	BIO-101
Crick	BIO-301

15. Find courses that ran in Fall 2017 or in Spring 2018

```
(select course_id from section where semester = 'Fall' and year = 2017) union (select course_id from section where semester = 'Spring' and year = 2018);
```

<u>course_id</u>
CS-101
CS-347
PHY-101
FIN-201
MU-199
HIS-351
CS-319

CS-315

course_id

CS-101

CS-347

PHY-101

FIN-201

MU-199

HIS-351

CS-319

CS-315

16. Find courses that ran in Fall 2017 and in Spring 2018

```
(select course_id from section where semester = 'Fall' and year = 2017) intersect (select course_id from section where semester = 'Spring' and year = 2018);
```

course_id

CS-101

course_id

CS-101

17. Find courses that ran in Fall 2017 but not in Spring 2018

```
(select course_id from section where semester = 'Fall' and year = 2017) except (select course_id from section where semester = 'Spring' and year = 2018);
```

course_id

CS-347

PHY-101

course_id

CS-347

PHY-101
