




















































a. Find the names of all departments with the instructor, and remove duplicates.

Ans

```
SELECT DISTINCT dept_name
```

```
FROM instructor;
```

						dept_name
<input type="checkbox"/>		Edit		Copy		Delete Accounting
<input type="checkbox"/>		Edit		Copy		Delete Astronomy
<input type="checkbox"/>		Edit		Copy		Delete Athletics
<input type="checkbox"/>		Edit		Copy		Delete Biology
<input type="checkbox"/>		Edit		Copy		Delete Comp. Sci.
<input type="checkbox"/>		Edit		Copy		Delete Cybernetics
<input type="checkbox"/>		Edit		Copy		Delete Elec. Eng.
<input type="checkbox"/>		Edit		Copy		Delete English
<input type="checkbox"/>		Edit		Copy		Delete Finance
<input type="checkbox"/>		Edit		Copy		Delete Geology
<input type="checkbox"/>		Edit		Copy		Delete Languages
<input type="checkbox"/>		Edit		Copy		Delete Marketing
<input type="checkbox"/>		Edit		Copy		Delete Mech. Eng.
<input type="checkbox"/>		Edit		Copy		Delete Physics
<input type="checkbox"/>		Edit		Copy		Delete Pol. Sci.
<input type="checkbox"/>		Edit		Copy		Delete Psychology
<input type="checkbox"/>		Edit		Copy		Delete Statistics

b. Find the names of all instructors in the History department.

Ans : SELECT name

from instructor

WHERE dept\_name='History';

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 seconds.)

```
SELECT name from instructor WHERE dept_name='History';
```

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

name

Query results operations



















































 [Create view](#)

- c. Find the instructor\_ID and department\_name of all instructors associated with a department with a budget of greater than \$95,000

Ans

```
SELECT ID,dept_name
from instructor
WHERE dept_name IN(
    select dept_name
    FROM department
    WHERE budget>95000);
```

+ Options

 					ID	dept_name
<input type="checkbox"/>	 Edit	 Copy	 Delete		14365	Accounting
<input type="checkbox"/>	 Edit	 Copy	 Delete		31955	Accounting
<input type="checkbox"/>	 Edit	 Copy	 Delete		57180	Accounting
<input type="checkbox"/>	 Edit	 Copy	 Delete		79081	Accounting
<input type="checkbox"/>	 Edit	 Copy	 Delete		43779	Astronomy
<input type="checkbox"/>	 Edit	 Copy	 Delete		15347	Athletics
<input type="checkbox"/>	 Edit	 Copy	 Delete		16807	Athletics
<input type="checkbox"/>	 Edit	 Copy	 Delete		4034	Athletics
<input type="checkbox"/>	 Edit	 Copy	 Delete		41930	Athletics
<input type="checkbox"/>	 Edit	 Copy	 Delete		63287	Athletics
<input type="checkbox"/>	 Edit	 Copy	 Delete		80759	Biology
<input type="checkbox"/>	 Edit	 Copy	 Delete		81991	Biology
<input type="checkbox"/>	 Edit	 Copy	 Delete		3335	Comp. Sci.
<input type="checkbox"/>	 Edit	 Copy	 Delete		34175	Comp. Sci.
<input type="checkbox"/>	 Edit	 Copy	 Delete		63395	Cybernetics
<input type="checkbox"/>	 Edit	 Copy	 Delete		65931	Cybernetics

d. Find all instructors in the Computer Science department with salaries more than\$80,000.

Ans

SELECT

\*FROM instructor

WHERE dept\_name='Comp. Sci.'

AND salary>80000;

☐ Show all

Number of rows: 25

Filter rows:

Sort by key: None

+ Options

				ID	name	dept_name	salary			
<input type="checkbox"/>		Edit		Copy		Delete	3335	Bourrier	Comp. Sci.	80797.83
<input type="checkbox"/>		Edit		Copy		Delete	34175	Bondi	Comp. Sci.	115469.11

E List the names of instructors along with the titles of courses that they teach.

Ans

```
SELECT i.name, c.title
```

```
FROM instructor i
```

```
JOIN teaches t ON i.ID = t.ID
```

```
JOIN course c ON t.course_id = c.course_id;
```

name	title
Lembr	The Music of the Ramones
Lembr	Environmental Law
Bawa	Systems Software
Wieland	International Practicum
Wieland	Calculus
Wieland	Shakespeare
DAgostino	Graph Theory
DAgostino	Graph Theory
DAgostino	Compiler Design
DAgostino	Visual BASIC
DAgostino	Visual BASIC
DAgostino	FOCAL Programming
DAgostino	Mechanics
DAgostino	Video Gaming
DAgostino	Geology

f. Find the names of all instructors who have a higher salary than some instructors in 'Computer Science'.

Ans

```
select DISTINCT i.name
```

```
from instructor i
```

```
where i.salary>(
```

















```
    SELECT MAX(i1.salary)
```

```
    from instructor i1
```

```
    WHERE i1.dept_name='Comp. Sci.'
```

```
);
```

+ Options

				name
<input type="checkbox"/>	 Edit	 Copy	 Delete	Wieland
<input type="checkbox"/>	 Edit	 Copy	 Delete	Voronina
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bietzk
<input type="checkbox"/>	 Edit	 Copy	 Delete	Sakurai
<input type="checkbox"/>	 Edit	 Copy	 Delete	Mird

- g. Find the names of all instructors whose salary is greater than at least one instructor in theBiology department

Ans

```
select DISTINCT i1.name
```























































```
from instructor i1
```

```
where i1.salary>(
```

```
    select max(i2.salary)
```

```
    FROM instructor i2
```

```
    where i2.dept_name='Biology');
```

<input type="checkbox"/>	 Edit	 Copy	 Delete	Yazdi
<input type="checkbox"/>	 Edit	 Copy	 Delete	Wieland
<input type="checkbox"/>	 Edit	 Copy	 Delete	Liley
<input type="checkbox"/>	 Edit	 Copy	 Delete	Atanassov
<input type="checkbox"/>	 Edit	 Copy	 Delete	Gustafsson
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bourrier
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bondi
<input type="checkbox"/>	 Edit	 Copy	 Delete	Arias
<input type="checkbox"/>	 Edit	 Copy	 Delete	Luo
<input type="checkbox"/>	 Edit	 Copy	 Delete	Romero
<input type="checkbox"/>	 Edit	 Copy	 Delete	Lent
<input type="checkbox"/>	 Edit	 Copy	 Delete	Sarkar
<input type="checkbox"/>	 Edit	 Copy	 Delete	Shuming
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bancilhon
<input type="checkbox"/>	 Edit	 Copy	 Delete	Jaekel
<input type="checkbox"/>	 Edit	 Copy	 Delete	McKinnon
<input type="checkbox"/>	 Edit	 Copy	 Delete	Mingoz
<input type="checkbox"/>	 Edit	 Copy	 Delete	Pimenta

H Find the names of all departments whose building name includes the substring 'Watson'.

Ans

SELECT dept\_name

FROM department

WHERE building LIKE '%Watson%';

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 seconds.)

```
SELECT dept_name FROM department WHERE building LIKE '%Watson%';
```

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
































































I List in alphabetic order the names of all instructors

Ans

SELECT name

from instructor

order by name ASC;

<input type="checkbox"/>	 Edit	 Copy	 Delete	Arias
<input type="checkbox"/>	 Edit	 Copy	 Delete	Arinb
<input type="checkbox"/>	 Edit	 Copy	 Delete	Atanassov
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bancilhon
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bawa
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bertolino
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bietzk
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bondi
<input type="checkbox"/>	 Edit	 Copy	 Delete	Bourrier
<input type="checkbox"/>	 Edit	 Copy	 Delete	Choll
<input type="checkbox"/>	 Edit	 Copy	 Delete	DAgostino
<input type="checkbox"/>	 Edit	 Copy	 Delete	Dale
<input type="checkbox"/>	 Edit	 Copy	 Delete	Desyl
<input type="checkbox"/>	 Edit	 Copy	 Delete	Dusserre
<input type="checkbox"/>	 Edit	 Copy	 Delete	Gustafsson
<input type="checkbox"/>	 Edit	 Copy	 Delete	Gutierrez
<input type="checkbox"/>	 Edit	 Copy	 Delete	Hau
<input type="checkbox"/>	 Edit	 Copy	 Delete	Jaekel
<input type="checkbox"/>	 Edit	 Copy	 Delete	Kean
<input type="checkbox"/>	 Edit	 Copy	 Delete	Kenje
<input type="checkbox"/>	 Edit	 Copy	 Delete	Konstantinides



















J Find the names of instructors with salary amounts between \$90,000 and \$100,000.

Ans

SELECT name

from instructor

where salary between 90000 and 100000;

					name
<input type="checkbox"/>		Edit		Copy	 Delete Yazdi
<input type="checkbox"/>		Edit		Copy	 Delete Liley
<input type="checkbox"/>		Edit		Copy	 Delete McKinnon
<input type="checkbox"/>		Edit		Copy	 Delete Sullivan
<input type="checkbox"/>		Edit		Copy	 Delete Mahmoud
<input type="checkbox"/>		Edit		Copy	 Delete Dale

K Find the instructor names and the courses they taught for all instructors in theBiology department who have taught some course.

Ans

```
SELECT i.name, c.title
```

```
FROM instructor i
```

```
JOIN teaches t ON i.ID = t.ID
```

```
JOIN course c ON t.course_id = c.course_id
```

```
WHERE i.dept_name = 'Biology';
```

name	title
Queiroz	Martian History
Valtchev	Numerical Methods
Valtchev	Arabic

L Find the set of all courses taught either in Fall 2009 or in Spring 2010 Semester, or both.








































Ans

```
SELECT DISTINCT course_id
```

```
FROM section
```

```
WHERE (semester = 'Fall' AND year = 2009) OR (semester = 'Spring' AND year = 2010);
```



				course_id
<input type="checkbox"/>	 Edit	 Copy	 Delete	105
<input type="checkbox"/>	 Edit	 Copy	 Delete	237
<input type="checkbox"/>	 Edit	 Copy	 Delete	242
<input type="checkbox"/>	 Edit	 Copy	 Delete	493
<input type="checkbox"/>	 Edit	 Copy	 Delete	960
<input type="checkbox"/>	 Edit	 Copy	 Delete	304
<input type="checkbox"/>	 Edit	 Copy	 Delete	270
<input type="checkbox"/>	 Edit	 Copy	 Delete	679
<input type="checkbox"/>	 Edit	 Copy	 Delete	692
<input type="checkbox"/>	 Edit	 Copy	 Delete	735
<input type="checkbox"/>	 Edit	 Copy	 Delete	334
<input type="checkbox"/>	 Edit	 Copy	 Delete	486
<input type="checkbox"/>	 Edit	 Copy	 Delete	443

**M.** Find the set of all courses taught in the Fall 2009 as well as in Spring 2010 Semester

Ans

```
SELECT DISTINCT s1.course_id
```

```
FROM section s1
```

```
JOIN section s2 ON s1.course_id = s2.course_id
```

```
WHERE s1.semester = 'Fall' AND s1.year = 2009
```

```
AND s2.semester = 'Spring' AND s2.year = 2010;
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0012 seconds.)






















```
SELECT DISTINCT s1.course_id FROM section s1 JOIN section s2 ON s1.course_id = s2.course_id
WHERE s1.semester = 'Fall' AND s1.year = 2009 AND s2.semester = 'Spring' AND s2.year = 2010;
```

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

**N.** Find all courses taught in the Fall 2009 semester but not in the Spring 2010 Semester.

Ans

```
SELECT course_id
FROM section
WHERE semester = 'Fall' AND year = 2009
AND course_id NOT IN (
    SELECT course_id
    FROM section
    WHERE semester = 'Spring' AND year = 2010
);
```

				course_id
<input type="checkbox"/>	 Edit	 Copy	 Delete	105
<input type="checkbox"/>	 Edit	 Copy	 Delete	237
<input type="checkbox"/>	 Edit	 Copy	 Delete	242
<input type="checkbox"/>	 Edit	 Copy	 Delete	960
<input type="checkbox"/>	 Edit	 Copy	 Delete	304
<input type="checkbox"/>	 Edit	 Copy	 Delete	334
<input type="checkbox"/>	 Edit	 Copy	 Delete	486

O Find all instructors whose salary is null.

Ans

```
SELECT name
FROM instructor
WHERE salary IS NULL;
```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0002 seconds.)

```
SELECT name FROM instructor WHERE salary IS NULL;
```








































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P Find courses offered in Fall 2009 and in Spring 2010 Semester.

Ans SELECT DISTINCT course\_id

FROM section

WHERE (semester = 'Fall' AND year = 2009) OR (semester = 'Spring' AND year = 2010);

					course_id
<input type="checkbox"/>		Edit		Copy	 Delete 105
<input type="checkbox"/>		Edit		Copy	 Delete 237
<input type="checkbox"/>		Edit		Copy	 Delete 242
<input type="checkbox"/>		Edit		Copy	 Delete 493
<input type="checkbox"/>		Edit		Copy	 Delete 960
<input type="checkbox"/>		Edit		Copy	 Delete 304
<input type="checkbox"/>		Edit		Copy	 Delete 270
<input type="checkbox"/>		Edit		Copy	 Delete 679
<input type="checkbox"/>		Edit		Copy	 Delete 692
<input type="checkbox"/>		Edit		Copy	 Delete 735
<input type="checkbox"/>		Edit		Copy	 Delete 334
<input type="checkbox"/>		Edit		Copy	 Delete 486
<input type="checkbox"/>		Edit		Copy	 Delete 443

q. Find courses offered in Fall 2009 but not in Spring 2010 Semester.

Ans

SELECT course\_id

FROM section

WHERE semester = 'Fall' AND year = 2009






















AND course\_id NOT IN (

SELECT course\_id

FROM section

WHERE semester = 'Spring' AND year = 2010

);

<div>← T →</div>					course_id
<input type="checkbox"/>	 Edit	 Copy	 Delete	105	
<input type="checkbox"/>	 Edit	 Copy	 Delete	237	
<input type="checkbox"/>	 Edit	 Copy	 Delete	242	
<input type="checkbox"/>	 Edit	 Copy	 Delete	960	
<input type="checkbox"/>	 Edit	 Copy	 Delete	304	
<input type="checkbox"/>	 Edit	 Copy	 Delete	334	
<input type="checkbox"/>	 Edit	 Copy	 Delete	486	

R. Find the total number of (distinct) students who have taken course sections taught by the instructor with ID 10101.

Ans `SELECT COUNT(DISTINCT s.ID)`

`FROM student s`

`JOIN takes t ON s.ID = t.ID`

`JOIN teaches te ON t.course_id = te.course_id AND t.sec_id = te.sec_id AND t.semester = te.semester AND t.year = te.year`

`WHERE te.ID = 10101;`

Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available.

Your SQL query has been executed successfully.

```
SELECT COUNT(DISTINCT s.ID) FROM student s JOIN takes t ON s.ID = t.ID JOIN teaches te ON
t.course_id = te.course_id AND t.sec_id = te.sec_id AND t.semester = te.semester AND t.year
= te.year WHERE te.ID = 10101;
```

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S. Find the names of instructors with salaries greater than that of some (at least one) instructor in the Biology department.























































Ans `SELECT DISTINCT i1.name`

`FROM instructor i1`

```

WHERE i1.salary > ANY (
    SELECT i2.salary
    FROM instructor i2
    WHERE i2.dept_name = 'Biology'
);

```

					name
<input type="checkbox"/>		Edit		Copy	 Delete Bawa
<input type="checkbox"/>		Edit		Copy	 Delete Yazdi
<input type="checkbox"/>		Edit		Copy	 Delete Wieland
<input type="checkbox"/>		Edit		Copy	 Delete DAgostino
<input type="checkbox"/>		Edit		Copy	 Delete Liley
<input type="checkbox"/>		Edit		Copy	 Delete Atanassov
<input type="checkbox"/>		Edit		Copy	 Delete Moreira
<input type="checkbox"/>		Edit		Copy	 Delete Gustafsson
<input type="checkbox"/>		Edit		Copy	 Delete Bourrier
<input type="checkbox"/>		Edit		Copy	 Delete Bondi
<input type="checkbox"/>		Edit		Copy	 Delete Soisalon-Soininen
<input type="checkbox"/>		Edit		Copy	 Delete Arias
<input type="checkbox"/>		Edit		Copy	 Delete Murata
<input type="checkbox"/>		Edit		Copy	 Delete Tung
<input type="checkbox"/>		Edit		Copy	 Delete Luo
<input type="checkbox"/>		Edit		Copy	 Delete Romero
<input type="checkbox"/>		Edit		Copy	 Delete Lent
<input type="checkbox"/>		Edit		Copy	 Delete Sarkar

T. Find the names of all instructors whose salary is greater than the salary of all instructors in the Biology department.

Ans

```























































SELECT DISTINCT i1.name
FROM instructor i1

```

```

WHERE i1.salary > ALL (
    SELECT i2.salary
    FROM instructor i2
    WHERE i2.dept_name = 'Biology'
);

```

					name
<input type="checkbox"/>		Edit		Copy	 Delete Yazdi
<input type="checkbox"/>		Edit		Copy	 Delete Wieland
<input type="checkbox"/>		Edit		Copy	 Delete Liley
<input type="checkbox"/>		Edit		Copy	 Delete Atanassov
<input type="checkbox"/>		Edit		Copy	 Delete Gustafsson
<input type="checkbox"/>		Edit		Copy	 Delete Bourrier
<input type="checkbox"/>		Edit		Copy	 Delete Bondi
<input type="checkbox"/>		Edit		Copy	 Delete Arias
<input type="checkbox"/>		Edit		Copy	 Delete Luo
<input type="checkbox"/>		Edit		Copy	 Delete Romero
<input type="checkbox"/>		Edit		Copy	 Delete Lent
<input type="checkbox"/>		Edit		Copy	 Delete Sarkar
<input type="checkbox"/>		Edit		Copy	 Delete Shuming
<input type="checkbox"/>		Edit		Copy	 Delete Bancilhon
<input type="checkbox"/>		Edit		Copy	 Delete Jaekel
<input type="checkbox"/>		Edit		Copy	 Delete McKinnon
<input type="checkbox"/>		Edit		Copy	 Delete Mingoz
<input type="checkbox"/>		Edit		Copy	 Delete Pimenta

U Find all courses taught in both the Fall 2009 semester and in the Spring 2010 semester.

Ans

```

SELECT DISTINCT s1.course_id
FROM section s1
WHERE s1.semester = 'Fall' AND s1.year = 2009

```

```

AND EXISTS (
    SELECT 1
    FROM section s2
    WHERE s2.course_id = s1.course_id
    AND s2.semester = 'Spring'
    AND s2.year = 2010
);

```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0011 seconds.)

```

SELECT DISTINCT s1.course_id FROM section s1 WHERE s1.semester = 'Fall' AND s1.year = 2009 AND
EXISTS ( SELECT 1 FROM section s2 WHERE s2.course_id = s1.course_id AND s2.semester = 'Spring'
AND s2.year = 2010 );

```

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

V. Find all students who have taken all courses offered in the Biology department.

```

Ans  SELECT s.ID, s.name
FROM student s
WHERE NOT EXISTS (
    SELECT c.course_id
    FROM course c
    WHERE c.dept_name = 'Biology'
    AND NOT EXISTS (
        SELECT t.ID
        FROM takes t
        WHERE t.course_id = c.course_id
        AND t.ID = s.ID
    )
);

```

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0187 seconds.)

```
SELECT s.ID, s.name FROM student s WHERE NOT EXISTS ( SELECT c.course_id FROM course c WHERE c.dept_name = 'Biology' AND NOT EXISTS ( SELECT t.ID FROM takes t WHERE t.course_id = c.course_id AND t.ID = s.ID ) );
```

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

W. Find all courses that were offered at most once in 2009

Ans




























SELECT course\_id

FROM section

WHERE year = 2009

GROUP BY course\_id

HAVING COUNT(DISTINCT semester) <= 1;

					course_id
<input type="checkbox"/>		Edit		Copy	 Delete 105
<input type="checkbox"/>		Edit		Copy	 Delete 237
<input type="checkbox"/>		Edit		Copy	 Delete 242
<input type="checkbox"/>		Edit		Copy	 Delete 304
<input type="checkbox"/>		Edit		Copy	 Delete 334
<input type="checkbox"/>		Edit		Copy	 Delete 486
<input type="checkbox"/>		Edit		Copy	 Delete 604
<input type="checkbox"/>		Edit		Copy	 Delete 960
<input type="checkbox"/>		Edit		Copy	 Delete 972