

# Using Null

|           |                    |
|-----------|--------------------|
| Language: | English • 日本語 • 中文 |
|-----------|--------------------|

teacher

| id  | dept | name       | phone | mobile         |
|-----|------|------------|-------|----------------|
| 101 | 1    | Shrivell   | 2753  | 07986 555 1234 |
| 102 | 1    | Throd      | 2754  | 07122 555 1920 |
| 103 | 1    | Splint     | 2293  |                |
| 104 |      | Spiregrain | 3287  |                |
| 105 | 2    | Cutflower  | 3212  | 07996 555 6574 |
| 106 |      | Deadyawn   | 3345  |                |
| ... |      |            |       |                |

dept

| id  | name        |
|-----|-------------|
| 1   | Computing   |
| 2   | Design      |
| 3   | Engineering |
| ... |             |

## Teachers and Departments

The school includes many departments. Most teachers work exclusively for a single department. Some teachers have no department.

Selecting NULL values.

Summary

## NULL, INNER JOIN, LEFT JOIN, RIGHT JOIN

1. 

List the teachers who have NULL for their department.

*Why we cannot use =*

```
select name from teacher where dept is null;
```

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## Correct answer

| name       |
|------------|
| Spiregrain |
| Deadyawn   |

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2.



Note the INNER JOIN misses the teachers with no department and the departments with no teacher.

```
SELECT teacher.name, dept.name
FROM teacher INNER JOIN dept
      ON (teacher.dept=dept.id)
```

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## Correct answer

| name      | name      |
|-----------|-----------|
| Shrivell  | Computing |
| Throd     | Computing |
| Splint    | Computing |
| Cutflower | Design    |

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3. 😊

Use a different JOIN so that all teachers are listed.

```
select teacher.name,dept.name from teacher left join dept on teacher.dept=dept.id;
```

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## Correct answer

| name       | name      |
|------------|-----------|
| Shrivell   | Computing |
| Throd      | Computing |
| Splint     | Computing |
| Spiregrain | null      |
| Cutflower  | Design    |
| Deadyawn   | null      |

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4. 😊

Use a different JOIN so that all departments are listed.

```
select teacher.name,dept.name from teacher right join dept on teacher.dept=dept.id;
```

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## Correct answer

| name      | name        |
|-----------|-------------|
| Shrivell  | Computing   |
| Throd     | Computing   |
| Splint    | Computing   |
| Cutflower | Design      |
| null      | Engineering |

Using the COALESCE function

5. 

Use COALESCE to print the mobile number. Use the number '07986 444 2266' if there is no number given. **Show teacher name and mobile number or '07986 444 2266'**

```
select name,coalesce(mobile,'07986 444 2266') from teacher;
```

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## Correct answer

| name       | coalesce(mobile,'07986 444 2266') |
|------------|-----------------------------------|
| Shrivell   | 07986 555 1234                    |
| Throd      | 07122 555 1920                    |
| Splint     | 07986 444 2266                    |
| Spiregrain | 07986 444 2266                    |
| Cutflower  | 07996 555 6574                    |
| Deadyawn   | 07986 444 2266                    |

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6. 😊

Use the COALESCE function and a LEFT JOIN to print the teacher **name** and department name. Use the string 'None' where there is no department.

```
select teacher.name,coalesce(dept.name,'None') from teacher left join dept on teacher.dept=dept.id;
```

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## Correct answer

| name       | coalesce(dept.name,'None') |
|------------|----------------------------|
| Shrivell   | Computing                  |
| Throd      | Computing                  |
| Splint     | Computing                  |
| Spiregrain | None                       |
| Cutflower  | Design                     |
| Deadyawn   | None                       |

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7. 😊

Use COUNT to show the number of teachers and the number of mobile phones.

```
select count(name),count(mobile) from teacher;
```

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## Correct answer

| count(name) | count(mobile) |
|-------------|---------------|
| 6           | 3             |

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8. 😊

Use COUNT and GROUP BY **dept.name** to show each department and the number of staff. Use a RIGHT JOIN to ensure that the Engineering department is listed.



```
select dept.name,count(teacher.name) from teacher right join dept on teacher.dept=dept.id group by dept.name;
```

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## Correct answer

| name        | count(teacher.name) |
|-------------|---------------------|
| Computing   | 3                   |
| Design      | 1                   |
| Engineering | 0                   |

Using CASE

9.



Use CASE to show the **name** of each teacher followed by 'Sci' if the teacher is in **dept** 1 or 2 and 'Art' otherwise.

```
select name,case when dept in (1,2) then 'Sci' else 'Art' end from teacher;
```

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## Correct answer

| name       | case when dept in (1,2) then 'Sci' else 'Art' end |
|------------|---|
| Shrivell   | Sci   |
| Throd      | Sci   |
| Splint     | Sci   |
| Spiregrain | Art   |
| Cutflower  | Sci   |
| Deadyawn   | Art   |

## 10. 😊

Use CASE to show the name of each teacher followed by 'Sci' if the teacher is in dept 1 or 2, show 'Art' if the teacher's dept is 3 and 'None' otherwise.

```
select name,case when dept in (1,2) then 'Sci'  
when dept =3 then 'Art' else 'None' end from teacher;
```

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## Correct answer

| name       | case when dept in (1,2) then 'Sci' when dept =3 then 'Art' else 'None' end |
|------------|--|
| Shrivell   | Sci  |
| Throd      | Sci  |
| Splint     | Sci  |
| Spiregrain | None   |
| Cutflower  | Sci  |
| Deadyawn   | None   |

[Clear your results](#)[Using Null Quiz](#)

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