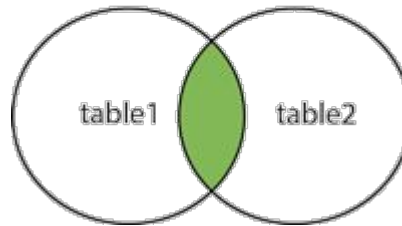
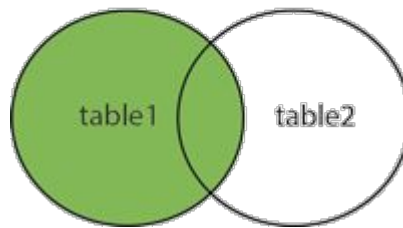


SQL Joins

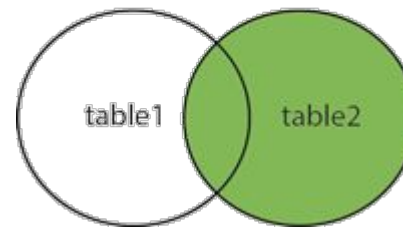
INNER JOIN



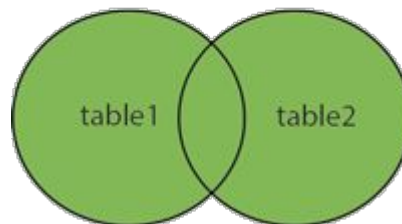
LEFT JOIN



RIGHT JOIN



FULL OUTER JOIN

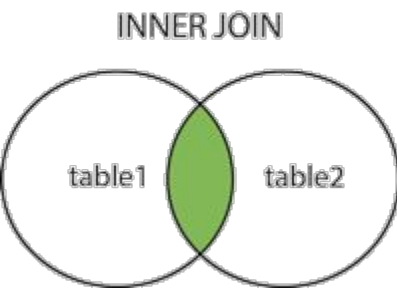


Inner join (the default join)

```
SELECT user.name, task.title
```

```
FROM (user INNER JOIN task
```

```
ON user.id = task.user_id);
```



name	title
Aarika Ellingworth	Wash clothes
Aarika Ellingworth	Order groceries online
Aarika Ellingworth	Water the potted plants
Pren Goldsworthy	Walk the dog
Pren Goldsworthy	Sign up for linkedin
Pren Goldsworthy	Backup databases to external disk
Pablo Kisbee	Do HackYourFuture homework
Pablo Kisbee	Buy gift for Paul
Pablo Kisbee	Buy new dining room table and chairs
Pablo Kisbee	Put up the new lamp in the hallway
Rodie Duncan	Make the databases perform better
Rodie Duncan	Buy beer for the company party
Rodie Duncan	Remove facebook from phone
Rodie Duncan	Hang up paintings in living room
Aubry Polak	Buy wine for the birthday party
Aubry Polak	Learn how databases work
Maryrose Meadows	Become a billionaire
Maryrose Meadows	Fix the flat tire on the bike
Maryrose Meadows	Write a book
Maryrose Meadows	Look at apartments in Ørestad
Maryrose Meadows	Renew buscard
Pavel Brushneen	Charge electric bicycle
Pavel Brushneen	Ride bike around Sjælland
Hedy Gerault	Plan meeting with London office
Hedy Gerault	Wash windows
Hedy Gerault	Empty Mr Fluffy's litterbox
王秀英	Empty the mailbox
王秀英	Iron shirts
王秀英	Setup salary databases for accounting
王秀英	Knit sweater
王秀英	Buy plane ticket to Auckland
سایل	Wash the car
سایل	Change lightbulb in hallway

33 rows in set (0.00 sec)

Inner join (the default join)

```
SELECT user.name, task.title
```

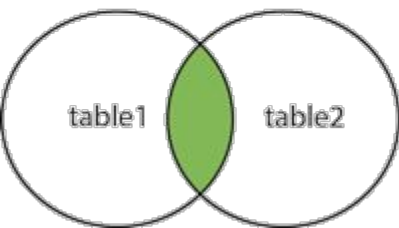
```
FROM (user INNER JOIN task ON user.id = task.user_id)
```

```
WHERE user.name = "Pablo Kisbee";
```

name	title
Pablo Kisbee	Do HackYourFuture homework
Pablo Kisbee	Buy gift for Paul
Pablo Kisbee	Buy new dining room table and chairs
Pablo Kisbee	Put up the new lamp in the hallway

4 rows in set (0.00 sec)

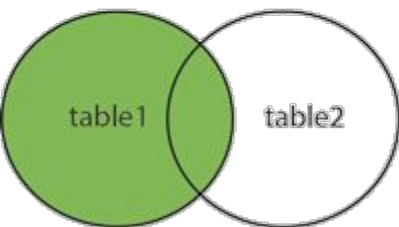
INNER JOIN



Left join

```
SELECT user.name, task.title  
FROM (user LEFT JOIN task  
      ON user.id = task.user_id);
```

LEFT JOIN



name	title
Aarika Ellingworth	Wash clothes
Aarika Ellingworth	Order groceries online
Aarika Ellingworth	Water the potted plants
Pren Goldsworthy	Walk the dog
Pren Goldsworthy	Sign up for linkedin
Pren Goldsworthy	Backup databases to external disk
Pablo Kisbee	Do HackYourFuture homework
Pablo Kisbee	Buy gift for Paul
Pablo Kisbee	Buy new dining room table and chairs
Pablo Kisbee	Put up the new lamp in the hallway
Rodie Duncan	Make the databases perform better
Rodie Duncan	Buy beer for the company party
Rodie Duncan	Remove facebook from phone
Rodie Duncan	Hang up paintings in living room
Aubry Polak	Buy wine for the birthday party
Aubry Polak	Learn how databases work
Maryrose Meadows	Become a billionaire
Maryrose Meadows	Fix the flat tire on the bike
Maryrose Meadows	Write a book
Maryrose Meadows	Look at apartments in Ørestad
Maryrose Meadows	Renew buscard
Pavel Brushneen	Charge electric bicycle
Pavel Brushneen	Ride bike around Sjælland
Hedy Gerault	Plan meeting with London office
Hedy Gerault	Wash windows
Hedy Gerault	Empty Mr Fluffy's litterbox
王秀英	Empty the mailbox
王秀英	Iron shirts
王秀英	Setup salary databases for accounting
王秀英	Knit sweater
王秀英	Buy plane ticket to Auckland
سرایل	Wash the car
سرایل	Change lightbulb in hallway
Donald Duck	NULL
Adam Smith	NULL

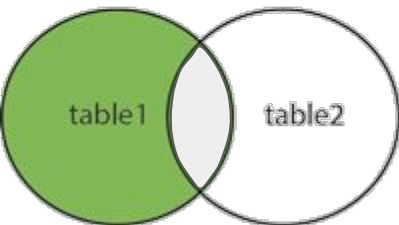
35 rows in set (0.00 sec)

Left join

```
SELECT user.name, task.title  
FROM (user LEFT JOIN task  
      ON user.id = task.user_id)  
WHERE task.user_id IS NULL;
```

```
+-----+-----+  
| name      | title |  
+-----+-----+  
| Donald Duck | NULL  |  
| Adam Smith  | NULL  |  
+-----+-----+  
2 rows in set (0.00 sec)
```

LEFT JOIN

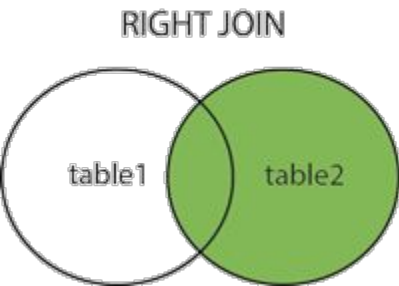


Right join

```
SELECT user.name, task.title
```

```
FROM (user RIGHT JOIN task
```

```
ON user.id = task.user_id);
```



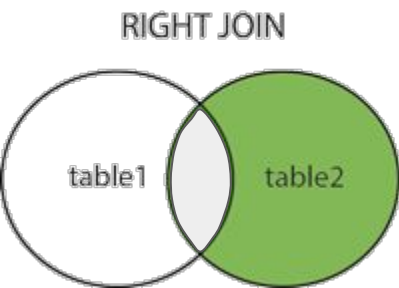
name	title
Aarika Ellingworth	Wash clothes
Maryrose Meadows	Become a billionaire
Hedy Gerault	Plan meeting with London office
Aarika Ellingworth	Order groceries online
王秀英	Empty the mailbox
Maryrose Meadows	Fix the flat tire on the bike
سایا	Wash the car
Pren Goldsworthy	Walk the dog
Maryrose Meadows	Write a book
Pablo Kisbee	Do HackYourFuture homework
王秀英	Iron shirts
Aarika Ellingworth	Water the potted plants
Aubry Polak	Buy wine for the birthday party
Pablo Kisbee	Buy gift for Paul
سایا	Change lightbulb in hallway
Hedy Gerault	Wash windows
王秀英	Setup salary databases for accounting
Aubry Polak	Learn how databases work
Rodie Duncan	Make the databases perform better
Rodie Duncan	Buy beer for the company party
王秀英	Knit sweater
Pavel Brushneen	Charge electric bicycle
NULL	Buy new phone
Pavel Brushneen	Ride bike around Sjælland
Maryrose Meadows	Look at apartments in Ørestad
Hedy Gerault	Empty Mr Fluffy's litterbox
Pablo Kisbee	Buy new dining room table and chairs
Maryrose Meadows	Renew buscard
Pren Goldsworthy	Sign up for linkedin
Rodie Duncan	Remove facebook from phone
Pren Goldsworthy	Backup databases to external disk
Pablo Kisbee	Put up the new lamp in the hallway
Rodie Duncan	Hang up paintings in living room
王秀英	Buy plane ticket to Auckland
NULL	Learn about NoSQL databases

35 rows in set (0.00 sec)

Right join

```
SELECT user.name, task.title  
FROM (user RIGHT JOIN task  
      ON user.id = task.user_id)  
WHERE user.id IS NULL;
```

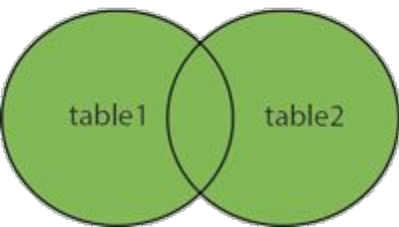
```
+-----+-----+  
| name | title |  
+-----+-----+  
| NULL | Buy new phone |  
| NULL | Learn about NoSQL databases |  
+-----+-----+  
2 rows in set (0.00 sec)
```



Full outer join

MySQL doesn't support FULL OUTER JOIN directly, instead we need to use:

```
SELECT user.name, task.title
FROM (user LEFT JOIN task
      ON user.id=task.user_id)
UNION
SELECT user.name, task.title
FROM (user RIGHT JOIN task
      ON user.id=task.user_id);
FULL OUTER JOIN
```



name	title
Aarika Ellingworth	Wash clothes
Aarika Ellingworth	Order groceries online
Aarika Ellingworth	Water the potted plants
Pren Goldsworthy	Walk the dog
Pren Goldsworthy	Sign up for linkedin
Pren Goldsworthy	Backup databases to external disk
Pablo Kisbee	Do HackYourFuture homework
Pablo Kisbee	Buy gift for Paul
Pablo Kisbee	Buy new dining room table and chairs
Pablo Kisbee	Put up the new lamp in the hallway
Rodie Duncan	Make the databases perform better
Rodie Duncan	Buy beers for the company party
Rodie Duncan	Remove facebook from phone
Rodie Duncan	Hang up paintings in living room
Aubry Polak	Buy wine for the birthday party
Aubry Polak	Learn how databases work
Maryrose Meadows	Become a billionaire
Maryrose Meadows	Fix the flat tire on the bike
Maryrose Meadows	Write a book
Maryrose Meadows	Look at apartments in Ørestad
Maryrose Meadows	Renew buscard
Pavel Brushneen	Charge electric bicycle
Pavel Brushneen	Ride bike around Sjælland
Hedy Gerault	Plan meeting with London office
Hedy Gerault	Wash windows
Hedy Gerault	Empty Mr Fluffy's litterbox
王秀英	Empty the mailbox
王秀英	Iron shirts
王秀英	Setup salary databases for accounting
王秀英	Knit sweater
王秀英	Buy plane ticket to Auckland
سرایل	Wash the car
سرایل	Change lightbulb in hallway
Donald Duck	NULL
Adam Smith	NULL
NULL	Buy new phone
NULL	Learn about NoSQL databases

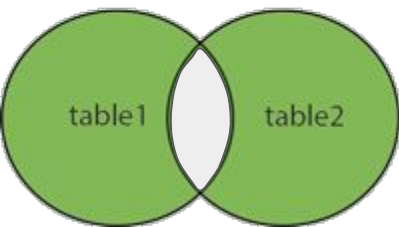
37 rows in set (0.01 sec)

Full outer join

```
SELECT user.name, task.title
FROM (user LEFT JOIN task
      ON user.id=task.user_id)
WHERE task.user_id is NULL
UNION
SELECT user.name, task.title
FROM (user RIGHT JOIN task
      ON user.id=task.user_id)
where user.id is NULL;
```

1	SQL code		11/11/2017
2	name	title	
3	SQL code		11/11/2017
4	Donald Duck	NULL	
5	Adam Smith	NULL	11/11/2017
6	NULL	ML document	Buy new phone
7	NULL	Learn about NoSQL databases	11/07/2017
8	MB JPEG Image		11/06/2017
9	rows in set	(0.00 sec)	11/04/2017

FULL OUTER JOIN



SQL joins - sum up with syntax

