

(1) Perform inner join, Left join, and Right join on the tables.

MySQL Workbench interface showing a query window with the following SQL statement:

```
1 • select * from persons inner join country on persons.id=country.id;
```

The query results are displayed in the Result Grid:

	id	fname	lname	population	rating	country_id	country_name	id	country_name	population	area
▶	1	John	Doe	331000000	4	1	USA	1	USA	331000000	9.84 km <sup>2</sup>
	2	Jane	Smith	18000000	5	2	Canada	2	Canada	18000000	9.94 km <sup>2</sup>
	3	Carlos	Silva	212000000	3	3	UK	3	UK	212000000	8.34 km <sup>2</sup>
	4	Amit	Sharma	1390000000	5	4	India	4	India	1390000000	3.34 km <sup>2</sup>
	5	Li	Wang	1440000000	4	5	China	5	China	1440000000	9.64 km <sup>2</sup>
	6	Hans	Meier	83000000	4	6	Germany	6	Germany	83000000	357K km <sup>2</sup>
	7	Emma	Brown	25000000	5	7	NULL	7	NULL	25000000	7.74 km <sup>2</sup>
	8	Ivan	Petrov	645000	3	8	Russia	8	Russia	645000	17.14 km <sup>2</sup>

The Output pane shows the following message:

```
1 18:44:51 select * from persons inner join country on persons.id=country.id LIMIT 0, 1000 11 row(s) returned 0.000 sec / 0.000 sec
```

MySQL Workbench interface showing a query window with the following SQL statement:

```
1 • select * from persons inner join country on persons.id=country.id;
2 • select * from persons left join country on persons.id=country.id;
```

The query results are displayed in the Result Grid:

	id	fname	lname	population	rating	country_id	country_name	id	country_name	population	area
	7	Emma	Brown	25000000	5	7	NULL	7	NULL	25000000	7.74 km <sup>2</sup>
	8	Ivan	Petrov	645000	3	8	Russia	8	Russia	645000	17.14 km <sup>2</sup>
	9	Pierre	Dubois	67000000	4	9	France	9	France	67000000	643K km <sup>2</sup>
	10	Yuki	Tanaka	126000000	5	10	Australia	10	Australia	126000000	377K km <sup>2</sup>
	11	Sam		2054000	4	11	Italy	11	Italy	2054000	30.1K km <sup>2</sup>
	12	Alex		3754000	3	12	Morocco	12	Morocco	3754000	445.5K km <sup>2</sup>
	13	John		1554000	3	13	Morocco	13	Morocco	1554000	445.5K km <sup>2</sup>

The Output pane shows the following messages:

```
1 18:44:51 select * from persons inner join country on persons.id=country.id LIMIT 0, 1000 11 row(s) returned 0.000 sec / 0.000 sec
2 19:04:14 select * from persons left join country on persons.id=country.id LIMIT 0, 1000 13 row(s) returned 0.000 sec / 0.000 sec
```

MySQL Workbench

Local instance wampmysqld64

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Navigator

SCHEMAS

Filter objects

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Tables

accounts

country

Columns

id

country\_name

population

area

Indexes

Foreign Key

Triggers

customers

dance\_students

Administration Schemas

Information

Column: country\_name

Collation: utf8mb4\_0900\_ai\_ci

Definition: country\_name varchar

Object Info Session

Joins&Unions

Limit to 1000 rows

1 select \* from persons inner join country on persons.id=country.id;

2 select \* from persons left join country on persons.id=country.id;

3 select \* from persons right join country on persons.id=country.id;

4

5

6

7

Result Grid

id	frame	lname	population	rating	country_id	country_name	id	country_name	population	area
5	Li	Wang	1440000000	4	5	China	5	China	1440000000	9.6M km <sup>2</sup>
6	Hans	Meier	830000000	4	6	Germany	6	Germany	830000000	357K km <sup>2</sup>
7	Emma	Brown	250000000	5	7	NULL	7	NULL	250000000	7.7M km <sup>2</sup>
8	Ivan	Petrov	6450000	3	8	Russia	8	Russia	6450000	17.1M km <sup>2</sup>
9	Pierre	Dubois	670000000	4	9	France	9	France	670000000	643K km <sup>2</sup>
10	Yuki	Tanaka	126000000	5	10	Australia	10	Australia	126000000	377K km <sup>2</sup>
11	Sam		2054000	4	11	Italy	11	Italy	2054000	30.1K km <sup>2</sup>

Result 3

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	18:44:51	select * from persons inner join country on persons.id=country.id LIMIT 0, 1000	11 row(s) returned	0.000 sec / 0.000 sec
2	19:04:14	select * from persons left join country on persons.id=country.id LIMIT 0, 1000	13 row(s) returned	0.000 sec / 0.000 sec
3	19:05:12	select * from persons right join country on persons.id=country.id LIMIT 0, 1000	11 row(s) returned	0.000 sec / 0.000 sec

(2) List all distinct country names from both the Country and Persons tables.

MySQL Workbench

Local instance wampmysqld64

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

music\_students

orders

parent\_name

participants

persons

Columns

id

frame

lname

population

rating

country\_name

country\_id

Indexes

Administration Schemas

Information

Column: country\_name

Collation: utf8mb4\_0900\_ai\_ci

Definition: country\_name varchar

Object Info Session

Joins&Unions

Limit to 1000 rows

2 select \* from persons left join country on persons.id=country.id;

3 select \* from persons right join country on persons.id=country.id;

4

5 select distinct country\_name from country

6 union

7 select distinct country\_name from persons;

8

Result Grid

country_name
USA
Canada
UK
India
China
Germany
NULL
Russia

Result 10

Output

Action Output

#	Time	Action	Message	Duration / Fetch
9	19:10:46	select distinct country_name from country union select distinct country_name from per...	13 row(s) returned	0.000 sec / 0.000 sec
10	19:10:55	select distinct country_name from country union select distinct country_name from per...	13 row(s) returned	0.000 sec / 0.000 sec
11	19:11:11	select distinct country_name from country union select distinct country_name from per...	13 row(s) returned	0.016 sec / 0.000 sec

- (3) List all country names from both the Country and Persons tables, including duplicates.

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```
6 union
7 select distinct country_name from persons;
8
9 select distinct country_name from country
10 union all
11 select distinct country_name from persons;
```

The Result Grid shows the output of the query, displaying a list of country names: USA, Canada, UK, India, China, Germany, NULL, and Russia.

The Output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
10	19:10:55	select distinct country_name from country union select distinct country_name from per...	13 row(s) returned	0.000 sec / 0.000 sec
11	19:11:11	select distinct country_name from country union select distinct country_name from per...	13 row(s) returned	0.016 sec / 0.000 sec
12	19:12:02	select distinct country_name from country union all select distinct country_name from p...	23 row(s) returned	0.000 sec / 0.000 sec

- (4) Round the ratings of all persons to the nearest integer in the Persons table.

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```
9 select distinct country_name from country
10 union all
11 select distinct country_name from persons;
12 set sql_safe_updates=0;
13 update persons set rating = round(rating, 0);
14 select rating from persons;
```

The Result Grid shows the output of the query, displaying a list of ratings: 4, 5, 3, 5, 4, 5, 3.

The Output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
21	19:19:03	select rating from persons LIMIT 0, 1000	13 row(s) returned	0.000 sec / 0.000 sec
22	19:19:30	select rating from persons LIMIT 0, 1000	13 row(s) returned	0.000 sec / 0.000 sec
23	19:19:33	select rating from persons LIMIT 0, 1000	13 row(s) returned	0.000 sec / 0.000 sec