

SHOW TABLES:

The screenshot shows a MySQL client window with a query editor and a result grid. The query editor contains the following SQL commands:

```
--  
-- Host: 127.0.0.1 Database: world  
-----  
-- Server version 8.0.19-debug  
6 • SHOW TABLES;  
7 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;  
8 • /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;  
9 • /*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;  
10 • /*!50503 SET NAMES utf8mb4 */;
```

The result grid shows the output of the `SHOW TABLES` command, listing the tables in the `world` database:

Tables_in_world
city
country
countrylanguage

We add a new column:

The screenshot shows a MySQL client window with a query editor and a result grid. The query editor contains the following SQL commands:

```
5363 12:49:53 ALTER TABLE City ADD COLUMN is_population_large BOOLEAN  
5364 12:50:02 UPDATE City SET is_population_large = (Population > 1000000)  
5365 12:50:06 UPDATE City SET is_population_large = (Population > 1000000)  
5366 12:50:50 SET SQL_SAFE_UPDATES = 1  
5367 12:51:04 ALTER TABLE Country ADD COLUMN region_code CHAR(3) DEFAULT 'NA'  
5368 12:51:27 ALTER TABLE Country ADD CONSTRAINT unique_country_code UNIQUE (Code)
```

The result grid shows the output of the `ALTER TABLE City ADD COLUMN is_population_large BOOLEAN` command, listing the columns in the `City` table:

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	City	NULL	ref	idx_city_name	idx_city_name	140	const	1	100.00	Using index c

Countries with population >50M but <200M:

```

47 • SELECT Name, Population FROM Country
48 WHERE Population BETWEEN 50000000 AND 200000000;
49
50 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
51 • /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
52 • /*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
53 • /*!50503 SET NAMES utf8mb4 */;
54 • /*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;

```

Result Grid		Filter Rows:	Export:	Wrap Cell Content:
Name	Population			
Russian Federation	146934000			
Thailand	61399000			
Turkey	66591000			
Ukraine	50456000			
Vietnam	79832000			

Cities with population 1M-10M but NOT in Asia:

world* x SQL File 5*		Limit to 1000 rows	Export:	Wrap Cell Content:
<pre> 45 • UPDATE City SET Population = 600000 WHERE Name = 'TestCity'; 46 47 • SELECT City.Name, City.Population, Country.Continent 48 FROM City 49 JOIN Country ON City.CountryCode = Country.Code 50 WHERE City.Population BETWEEN 1000000 AND 10000000 51 AND Country.Continent != 'Asia'; 52 53 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */; </pre>				
Name	Population	Continent		
Alger	2168000	Africa		
Luanda	2022000	Africa		
Buenos Aires	2982146	South America		
La Matanza	1266461	South America		
Córdoba	1157507	South America		

Countries with population >100M OR region is Europe:

world* x SQL File 5*

Limit to 1000 rows

```

45 • UPDATE City SET Population = 600000 WHERE Name = 'TestCity';
46
47 • SELECT Name FROM Country
48 WHERE Population > 100000000 OR Region = 'Europe';
49
50 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
51 • /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
52 • /*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
53 • /*!50503 SET NAMES utf8mb4 */;

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

Name
Bangladesh
Brazil
China
Indonesia
India

Country 9 x Read Only

Cities starting with 'A' but not ending in 'n':

world* x SQL File 5*

Limit to 1000 rows

```

45 • UPDATE City SET Population = 600000 WHERE Name = 'TestCity';
46
47 • SELECT Name FROM City
48 WHERE Name LIKE 'A%' AND Name NOT LIKE '%n';
49
50 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
51 • /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
52 • /*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
53 • /*!50503 SET NAMES utf8mb4 */;

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

Name
A Coruña (La Coruña)
Aalborg
Aba
Abaetetuba
Abbotsford

City 10 x Read Only

Countries with >5 cities having >1M population:

world* SQL File 5*

Limit to 1000 rows

```

45 • UPDATE City SET Population = 600000 WHERE Name = 'TestCity';
46
47 • SELECT Name FROM Country
48 WHERE Code IN (
49     SELECT CountryCode FROM City WHERE Population > 1000000 GROUP BY CountryCode HAVING COUNT(*)
50 );
51
52 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
53 • /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;

```

Result Grid

Name
Brazil
China
Indonesia
India
Japan

Country 11 x

Read Only

Countries with >3 official languages:

world* SQL File 5*

Limit to 1000 rows

```

45 • UPDATE City SET Population = 600000 WHERE Name = 'TestCity';
46
47 • SELECT Name FROM Country
48 WHERE Code IN (
49     SELECT CountryCode FROM CountryLanguage WHERE IsOfficial = 'T' GROUP BY CountryCode HAVING CO
50 );
51
52 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
53 • /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;

```

Result Grid

Name
Switzerland
South Africa

Country 12 x

Read Only

Cities with at least one official language other than English:

world* x SQL File 5*

```

45 • UPDATE City SET Population = 600000 WHERE Name = 'TestCity';
46
47 • SELECT City.Name, CountryLanguage.Language
48 FROM City
49 JOIN CountryLanguage ON City.CountryCode = CountryLanguage.CountryCode
50 WHERE CountryLanguage.Language != 'English' AND CountryLanguage.IsOfficial = 'T';
51
52 • /*!40101 SET @@OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
53 • /*!40101 SET @@OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;

```

Result Grid

Name	Language
Oranjestad	Dutch
Kabul	Dari
Qandahar	Dari
Herat	Dari
Mazar-e-Sharif	Dari

Result 13 x Read Only

Total population per country:

world* x SQL File 5*

```

45 • UPDATE City SET Population = 600000 WHERE Name = 'TestCity';
46
47 • SELECT Country.Name, TotalPopulation
48 FROM Country
49 JOIN (
50     SELECT CountryCode, SUM(Population) AS TotalPopulation
51     FROM City GROUP BY CountryCode
52 ) AS CityPop ON Country.Code = CityPop.CountryCode;
53

```

Result Grid

Name	TotalPopulation
Netherlands Antilles	2345
United Arab Emirates	1728336
Argentina	19996563
Armenia	1633100
American Samoa	7523

Result 14 x Read Only

Find the top 10 largest cities, check the query execution plan and optimize by adding an index:

world* x SQL File 5*

Limit to 1000 rows

```
51 FROM City GROUP BY CountryCode
52 ) AS CityPop ON Country.Code = CityPop.CountryCode;
53
54 • SELECT Name, Population FROM City ORDER BY Population DESC LIMIT 10;
55 • EXPLAIN SELECT Name, Population FROM City ORDER BY Population DESC LIMIT 10;
56 • CREATE INDEX idx_city_population ON City(Population);
57
58 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
59 • /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
```

Result Grid

Name	Population
Mumbai (Bombay)	10500000
Seoul	9981619
São Paulo	9968485
Shanghai	9696300
Jakarta	9604900

City 15 x Read Only

Find cities with population >1M and names starting with 'A':

world* x SQL File 5*

Limit to 1000 rows

```
55 • EXPLAIN SELECT Name, Population FROM City ORDER BY Population DESC LIMIT 10;
56 • CREATE INDEX idx_city_population ON City(Population);
57
58 • SELECT Name, Population FROM City
59 WHERE Population > 1000000 AND Name LIKE 'A%'
60 ORDER BY Name;
61 • CREATE INDEX idx_city_name_population ON City(Name, Population);
62
63 • /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
```

Result Grid

Name	Population
Abidjan	2500000
Accra	1070000
Adana	1131198
Addis Abeba	2495000
Ahmedabad	2876710

City 16 x Read Only