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mySQL Install: <https://youtu.be/0cNOD1KMJ40>

## Assignment: MySQL Countries

### Queries

1. What query would you run to get all the countries that speak Slovene?

- Your query should return:
  - Name of the country
  - Language
  - Language percentage
- Your query should arrange the result by language percentage in descending order. (1)

```
SELECT language, country_code, percentage FROM languages
WHERE languages.language = "Slovene"
ORDER BY percentage DESC;
```

The first screenshot shows a MySQL IDE with a script editor containing a query to select all languages: `SELECT * FROM languages;`. The second screenshot shows the same IDE with the query modified to filter for Slovene: `SELECT language, country_code FROM languages WHERE language = "Slovene";`. The third screenshot shows the final query with the ordering clause: `SELECT language, country_code, percentage FROM languages WHERE language = "Slovene" ORDER BY percentage DESC;`. Below the screenshots, a table shows the results of the final query.

language	country_code	percentage
Slovene	SVN	87.9
Slovene	AUT	0.4
Slovene	ITA	0.2
Slovene	HRV	0.0

Steps taken to arrive at solution

```
3 • SELECT language, country_code, percentage FROM languages
4 WHERE languages.language = "Slovene"
5 ORDER BY percentage DESC;
```

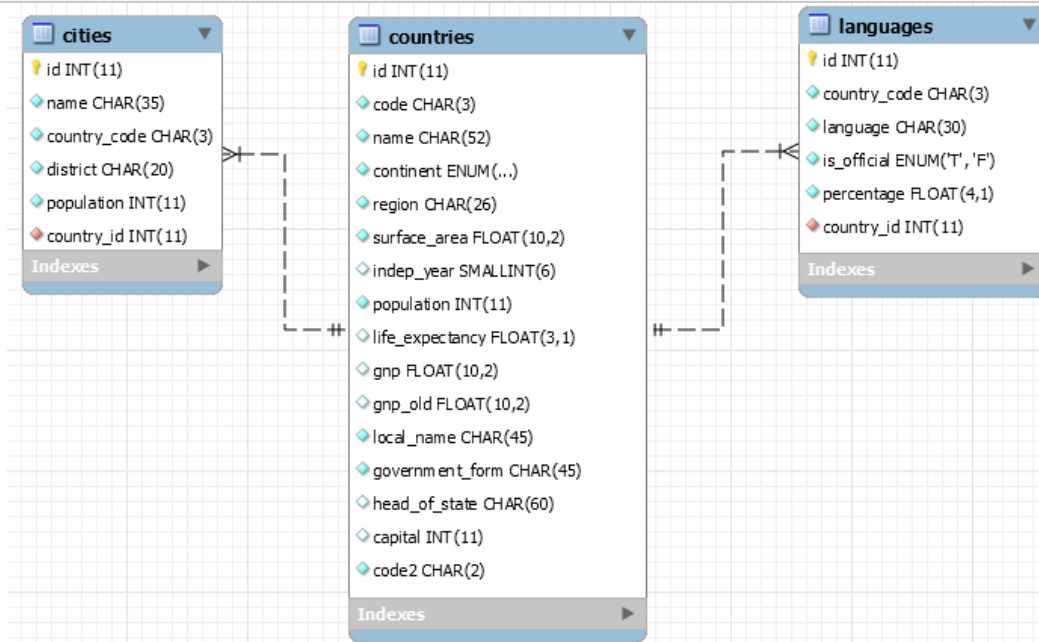
language	country_code	percentage
Slovene	SVN	87.9
Slovene	AUT	0.4
Slovene	ITA	0.2
Slovene	HRV	0.0

2. What query would you run to display:

➤ **The total number of cities for each country?**

- Your query should return the **name of the country** and the **total number of cities**.
- Your query should arrange the result by the **number of cities** in **descending order**. (3)

```
SELECT cities.country_id as Country_ID, countries.name AS Country_Name, COUNT(*) AS Number_of_Cities
FROM cities
JOIN countries ON countries.id = cities.country_id
GROUP BY countries.name
ORDER BY Number_of_Cities DESC;
```



```
14 • SELECT cities.country_id as Country_ID, countries.name AS Country_Name, cities.name AS City_Name FROM cities
15 JOIN countries ON countries.id = cities.country_id
```

Country_ID	Country_Name	City_Name
9	Argentina	Tandil
10	Armenia	Yerevan
10	Armenia	Gjumri
10	Armenia	Vanadzor
11	American Samoa	Tafuna
11	American Samoa	Fanatona

```
13 • SELECT cities.country_id as Country_ID, countries.name AS Country_Name, COUNT(*) AS Number_of_Cities FROM cities
14 JOIN countries ON countries.id = cities.country_id
15 GROUP BY countries.name
16 ORDER BY Number_of_Cities DESC;
```

Country_ID	Country_Name	Number_of_Cities
195	Somalia	3
10	Armenia	3
108	Jamaica	3

<div> <div>Yerevan</div> <div>Երևան</div> </div> <div>City</div> <div> </div> <div>           From top left: Yerevan skyline with Mount Ararat • Karen Demirchyan Complex • Tsitsernakaberd Genocide Memorial • Saint Gregory Cathedral • Tamanyan Street and the Yerevan Opera • Cafesjian Museum at the Cascade • Republic Square at night         </div> <div> <div> <div>Flag</div> </div> <div> <div>Seal</div> </div> </div> <div>           Nickname(s): "The Pink City"<sup>[1][2][3]</sup> (վարդագույն քաղաք<sup>[4]</sup> <i>vardaguyñ k'aghak'</i>, literally "rosy city")<sup>[5]</sup> </div> <div> <div> <div>Location of Yerevan in Armenia</div> <div> <input checked="" type="radio"/> Show map of Armenia               <input type="radio"/> Show map of Europe               <input type="radio"/> Show map of Asia               <input type="radio"/> Show all             </div> <div>Coordinates: <span><span><span><span>40°10′53″N</span> <span>44°30′52″E</span></span></span></span></div> </div> <div> <div>Country</div> <div><span><span><span></span></span><span> </span></span>Armenia</div> </div> </div>	<div> <div>Gyumri</div> <div>Գյումրի</div> </div> <div>City Urban Community</div> <div> </div> <div>           From top left: Gyumri skyline • Mother Armenia Cathedral of Gyumri • Sev Berd Fortress Independence Square • Dzitoghtsyan Museum Vartanants Square and Gyumri City Hall         </div> <div> <div> <div>Flag</div> </div> <div> <div>Seal</div> </div> </div> <div>           Nickname(s): <i>Hayrakaghak</i> ("Father-city")         </div> <div> <div> <div>Location of Gyumri in Armenia</div> <div>Coordinates: <span><span><span><span>40°47′22″N</span> <span>43°50′51″E</span></span></span></span></div> </div> <div> <div>Country</div> <div><span><span><span></span></span><span> </span></span>Armenia</div> <div> <div>Province</div> <div>Shirak</div> </div> </div> </div>	<div> <div>Vanadzor</div> <div>Վանաձոր</div> </div> <div>City</div> <div> </div> <div>           From top left: Vanadzor Central Park Vanadzor skyline • Pambak River Church of the Holy Mother of God • Russian Church of the Nativity Lori Province administration • Hayk Square Pambak Mountains around Vanadzor         </div> <div> <div> <div>Seal</div> </div> </div> <div> <div> <div>Coordinates: <span><span><span><span>40°48′46″N</span> <span>44°29′18″E</span></span></span></span></div> </div> </div>
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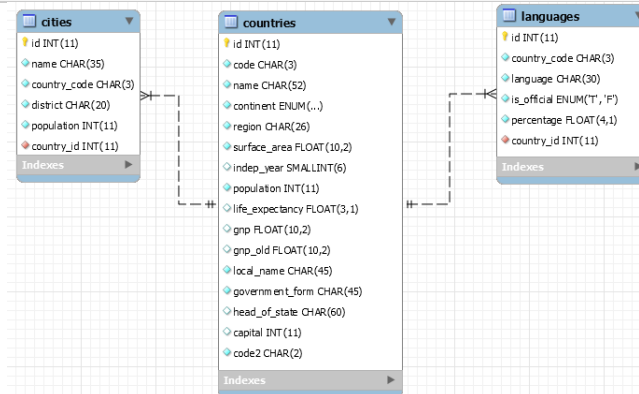
Cities used as a sanity check. [They are the 3 cities listed for Armenia]

3. What query would you run to get

- all the cities
- in Mexico
- with a population of greater than 500,000?

- Your query should arrange the result by population in descending order.

```
SELECT cities.name as City_Name, cities.population, cities.country_id, countries.name as Country_Name
FROM cities
JOIN countries ON countries.id = cities.country_id
WHERE cities.population > 500e3 AND countries.name = 'Mexico'
ORDER BY population DESC;
```



```
13 -- =====
14 -- -- Part 3
15 • SELECT cities.name as City_Name, cities.population, cities.country_id, countries.name as Country_Name FROM cities
16 JOIN countries ON countries.id = cities.country_id
17 WHERE cities.population > 500e3 AND countries.name = 'Mexico'
18 ORDER BY population DESC;
```

City_Name	population	country_id	Country_Name
Ciudad de México	8591309	136	Mexico
Guadalajara	1647720	136	Mexico
Ecatepec de Morelos	1620303	136	Mexico
Puebla	1346176	136	Mexico
Nezahualcóyotl	1224924	136	Mexico
Juárez	1217818	136	Mexico
Tijuana	1212232	136	Mexico
León	1133576	136	Mexico
Monterrey	1108499	136	Mexico
Zapopan	1002239	136	Mexico
Naucalpan de Juárez	857511	136	Mexico
Mexicali	764902	136	Mexico
Culiacán	744859	136	Mexico
Acapulco de Juárez	721011	136	Mexico
Tlalnepantla de Baz	720755	136	Mexico
Mérida	703324	136	Mexico
Chihuahua	670208	136	Mexico
San Luis Potosí	669353	136	Mexico
Guadalupe	668780	136	Mexico
Toluca	665617	136	Mexico
Aguascalientes	643360	136	Mexico
Querétaro	639839	136	Mexico
Morelia	619958	136	Mexico
Hermosillo	608697	136	Mexico
Saltillo	577352	136	Mexico
Torreón	529093	136	Mexico
Centro (Villahermosa)	519873	136	Mexico

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```
SELECT * FROM countries
WHERE countries.name = "Mexico"
```

Result Grid

	id	code	name	continent	region	surface_area	indep_year	population	life_expectancy	gnp	gnp_old	local_name	government_form	head_of_state	capital	code2
▶	136	MEX	Mexico	North America	Central America	1958201.00	1810	98881000	71.5	414972.00	401461.00	MĀ@xico	Federal Republic	Vicente Fox Quesada	2515	MX

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```
SELECT name, population, country_id FROM cities
WHERE cities.population > 500e3 AND cities.country_id = 136
```

Result Grid

	name	population	country_id
▶	Ciudad de MĀ@xico	8591309	136
	Guadalajara	1647720	136
	Ecatepec de Morelos	1620303	136
	Puebla	1346176	136
	Nezahualcōyotl	1224924	136
	JuĀ@nez	1217818	136
	Tijuana	1212232	136
	LĀ@ln	1133576	136
	Monterrey	1108499	136
	Zapopan	1002239	136
	NaucapĀ@n de JuĀ@nez	857511	136
	Mexicali	764902	136
	CulacĀ@n	744859	136
	Acapulco de JuĀ@nez	721811	136
	Tehuacan de Baz	720755	136
	MĀ@rida	703324	136
	Chihuahua	670208	136
	San Luis PotosĀ@	668353	136
	Guadalupe	668780	136
	Toluca	665617	136
	Aguascalientes	643260	136
	QuerĒ@taro	639839	136
	MorĀ@lia	619958	136
	Hermosillo	608697	136
	SaltĀ@	577352	136
	TorĀ@llĀ@n	526093	136
	Centro (Villahermosa)	519873	136

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```
SELECT name, population, country_id FROM cities
WHERE cities.population > 500e3
```

Result Grid





	name	population	country_id
▶	Kabul	1780000	2
	Amsterdam	731200	159
	Rotterdam	593321	159
	Alger	2168000	62
	Oran	609823	62

Steps taken to work toward final solution.

4. What query would you run to get **all languages in each country with a percentage greater than 89%**?
- Your query should arrange the result by percentage in descending order. (1)

```
SELECT countries.name AS Country_Name, language, percentage FROM languages
JOIN countries ON countries.id = languages.country_id
WHERE languages.percentage > 89
ORDER BY percentage DESC;
```

```
21  -- =====
22  -- -- Part 4
23  • SELECT countries.name AS Country_Name, language, percentage FROM languages
24  JOIN countries ON countries.id = languages.country_id
25  WHERE languages.percentage > 89
26  ORDER BY percentage DESC;
```

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

Country_Name	language	percentage
Bermuda	English	100.0
Faroe Islands	Faroese	100.0
Cape Verde	Crioulo	100.0
Cuba	Spanish	100.0
Saint Kitts and Nevis	Creole English	100.0
San Marino	Italian	100.0
Grenada	Creole English	100.0
El Salvador	Spanish	100.0
Rwanda	Rwanda	100.0
Dominica	Creole English	100.0



5. What query would you run to get:

- All the countries
- With Surface Area below 501
- And population greater than 100,000?

```
SELECT name, surface_area, population FROM countries
WHERE surface_area < 501 AND population > 100e3
```

```
30  -- =====
31  -- Part 5
32  • SELECT name, surface_area, population FROM countries
33  WHERE surface_area < 501 AND population > 100e3
```

<			
Result Grid			
Filter Rows:			
Export:			
Wrap Cell Cont			
	name	surface_area	population
▶	Aruba	193.00	103000
	Barbados	430.00	270000
	Macao	18.00	473000
	Maldives	298.00	286000
	Malta	316.00	380200
	Mayotte	373.00	149000
	Saint Vincent and the Grenadines	388.00	114000

6. What query would you run to get:

- Countries
- With only Constitutional Monarchy
- With a capital greater than 200
- And a life expectancy greater than 75 years?

```
SELECT name, government_form, capital, life_expectancy FROM countries
WHERE capital > 200 AND government_form = 'Constitutional Monarchy' AND life_expectancy > 75
order by life_expectancy DESC
```

```
35  -- =====
36  -- Part 6
37  • SELECT name, government_form, capital, life_expectancy FROM countries
38  WHERE capital > 200 AND government_form = 'Constitutional Monarchy' AND life_expectancy > 75
39  order by life_expectancy DESC
```

Result Grid				
Filter Rows:		Export:	Wrap Cell Content:	
	name	government_form	capital	life_expectancy
▶	Japan	Constitutional Monarchy	1532	80.7
	Sweden	Constitutional Monarchy	3048	79.6
	Spain	Constitutional Monarchy	653	78.8
	Liechtenstein	Constitutional Monarchy	2446	78.8
	Monaco	Constitutional Monarchy	2695	78.8
	Norway	Constitutional Monarchy	2807	78.7
	New Zealand	Constitutional Monarchy	3499	77.8
	United Kingdom	Constitutional Monarchy	456	77.7
	Jordan	Constitutional Monarchy	1786	77.4
	Luxembourg	Constitutional Monarchy	2452	77.1
	Denmark	Constitutional Monarchy	3315	76.5
	Jamaica	Constitutional Monarchy	1530	75.2



7. What query would you run to get:

- All the cities of Argentina
- Inside the Buenos Aires district
- And have the population greater than 500,000?

- The query should return the Country Name, City Name, District and Population.

```
SELECT countries.name AS Country_Name, cities.name AS City_Name, district as District,
cities.population as Country_Population FROM cities
JOIN countries ON countries.id = cities.country_id
WHERE cities.population > 500e3 AND cities.district = 'Buenos Aires' AND countries.name = 'Argentina'
```

```
41  -- =====
42  -- Part 7
43  • SELECT countries.name AS Country_Name, cities.name AS City_Name, district as District, cities.population as Country_Population FROM cities
44  JOIN countries ON countries.id = cities.country_id
45  WHERE cities.population > 500e3 AND cities.district = 'Buenos Aires' AND countries.name = 'Argentina'
46
```

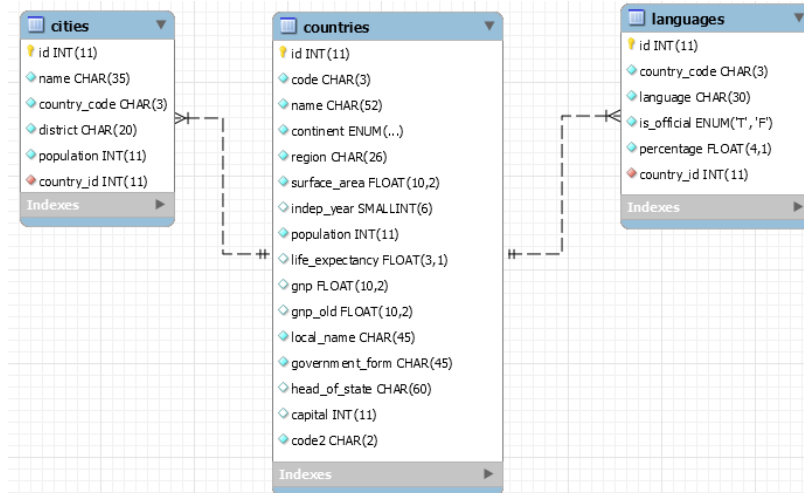
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Result Grid | Filter Rows: | Export: | Wrap Cell Content: 1/1

	Country_Name	City_Name	District	Country_Population
▶	Argentina	La Matanza	Buenos Aires	1266461
	Argentina	Lomas de Zamora	Buenos Aires	622013
	Argentina	Quilmes	Buenos Aires	559249
	Argentina	Almirante Brown	Buenos Aires	538918
	Argentina	La Plata	Buenos Aires	521936
	Argentina	Mar del Plata	Buenos Aires	512880

8. What query would you run to:

- Summarize the number of countries in each region?
- The query should display the name of the region and the number of countries.
- Also, the query should arrange the result by the number of countries in descending order. (2)



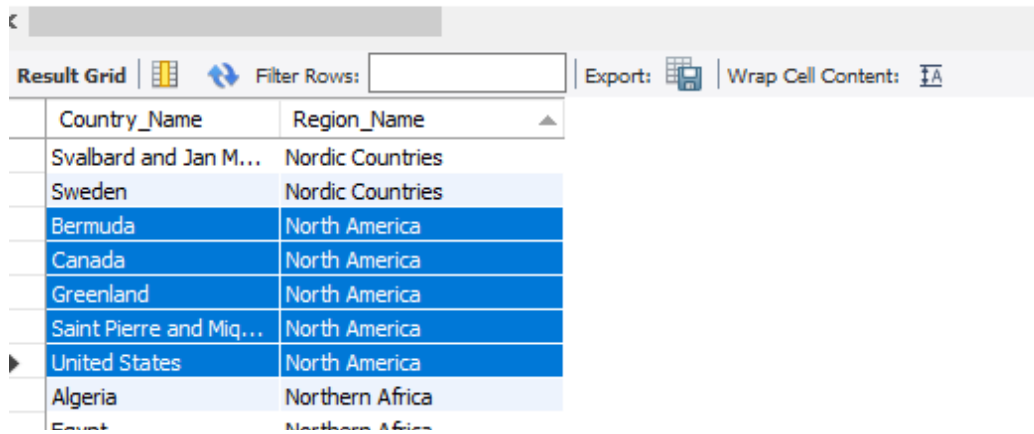
```

47  -- =====
48  -- Part 8
49  • SELECT name AS Country_Name, region as Region_Name, COUNT(*) AS Number_of_Countries_in_Region FROM countries
50  GROUP BY region
51  ORDER BY Number_of_Countries_in_Region DESC;

```

Result Grid			
Filter Rows:			
Export:   Wrap Cell Content:			
Country_Name	Region_Name	Number_of_Countries_in_Region	
Aruba	Caribbean	24	
Burundi	Eastern Africa	20	
United Arab Emirates	Middle East	18	
Benin	Western Africa	17	
Albania	Southern Europe	15	
Afghanistan	Southern and Central Asia	14	
Argentina	South America	14	
Brunei	Southeast Asia	11	
American Samoa	Polynesia	10	
Bulgaria	Eastern Europe	10	
Austria	Western Europe	9	
Angola	Central Africa	9	
Belize	Central America	8	
China	Eastern Asia	8	
Denmark	Nordic Countries	7	
Algeria	Northern Africa	7	
Micronesia, Federat...	Micronesia	7	
Australia	Australia and New Zealand	5	
Botswana	Southern Africa	5	
Fiji Islands	Melanesia	5	
Bermuda	North America	5	
Antarctica	Antarctica	5	
Estonia	Baltic Countries	3	
United Kingdom	British Islands	2	
United States Minor ...	Micronesia/Caribbean	1	

49 • `SELECT name AS Country_Name, region as Region_Name from Countries`



The screenshot shows a database query result grid. At the top, there is a toolbar with a 'Result Grid' button, a 'Filter Rows' input field, an 'Export' button, and a 'Wrap Cell Content' button. Below the toolbar is a table with two columns: 'Country\_Name' and 'Region\_Name'. The table contains the following data:

Country_Name	Region_Name
Svalbard and Jan M...	Nordic Countries
Sweden	Nordic Countries
Bermuda	North America
Canada	North America
Greenland	North America
Saint Pierre and Miq...	North America
United States	North America
Algeria	Northern Africa
Egypt	Northern Africa

- Showing that there are 5-countries in North-America region
- A few other regions were tested also