

Homework 2

Question 1

```
$ brew services start mysql
$ mysql -u root -p
```

```
create database world;
use world;
source "/Users/altunhasanli/Library/Mobile
Documents/com~apple~CloudDocs/Undergraduate/Courses/COMP306/homeworks/homework2/world.sql
";
show tables;
```

```
[mysql> show tables;
+-----+
| Tables_in_world |
+-----+
| city             |
| country          |
| countrylanguage |
+-----+
3 rows in set (0.00 sec)
```

Question 2

```
select ci.CountryCode,
       co.Name as CountryName,
       ci.Name as CityName,
       ci.Population as CityPopulation
from city ci
join country co on ci.CountryCode = co.Code
where co.LifeExpectancy > 75
      and co.Population < 1000000
order by ci.Population asc;
```

CountryCode	CountryName	CityName	CityPopulation
AIA	Anguilla	The Valley	595
AIA	Anguilla	South Hill	961
GUM	Guam	Agaña	1139
BMU	Bermuda	Hamilton	1200
MCO	Monaco	Monaco-Ville	1234
SHN	Saint Helena	Jamestown	1500
BMU	Bermuda	Saint George	1800
MSR	Montserrat	Plymouth	2000
SMR	San Marino	San Marino	2294
ASM	American Samoa	Fagatogo	2323
SMR	San Marino	Serravalle	4802
LIE	Liechtenstein	Vaduz	5043
ASM	American Samoa	Tafuna	5200
LIE	Liechtenstein	Schaan	5346
SPM	Saint Pierre and Miquelon	Saint-Pierre	5808
MLT	Malta	Valletta	7073
VGB	Virgin Islands, British	Road Town	8000
MNP	Northern Mariana Islands	Garapan	9200
GUM	Guam	Tamuning	9500
GLP	Guadeloupe	Basse-Terre	12433
VIR	Virgin Islands, U.S.	Charlotte Amalie	13000
MCO	Monaco	Monte-Carlo	13154
FRO	Faroe Islands	Tórshavn	14542
CYM	Cayman Islands	George Town	19600
AND	Andorra	Andorra la Vella	21189
MLT	Malta	Birkirkara	21445
GIB	Gibraltar	Gibraltar	27025
ABW	Aruba	Oranjestad	29034
GUF	French Guiana	Cayenne	50699
GLP	Guadeloupe	Les Abymes	62947
LUX	Luxembourg	Luxembourg [Luxemburg/Lëtzebuerg]	80700
MTQ	Martinique	Fort-de-France	94050
ISL	Iceland	Reykjavík	109184
CYP	Cyprus	Limassol	154400
CYP	Cyprus	Nicosia	195000
MAC	Macao	Macao	437500

36 rows in set (0.00 sec)

```

select ci.CountryCode,
       ci.Name as CityName
from city ci
join country co on ci.CountryCode = co.Code
join countrylanguage cl on co.Code = cl.CountryCode
where ci.Population < 90000
      and cl.Language = "German"
      and cl.Percentage > 1
order by ci.Population asc;

```

```

+-----+-----+
| CountryCode | CityName |
+-----+-----+
| LIE         | Vaduz   |
| LIE         | Schaan  |
| LUX         | Luxembourg [Luxemburg/Lëtzebuerg] |
| CAN         | Barrie  |
| CAN         | Kelowna |
| DEU         | Esslingen am Neckar |
| DEU         | Velbert |
+-----+-----+
7 rows in set (0.01 sec)

```

Question 3

```

select co.Name as CountryName,
       ci.Name as CapitalCity
from country co
join city ci on co.Capital = ci.ID
join countrylanguage cl on co.Code = cl.CountryCode
where co.Name regexp "^[SPADE]"
group by co.Code, co.Name, ci.Name
having count(cl.Language) < 10;

```

CountryName	CapitalCityName
Afghanistan	Kabul
Albania	Tirana
Algeria	Alger
American Samoa	Fagatogo
Andorra	Andorra la Vella
Angola	Luanda
Anguilla	The Valley
Antigua and Barbuda	Saint John's
Argentina	Buenos Aires
Armenia	Yerevan
Aruba	Oranjestad
Australia	Canberra
Austria	Wien
Azerbaijan	Baku
Denmark	København
Djibouti	Djibouti
Dominica	Roseau
Dominican Republic	Santo Domingo de Guzmán
East Timor	Dili
Ecuador	Quito
Egypt	Cairo
El Salvador	San Salvador
Equatorial Guinea	Malabo
Eritrea	Asmara
Estonia	Tallinn
Ethiopia	Addis Abeba
Pakistan	Islamabad
Palau	Koror
Palestine	Gaza
Panama	Ciudad de Panamá
Papua New Guinea	Port Moresby
Paraguay	Asunción
Peru	Lima
Pitcairn	Adamstown
Poland	Warszawa
Portugal	Lisboa
Puerto Rico	San Juan
Saint Helena	Jamestown
Saint Kitts and Nevis	Basseterre
Saint Lucia	Castries
Saint Pierre and Miquelon	Saint-Pierre
Saint Vincent and the Grenadines	Kingstown
Samoa	Apia

San Marino	San Marino	
Sao Tome and Principe	São Tomé	
Saudi Arabia	Riyadh	
Senegal	Dakar	
Seychelles	Victoria	
Sierra Leone	Freetown	
Singapore	Singapore	
Slovakia	Bratislava	
Slovenia	Ljubljana	
Solomon Islands	Honiara	
Somalia	Mogadishu	
South Korea	Seoul	
Spain	Madrid	
Sri Lanka	Colombo	
Suriname	Paramaribo	
Svalbard and Jan Mayen	Longyearbyen	
Swaziland	Mbabane	
Sweden	Stockholm	
Switzerland	Bern	
Syria	Damascus	

+-----+-----+

63 rows in set (0.01 sec)

mysql> █

```
select co.Name as CountryName,
       count(ci.ID) as NumberOfCities
from country co
join city ci on co.Code = ci.CountryCode
group by co.Code, co.Name
having count(ci.ID) > 30
order by NumberOfCities desc;
```


+-----+-----+	
CountryName	NumberOfCities
+-----+-----+	
China	363
India	341
United States	274
Brazil	250
Japan	248
Russian Federation	189
Mexico	173
Philippines	136
Germany	93
Indonesia	85
United Kingdom	81
South Korea	70
Iran	67
Nigeria	64
Turkey	62
Spain	59
Pakistan	59
Italy	58
Argentina	57
Ukraine	57
Canada	49
Poland	44
South Africa	44
Taiwan	42
Venezuela	41
France	40
Colombia	38

```
| Egypt | 37 |
+-----+-----+
28 rows in set (0.01 sec)
```

```
select co.Name as CountryName,
       count(cl.Language) as TotalLanguages
from country as co
join countrylanguage as cl on co.Code = cl.CountryCode
where co.Code in (
    select CountryCode
    from countrylanguage
    where Language = "Turkish"
)
and co.GNP > 80000
group by co.Name;
```

```
+-----+-----+
| CountryName | NumberOfLanguages |
+-----+-----+
| Austria     | 8 |
| Belgium     | 6 |
| Germany     | 6 |
| Denmark     | 7 |
| France      | 6 |
| Greece      | 2 |
| Netherlands | 4 |
| Turkey      | 3 |
+-----+-----+
8 rows in set (0.00 sec)
```

Question 4

```
create table restaurant (
    id int auto_increment primary key,
    name varchar(50) not null,
    type varchar(50) not null,
    rating int not null check (rating >= 1 and rating <= 5)
);
```

Query OK, 0 rows affected (0.02 sec)

```
insert into restaurant (id, name, type, rating) values
  (null, "Lafayette Altunio Del Croco", "Italian", 3),
  (null, "El Taquito Loco", "Mexican", 4),
  (null, "The Greek Taverna", "Greek", 1),
  (null, "The Wok Inn", "Chinese", 2),
  (null, "La Pizzeria Bella", "Italian", 4),
  (null, "The Tap House", "Pub Food", 1),
  (null, "Bao Bun House", "Asian Fusion", 4),
  (null, "The Vegan Kitchen", "Barbecue", 4),
  (null, "La Brasserie Belge", "Belgian", 4),
  (null, "The Smokestack BBQ", "Barbecue", 4),
  (null, "Sushi Island", "Japanese", 3),
  (null, "Smoke Master", "BBQ", 2);
```

Query OK, 12 rows affected (0.01 sec)

Records: 12 Duplicates: 0 Warnings: 0

```
update restaurant
set type = "Vegan"
where name = "The Vegan Kitchen";
```

Query OK, 1 row affected (0.00 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
delete from restaurant
where name like "%House%";
```

Query OK, 2 rows affected (0.02 sec)

Question 5

```
create table city_restaurant (
  restaurant_id int,
  city_id int,
  primary key (restaurant_id, city_id),
  foreign key (restaurant_id) references restaurant(id)
    on update cascade
    on delete restrict,
  foreign key (city_id) references city(id)
    on update cascade
    on delete restrict
);
```


Query OK, 0 rows affected (0.02 sec)

```
[mysql> show tables;
```

```
+-----+
```

```
| Tables_in_world |
```

```
+-----+
```

```
| city |
```

```
| city_restaurant |
```

```
| country |
```

```
| countrylanguage |
```

```
| restaurant |
```

```
+-----+
```

```
5 rows in set (0.01 sec)
```

```
set global local_infile = 1;
load data local infile "/Users/altunhasanli/Library/Mobile
Documents/com~apple~CloudDocs/Undergraduate/Courses/COMP306/homeworks/homework2/city_rest
aurant.txt"
    into table city_restaurant
    fields terminated by '\t'
    lines terminated by '\n'
    (restaurant_id, city_id);
```

Query OK, 18 rows affected, 3 warnings (0.00 sec)
Records: 21 Deleted: 0 Skipped: 3 Warnings: 3

```
select c.ID, c.Name
from city as c
join city_restaurant as cr on c.ID = cr.city_id
group by c.ID, c.Name
having count(cr.restaurant_id) > 1;
```

```

+-----+-----+
| ID    | Name          |
+-----+-----+
| 144   | Baku          |
| 459   | Liverpool     |
| 462   | Manchester    |
| 3357  | Istanbul     |
+-----+-----+
4 rows in set (0.01 sec)

```

```

select distinct r.id, r.name
from restaurant r
join city_restaurant cr on r.id = cr.restaurant_id
join city c on cr.city_id = c.ID
where c.Name = "Manchester"
and not exists (
    select 1
    from city_restaurant cr2
    join city c2 on cr2.city_id = c2.ID
    where c2.Name = "Liverpool" and cr2.restaurant_id = r.id
);

```

```

+-----+-----+
| id | name          |
+-----+-----+
| 3  | The Greek Taverna |
| 8  | The Vegan Kitchen |
| 9  | La Brasserie Belge |
+-----+-----+
3 rows in set (0.01 sec)

```

```

update restaurant r
join city_restaurant cr on r.id = cr.restaurant_id
join city c on cr.city_id = c.ID
set r.rating = r.rating - 1
where c.Name = "Baku" and r.rating > 1;

```

```

Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

```

```

select r.id, r.name
from restaurant r
join city_restaurant cr on r.id = cr.restaurant_id
join city c on cr.city_id = c.ID
join country co on c.CountryCode = co.Code
where co.Name = "Azerbaijan"
group by r.id, r.name
having count(distinct c.ID) >= 2;

```

OR

```

select r.id, r.name
from restaurant r
join city_restaurant cr on r.id = cr.restaurant_id
join city c on cr.city_id = c.ID
where c.CountryCode = "AZE"
group by r.id, r.name
having count(distinct c.ID) >= 2;

```

```

+-----+-----+
| id | name |
+-----+-----+
| 3 | The Greek Taverna |
+-----+-----+
1 row in set (0.00 sec)

```

```

select co.Code, co.Name
from country co
left join city c on co.Code = c.CountryCode
left join city_restaurant cr on c.ID = cr.city_id
where co.Continent = "Asia"
and co.Region != "Middle East"
and cr.restaurant_id is null
group by co.Code, co.Name;

```

+-----+-----+	
Code	Name
+-----+-----+	
AFG	Afghanistan
BGD	Bangladesh
BRN	Brunei
BTN	Bhutan
CHN	China
HKG	Hong Kong
IDN	Indonesia
IND	India
IRN	Iran
JPN	Japan
KAZ	Kazakstan
KGZ	Kyrgyzstan
KHM	Cambodia
KOR	South Korea
LAO	Laos
LKA	Sri Lanka
MAC	Macao
MDV	Maldives
MMR	Myanmar
MNG	Mongolia
MYS	Malaysia
NPL	Nepal
PAK	Pakistan
PHL	Philippines
PRK	North Korea
SGP	Singapore
THA	Thailand
TJK	Tajikistan
TKM	Turkmenistan

```
| TMP | East Timor |
| TWN | Taiwan |
| UZB | Uzbekistan |
| VNM | Vietnam |
+-----+-----+
33 rows in set (0.01 sec)
```

Question 7

```
$ mysqldump -u root -p world > ./world-export.sql
$ brew services stop mysql
```