

Database Info

Q1

Q2

a)

b)

Q3

a)

b)

c)

Q4

a)

b)

c)

d)

Q5

a)

b)

c)

d)

e)

f)

g)

Q6

Database Info

pager less -SFX

city(ID, Name, CountryCode, District, Population)

city_restaurant(restaurant_id, city_id)

country(Code, Name, Continent, Region, SurfaceArea, IndepYear, Population, LifeExpectancy, GNP, GNPOld, LocalName, GovernmentForm, HeadOfState, Capital, Code2)

countrylanguage(CountryCode, Language, IsOfficial, Percentage)

restaurant(id, name, type, rating)

Q1

Just file

```
h      := env_var("MYSQL_HOME")
b      := env_var("MYSQL_BASEDIR")
d      := env_var("MYSQL_DATADIR")
p      := env_var("MYSQL_PID_FILE")
port   := env_var("MYSQL_PORT")

mysql *ARGS:
  mysql -h localhost -P {{port}} -u root {{ARGS}}
```

Terminal Commands

```
Just mysql < world.sql
just mysql world
```

Inside the Database:

```
SHOW TABLES;
```

Output:

```
MariaDB [world]> SHOW TABLES;
+-----+
| Tables_in_world |
+-----+
| city             |
| country          |
| countrylanguage |
+-----+
3 rows in set (0.001 sec)

MariaDB [world]>
```

Q2

a)

```
select con.code, con.name AS countryName, city.name AS cityName,  
city.population  
from country as con, city  
where city.CountryCode = con.code and con.population < 1000000 and  
con.lifeexpectancy > 75;
```

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

36 rows in set (0.001 sec)

b)

```
select city.CountryCode, city.name
from city, countrylanguage as cl
where city.countrycode = cl.countrycode and city.population < 90000 and
cl.percentage > 1 and cl.language = "German";
```

```
+-----+-----+
| CountryCode | name |
+-----+-----+
| CAN         | Kelowna |
| CAN         | Barrie  |
| DEU         | Velbert |
| DEU         | Esslingen am Neckar |
| LIE         | Schaan  |
| LIE         | Vaduz   |
| LUX         | Luxembourg [Luxemburg/Lëtzebuerg] |
+-----+-----+
7 rows in set (0.001 sec)
```

Q3

a)

```
Select fir.name as country, city.name as capital
From (select c.name, c.capital
from country as c, countrylanguage as cl
where c.code = cl.countrycode
Group by c.name
HAVING COUNT(*) > 10) as fir, city
where fir.capital = city.id;
```

country	capital
Canada	Ottawa
China	Peking
India	New Delhi
Russian Federation	Moscow
South Africa	Pretoria
Tanzania	Dodoma
United States	Washington

7 rows in set (0.002 sec)

b)

```
select c.name as country, count(*) as count
from country as c, city as ci
where c.code = ci.countrycode
Group by c.name
HAVING COUNT(*) > 30
Order by count desc;
```

country	count
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
Ukraine	57
Argentina	57
Canada	49
Poland	44
South Africa	44
Taiwan	42
Venezuela	41
France	40
Colombia	38
Egypt	37

28 rows in set (0.004 sec)

c)

```
Select fir.country, count(*) as count
From (select c.name as country, c.code as countryCode
from country as c, countrylanguage as cl
where c.code = cl.countrycode and c.gnp > 80000 AND cl.Language = 'Turkish'
Group by c.name) as fir, countrylanguage as cl
where fir.countryCode = cl.countrycode
Group by fir.country;
```

country	count
Austria	8
Belgium	6
Denmark	7
France	6
Germany	6
Greece	2
Netherlands	4
Turkey	3

8 rows in set (0.001 sec)

Q4

a)

```
CREATE TABLE restaurant (  
    id INT PRIMARY KEY NOT NULL,  
    name VARCHAR(255) NOT NULL,  
    type VARCHAR(255) NOT NULL,  
    rating INT CHECK (rating >= 1 AND rating <= 5)  
);
```

```
MariaDB [world]> SHOW TABLES;  
+-----+  
| Tables_in_world |  
+-----+  
| city             |  
| country          |  
| countrylanguage  |  
| restaurant       |  
+-----+  
4 rows in set (0.000 sec)
```

b)

```
INSERT into restaurant (id, name, type, rating)
VALUES (1, 'Omar Restaurant', 'Italian', 3);
```

```
INSERT INTO restaurant (id, name, type, rating)
VALUES (2, 'El Taquito Loco', 'Mexican', 4),
(3, 'The Greek Taverna', 'Greek', 5),
(4, 'The Wok Inn', 'Chinese', 2),
(5, 'La Pizzeria Bella', 'Italian', 4),
(6, 'The Tap House', 'Pub Food', 1),
(7, 'Bao Bun House', 'Asian Fusion', 4),
(8, 'The Vegan Kitchen', 'Barbecue', 4),
(9, 'La Brasserie Belge', 'Belgian', 4),
(10, 'The Smokestack BBQ', 'Barbecue', 4),
(11, 'Sushi Island', 'Japanese', 3),
(12, 'Smoke Master', 'BBQ', 2);
```

```
MariaDB [world]> select * from restaurant
-> ;
```

id	name	type	rating
1	Omar Restaurant	Italian	3
2	El Taquito Loco	Mexican	4
3	The Greek Taverna	Greek	5
4	The Wok Inn	Chinese	2
5	La Pizzeria Bella	Italian	4
6	The Tap House	Pub Food	1
7	Bao Bun House	Asian Fusion	4
8	The Vegan Kitchen	Barbecue	4
9	La Brasserie Belge	Belgian	4
10	The Smokestack BBQ	Barbecue	4
11	Sushi Island	Japanese	3
12	Smoke Master	BBQ	2

```
12 rows in set (0.000 sec)
```

c)

```
UPDATE restaurant
SET type = 'Vegan'
WHERE name = 'The Vegan Kitchen';
```

```
MariaDB [world]> select * from restaurant;
```

id	name	type	rating
1	Omar Restaurant	Italian	3
2	El Taquito Loco	Mexican	4
3	The Greek Taverna	Greek	5
4	The Wok Inn	Chinese	2
5	La Pizzeria Bella	Italian	4
6	The Tap House	Pub Food	1
7	Bao Bun House	Asian Fusion	4
8	The Vegan Kitchen	Vegan	4
9	La Brasserie Belge	Belgian	4
10	The Smokestack BBQ	Barbecue	4
11	Sushi Island	Japanese	3
12	Smoke Master	BBQ	2

```
12 rows in set (0.001 sec)
```

d)

```
DELETE FROM restaurant
WHERE name LIKE '%Smoke%';
```

```
MariaDB [world]> DELETE FROM restaurant
-> WHERE name LIKE '%Smoke%';
Query OK, 2 rows affected (0.001 sec)
```

```
MariaDB [world]> select * from restaurant;
```

id	name	type	rating
1	Omar Restaurant	Italian	3
2	El Taquito Loco	Mexican	4
3	The Greek Taverna	Greek	5
4	The Wok Inn	Chinese	2
5	La Pizzeria Bella	Italian	4
6	The Tap House	Pub Food	1
7	Bao Bun House	Asian Fusion	4
8	The Vegan Kitchen	Vegan	4
9	La Brasserie Belge	Belgian	4
11	Sushi Island	Japanese	3

10 rows in set (0.001 sec)

Q5

a)

```
CREATE TABLE city_restaurant (  
    restaurant_id INT NOT NULL,  
    city_id INT NOT NULL,  
    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  
);
```

```
MariaDB [world]> CREATE TABLE city_restaurant (  
->     restaurant_id INT NOT NULL,  
->     city_id INT NOT NULL,  
->     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 (0.005 sec)
```

b)

```
LOAD DATA INFILE
'/home/omar/uni/fall2023/comp306/homeworks/homework-2/HW2/city_restaurant.txt' INTO TABLE city_restaurant;
```

```
MariaDB [world]> LOAD DATA INFILE '/home/omar/uni/fall2023/comp306/homeworks/homework-2/HW2/city_restaurant.txt' INTO TABLE city_restaurant;
Query OK, 21 rows affected, 20 warnings (0.002 sec)
Records: 21 Deleted: 0 Skipped: 0 Warnings: 20
```

```
MariaDB [world]> select * from city_restaurant;
```

restaurant_id	city_id
1	459
1	1787
3	144
3	145
3	462
4	459
4	1532
4	3357
5	459
5	462
5	608
5	3357
7	462
7	3357
7	3592
8	462
8	3793
9	144
9	462
9	3357
9	3580

```
21 rows in set (0.001 sec)
```

c)

```
SELECT c.ID, c.Name
FROM city AS c, city_restaurant AS cr
WHERE 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 (0.001 sec)
```

d)

```
SELECT r.id, r.name
FROM restaurant AS r, city_restaurant AS cr, city AS c
WHERE c.Name = 'Manchester' and r.id = cr.restaurant_id and cr.city_id =
c.ID AND r.id NOT IN (SELECT r2.id
FROM restaurant AS r2, city_restaurant AS cr2, city AS c2
WHERE c2.Name = 'Liverpool' and r2.id = cr2.restaurant_id and cr2.city_id =
c2.ID);
```

```
+-----+-----+
| id | name |
+-----+-----+
| 3 | The Greek Taverna |
| 7 | Bao Bun House |
| 8 | The Vegan Kitchen |
| 9 | La Brasserie Belge |
+-----+-----+
4 rows in set (0.001 sec)
```


e)

```
UPDATE restaurant AS r
JOIN city_restaurant AS cr ON r.id = cr.restaurant_id
JOIN city AS c ON cr.city_id = c.ID
SET r.rating = r.rating - 1
WHERE c.Name = 'Baku' AND r.rating > 1;
```

```
MariaDB [world]> UPDATE restaurant AS r
-> JOIN city_restaurant AS cr ON r.id = cr.restaurant_id
-> JOIN city AS c ON cr.city_id = c.ID
-> SET r.rating = r.rating - 1
-> WHERE c.Name = 'Baku' AND r.rating > 1;
Query OK, 2 rows affected (0.002 sec)
Rows matched: 2  Changed: 2  Warnings: 0
```

f)

```
SELECT r.id, r.name
FROM restaurant AS r, city_restaurant AS cr, city AS c
WHERE c.CountryCode = 'AZE' AND r.id = cr.restaurant_id AND cr.city_id =
c.ID
GROUP BY r.id, r.name
HAVING COUNT(DISTINCT c.ID) >= 2;
```

```
+-----+-----+
| id | name |
+-----+-----+
| 3 | The Greek Taverna |
+-----+-----+
1 row in set (0.001 sec)
```

g)

```
SELECT DISTINCT co.Code, co.Name
FROM country AS co
WHERE co.Code NOT IN (SELECT ci.CountryCode
FROM city AS ci
WHERE ci.ID IN (SELECT cr.city_id
FROM city_restaurant AS cr));
```

Code	Name
ABW	Aruba
AFG	Afghanistan
AGO	Angola
AIA	Anguilla
ALB	Albania
AND	Andorra
ANT	Netherlands Antilles
ARE	United Arab Emirates
ARG	Argentina
ARM	Armenia
ASM	American Samoa
ATA	Antarctica
ATF	French Southern territories
ATG	Antigua and Barbuda
AUS	Australia
AUT	Austria
BDI	Burundi
BEL	Belgium
BEN	Benin
BFA	Burkina Faso
BGD	Bangladesh
BGR	Bulgaria
BHR	Bahrain
BHS	Bahamas
BIH	Bosnia and Herzegovina
BLR	Belarus
BLZ	Belize
BMU	Bermuda
BOL	Bolivia
BRA	Brazil
BRB	Barbados
BRN	Brunei
BTN	Bhutan
BVT	Bouvet Island
BWA	Botswana
CAF	Central African Republic
CAN	Canada
CCK	Cocos (Keeling) Islands
CHE	Switzerland
CHL	Chile
CHN	China
CIV	Côte d'Ivoire
CMR	Cameroon
COD	Congo, The Democratic Republic of the
COG	Congo
COK	Cook Islands
COL	Colombia
COM	Comoros
CPV	Cape Verde
CRI	Costa Rica
CUB	Cuba
CXR	Christmas Island
CYM	Cayman Islands
CYP	Cyprus

CYP	Cyprus
CZE	Czech Republic
DEU	Germany
DJI	Djibouti
DMA	Dominica
DNK	Denmark
DOM	Dominican Republic
DZA	Algeria
ECU	Ecuador
ERI	Eritrea
ESH	Western Sahara
ESP	Spain
EST	Estonia
ETH	Ethiopia
FIN	Finland
FJI	Fiji Islands
FLK	Falkland Islands
FRA	France
FRO	Faroe Islands
FSM	Micronesia, Federated States of
GAB	Gabon
GEO	Georgia
GHA	Ghana
GIB	Gibraltar
GIN	Guinea
GLP	Guadeloupe
GMB	Gambia
GNB	Guinea-Bissau
GNQ	Equatorial Guinea
GRC	Greece
GRD	Grenada
GRL	Greenland
GTM	Guatemala
GUF	French Guiana
GUM	Guam
GUY	Guyana
HKG	Hong Kong
HMD	Heard Island and McDonald Islands
HND	Honduras
HRV	Croatia
HTI	Haiti
HUN	Hungary
IDN	Indonesia
IND	India
IOT	British Indian Ocean Territory
IRL	Ireland
IRN	Iran
IRQ	Iraq
ISL	Iceland
ISR	Israel
ITA	Italy
JAM	Jamaica
KAZ	Kazakhstan
KEN	Kenya
KGZ	Kyrgyzstan
KHM	Cambodia
KIR	Kiribati

KIR	Kiribati
KNA	Saint Kitts and Nevis
KOR	South Korea
KWT	Kuwait
LAO	Laos
LBN	Lebanon
LBR	Liberia
LBY	Libyan Arab Jamahiriya
LCA	Saint Lucia
LIE	Liechtenstein
LKA	Sri Lanka
LSO	Lesotho
LTU	Lithuania
LUX	Luxembourg
LVA	Latvia
MAC	Macao
MAR	Morocco
MCO	Monaco
MDA	Moldova
MDG	Madagascar
MDV	Maldives
MEX	Mexico
MHL	Marshall Islands
MKD	Macedonia
MLI	Mali
MLT	Malta
MMR	Myanmar
MNG	Mongolia
MNP	Northern Mariana Islands
MOZ	Mozambique
MRT	Mauritania
MSR	Montserrat
MTQ	Martinique
MUS	Mauritius
MWI	Malawi
MYS	Malaysia
MYT	Mayotte
NAM	Namibia
NCL	New Caledonia
NER	Niger
NFK	Norfolk Island
NGA	Nigeria
NIC	Nicaragua
NIU	Niue
NLD	Netherlands
NOR	Norway
NPL	Nepal
NRU	Nauru
NZL	New Zealand
OMN	Oman
PAK	Pakistan
PAN	Panama
PCN	Pitcairn
PER	Peru
PHL	Philippines
PLW	Palau
PNG	Papua New Guinea

PNG	Papua New Guinea
POL	Poland
PRI	Puerto Rico
PRK	North Korea
PRT	Portugal
PRY	Paraguay
PSE	Palestine
PYF	French Polynesia
QAT	Qatar
REU	Réunion
ROM	Romania
RWA	Rwanda
SAU	Saudi Arabia
SDN	Sudan
SEN	Senegal
SGP	Singapore
SGS	South Georgia and the South Sandwich Islands
SHN	Saint Helena
SJM	Svalbard and Jan Mayen
SLB	Solomon Islands
SLE	Sierra Leone
SLV	El Salvador
SMR	San Marino
SOM	Somalia
SPM	Saint Pierre and Miquelon
STP	Sao Tome and Principe
SUR	Suriname
SVK	Slovakia
SVN	Slovenia
SWE	Sweden
SWZ	Swaziland
SYC	Seychelles
SYR	Syria
TCA	Turks and Caicos Islands
TCD	Chad
TGO	Togo
THA	Thailand
TJK	Tajikistan
TKL	Tokelau
TKM	Turkmenistan
TMP	East Timor
TON	Tonga
TTO	Trinidad and Tobago
TUN	Tunisia
TUV	Tuvalu
TWN	Taiwan
TZA	Tanzania
UGA	Uganda
UKR	Ukraine
UMI	United States Minor Outlying Islands
URY	Uruguay
UZB	Uzbekistan
VAT	Holy See (Vatican City State)
VCT	Saint Vincent and the Grenadines
VEN	Venezuela
VGB	Virgin Islands, British
VIR	Virgin Islands, U.S.

SLE	Sierra Leone
SLV	El Salvador
SMR	San Marino
SOM	Somalia
SPM	Saint Pierre and Miquelon
STP	Sao Tome and Principe
SUR	Suriname
SVK	Slovakia
SVN	Slovenia
SWE	Sweden
SWZ	Swaziland
SYC	Seychelles
SYR	Syria
TCA	Turks and Caicos Islands
TCD	Chad
TGO	Togo
THA	Thailand
TJK	Tajikistan
TKL	Tokelau
TKM	Turkmenistan
TMP	East Timor
TON	Tonga
TTO	Trinidad and Tobago
TUN	Tunisia
TUV	Tuvalu
TWN	Taiwan
TZA	Tanzania
UGA	Uganda
UKR	Ukraine
UMI	United States Minor Outlying Islands
URY	Uruguay
UZB	Uzbekistan
VAT	Holy See (Vatican City State)
VCT	Saint Vincent and the Grenadines
VEN	Venezuela
VGB	Virgin Islands, British
VIR	Virgin Islands, U.S.
VNM	Vietnam
VUT	Vanuatu
WLF	Wallis and Futuna
WSM	Samoa
YEM	Yemen
YUG	Yugoslavia
ZAF	South Africa
ZMB	Zambia
ZWE	Zimbabwe

231 rows in set (0.001 sec)

Q6

Just file:

```
h      := env_var("MYSQL_HOME")
b      := env_var("MYSQL_BASEDIR")
d      := env_var("MYSQL_DATADIR")
p      := env_var("MYSQL_PID_FILE")
port   := env_var("MYSQL_PORT")

mysql *ARGS:
  mysql -h localhost -P {{port}} -u root {{ARGS}}

mysql-exp *ARGS:
  mysqldump -u root -P {{port}} {{ARGS}}

mysql-init:
  #!/usr/bin/env bash
  set -euxo pipefail
  if [ ! -d "$MYSQL_HOME" ]; then
    # Make sure to use normal authentication method otherwise we can only
    # connect with unix account. But users do not actually exists in nix.
    mysql_install_db --auth-root-authentication-method=normal \
      --datadir=$MYSQL_DATADIR --basedir=$MYSQL_BASEDIR \
      --pid-file=$MYSQL_PID_FILE
  fi
```

Command:

```
just mysql-exp world > world-export.sql
```