ART ONE: WARM-UP (1 POINT)
A explore the 'economy' table (\d economy) to get familiar with what columns are in there. Do a SELECT * FROM economy; to check out some rows, and press q to get back to the prompt. Then begin:

1) Find the top 10 countries by GDP using: SELECT -- FROM -- ORDER BY -- LIMIT --

```
SELECT country, gdp FROM economy ORDER BY gdp DESC NULLS LAST LIMIT 10;
 country |   gdp
---------+----------
 USA     | 16720000
 CN      |  9330000
 J       |  5007000
 D       |  3593000
 F       |  2739000
 GB      |  2490000
 BR      |  2190000
 R       |  2113000
 I       |  2068000
 CDN     |  1825000
(10 rows)
```

2) Get a list of countries with the GDP below 20000 using: SELECT -- FROM -- WHERE --

```
SELECT country, gdp FROM economy WHERE gdp < 2000;
 country |  gdp
---------+-------
 RSM     |  1866
 GBZ     |  1106
 GAZA    |  1700
 SOL     |  1099
 VU      |   828
 PAL     |   221
 MP      |   733
 FSM     |   339
 MH      |   193
 NAU     |   100
 KIR     |   173
 TUV     |    38
 TOK     |   1.5
 WS      |   705
 AS      | 462.2
 WF      |    60
 TO      |   477
 NU      |    10
 CK      | 183.2
 WAG     |   896
 GUB     |   880
 LB      |  1977
 DJI     |  1459
 CV      |  1955
```

```
 STP     |   311
 SY      |  1271
 COM     |   658
 MYT     | 953.6
 HELX    |    18
 SPM     | 215.3
 BZ      |  1637
 TUCA    |   216
 VIRG    |  1200
 BVI     |  1095
 AXA     | 175.4
 SMAR    | 561.5
 SX      | 794.7
 KN      |   767
 AG      |  1220
 MNTS    |    29
 WD      |   495
 WL      |  1377
 WV      |   742
 WG      |   811
 GF      |   800
 FALK    | 164.5
(46 rows)
```

3) Get a list of countries sorted by the highest rates inflation:

```
SELECT -- FROM -- ORDER BY --
SELECT country, inflation FROM economy ORDER BY inflation DESC NULLS
LAST;
country | inflation
---------+-----------
 SYR     |      59.1
 YV      |      56.2
 IR      |      42.3
 SUD     |        25
 RA      |      20.8
 BY      |        19
 WB      |        14
 ER      |        13
 MH      |      12.9
 MW      |      12.2
 RG      |      11.9
 YE      |      11.8
 SLE     |      11.1
 GH      |        11
 BHT     |        11
 UZ      |      10.1
 IND     |       9.6
 JA      |       9.4
 BI      |       9.3
 ET      |         9
 TM      |         9
 ANG     |       8.9
```

RM	8.8
NGR	8.7
STP	8.7
ZW	8.5
ETH	8.4
ROU	8.3
MNG	8.2
EAT	7.8
PK	7.7
RI	7.7
TR	7.6
BD	7.6
CGO	7.1
Z	7.1
RCA	7
KG	6.8
AFG	6.8
VN	6.8
R	6.8
NEP	6.7
BOL	6.5
LAO	6.5
RH	6.3
EAU	6.2

4) List all countries with the majority of their GDP coming from agriculture: SELECT -- FROM -- WHERE -- (there are different types of criteria for what I am terming "majority," it's up to you to decide on that criteria, and any decision as valid.)

SELECT country, service FROM economy WHERE service > agriculture AND service > industry;

country	service
AL	68.5
GR	80.5
CY	81.7
MK	62.3
SRB	60.3
MNE	87.9
KOS	64.5
F	79.4
E	70.8
CZ	60.3
SK	67
D	69
H	68.7
I	73.5

5) Create a list of countries in order of highest unemployment, and join the table with the country table so you get the names of the countries not the country code: SELECT -- FROM -- JOIN - ON -- ORDER BY --

```
SELECT country.name , economy.unemployment FROM economy
JOIN country
ON country.code = economy.country
ORDER BY economy.unemployment
DESC NULLS LAST LIMIT 10;
          name          | unemployment
------------------------+--------------
 Zimbabwe               |           95
 Nauru                  |           90
 Liberia                |           85
 Burkina Faso           |           77
 Turkmenistan           |           60
 Djibouti               |           59
 Congo                  |           53
 Senegal                |           48
 Nepal                  |           46
 Bosnia and Herzegovina |         44.3
(10 rows)
```

6) Invent your own query for the economy table--as simple or as complicated as you want it to be.

```
mondial=# SELECT country, industry, unemployment FROM economy WHERE
unemployment > 50 LIMIT 10;
 country | industry | unemployment
---------+----------+--------------
 TM      |     24.4 |           60
 NAU     |       33 |           90
 LB      |      5.4 |           85
 BF      |     23.6 |           77
 RCB     |     73.9 |           53
 ZW      |     25.4 |           95
 DJI     |     17.3 |           59
(7 rows)
```

7) Bonus question! List the top 15 countries by the actual dollar amount of their GDP that comes from agriculture (not the percentage but the portion of total GDP in million dollars) where the percent of the agriculture is over 25 percent. Note you will have to do some math with your column values. (1 EXTRA POINT) (Probably best to skip this one and move on to the Part Two if this is at all challenging.)

PART TWO: AGGREGATE QUERIES (3 POINTS)

Do the following for queries using the 'spoken' table.

1) Find the top 10 most dominant languages (highest percentage) in their respective countries. This isn't an aggregate query, use ORDER BY along with other stuff.

```
SELECT * FROM spoken ORDER BY percentage DESC NULLS LAST LIMIT 10;
country |    language     | percentage
---------+-----------------+------------
 FALK    | English         |        100
```

```
 SPM     | French           |        100
 HELX    | English          |        100
 CV      | Krioulo          |        100
 ROK     | Korean           |        100
 J       | Japanese         |        100
 PN      | Pitcairn Creole  |        100
 KP      | Korean           |        100
 GBM     | English          |        100
 GAZA    | Arabic           |       99.8
(10 rows)
```

2) Get a list of the 10 countries with the most languages according to this database. This is an aggregate query. This should have two columns, the country and the number of languages in the country. Hint: you will be using COUNT() and GROUP BY along with other stuff.

```
SELECT country, count(language) FROM spoken GROUP BY country ORDER
BY count(language) DESC LIMIT 10;
 country | count
---------+-------
 CN      |    35
 IND     |    28
 R       |    27
 USA     |    27
 CDN     |    22
 GB      |    20
 NGR     |    18
 CAM     |    16
 EAT     |    16
 F       |    16
(10 rows)
```

3) Get the same list, but join the country code to the country table so you get the full names of the countries.

```
SELECT country.name, count(spoken.language) FROM spoken
JOIN country
ON country.code = spoken.country
GROUP BY country.name ORDER BY count(spoken.language) DESC LIMIT 10;
      name      | count
----------------+-------
 China          |    35
 India          |    28
 United States  |    27
 Russia         |    27
 Canada         |    22
 United Kingdom |    20
 Nigeria        |    18
 Cameroon       |    16
 France         |    16
 Tanzania       |    16
(10 rows)
```

4) Get a list of the 10 languages that are most commonly found from

country to country. This should have two columns, the language and the number of countries it appears in.

```
SELECT language, count(country) FROM spoken GROUP BY language ORDER BY count(country) DESC NULLS LAST LIMIT 10;
  language  | count
------------+-------
 English    |    88
 Arabic     |    56
 French     |    52
 Spanish    |    41
 German     |    26
 Russian    |    21
 Portuguese |    20
 Italian    |    17
 Turkish    |    16
 Fulfulde   |    15
(10 rows)
```

5) Get a list of the 20 languages that are most commonly found from country to country. This is just like the previous query, except it should have a third column that has
the average percentage of the populations that speaks those languages.

```
SELECT
language, count(country), AVG(percentage)
FROM spoken
GROUP BY language
ORDER BY count(country) DESC NULLS LAST
LIMIT 20;
  language  | count |         avg
------------+-------+---------------------
 English    |    88 | 31.1878125000000000
 Arabic     |    56 | 29.8173913043478261
 French     |    52 | 23.7571428571428571
 Spanish    |    41 | 53.2527777777777778
 German     |    26 | 13.9926923076923077
 Russian    |    21 | 16.2761904761904762
 Portuguese |    20 | 22.0861111111111111
 Italian    |    17 | 16.9714285714285714
 Turkish    |    16 |  9.1093750000000000
 Fulfulde   |    15 | 12.7600000000000000
 Roma       |    15 |  1.2666666666666667
 Chinese    |    13 |  2.2615384615384615
 Filipino   |    11 |  7.4090909090909091
 Ukrainian  |    11 |  7.0818181818181818
 Mandarin   |    10 | 14.7800000000000000
 Berber     |    10 |  9.1714285714285714
 Romanian   |     9 | 19.7555555555555556
 Albanian   |     9 | 25.5944444444444444
 Polish     |     9 | 12.1777777777777778
 Urdu       |     9 |  2.2722222222222222
(20 rows)
```

6) Get a list of the 20 languages that are most commonly found from country to country and their average percentage--
but only for the countries where those languages are spoken by at least
21 percent of the population.

```
SELECT
language, count(country), AVG(percentage)
FROM spoken
WHERE percentage >= 21
GROUP BY language
ORDER BY count(country)
DESC NULLS LAST
LIMIT 20;
```

```
    language    | count |         avg
----------------+-------+---------------------
 English        |    25 |  72.7960000000000000
 Spanish        |    21 |  85.2238095238095238
 Arabic         |    17 |  76.8117647058823529
 French         |    10 |  59.0800000000000000
 Russian        |     5 |  49.2400000000000000
 Portuguese     |     5 |  65.5600000000000000
 German         |     4 |  84.2250000000000000
 Serbo-Croatian |     4 |  92.9000000000000000
 Albanian       |     3 |  72.8000000000000000
 Papiamento     |     3 |  74.7666666666666667
 Malay          |     3 |  73.1000000000000000
 Fulfulde       |     3 |  25.8000000000000000
 Italian        |     3 |  70.3333333333333333
 Dutch          |     3 |  63.3333333333333333
 Greek          |     3 |  71.0000000000000000
 Turkish        |     2 |  54.2500000000000000
 Thai           |     2 |  70.6000000000000000
 Korean         |     2 | 100.0000000000000000
 Berber         |     2 |  27.5000000000000000
 Mandarin       |     2 |  52.9500000000000000
(20 rows)
```

7) Finally, modify that last query so that you only get languages that are spoken in more than four countries, but order the results by the highest average percentage of speakers.
Hint: you need to use HAVING along with other stuff.

```
SELECT
language, count(country), AVG(percentage)
FROM spoken
WHERE percentage >= 21
GROUP BY language
HAVING  count(country) > 4
ORDER BY AVG(percentage)
DESC NULLS LAST
LIMIT 20;
```

```
  language  | count |         avg
------------+-------+---------------------
```

```
 Spanish    |    21 | 85.2238095238095238
 Arabic     |    17 | 76.8117647058823529
 English    |    25 | 72.7960000000000000
 Portuguese |     5 | 65.5600000000000000
 French     |    10 | 59.0800000000000000
 Russian    |     5 | 49.2400000000000000
(6 rows)
```