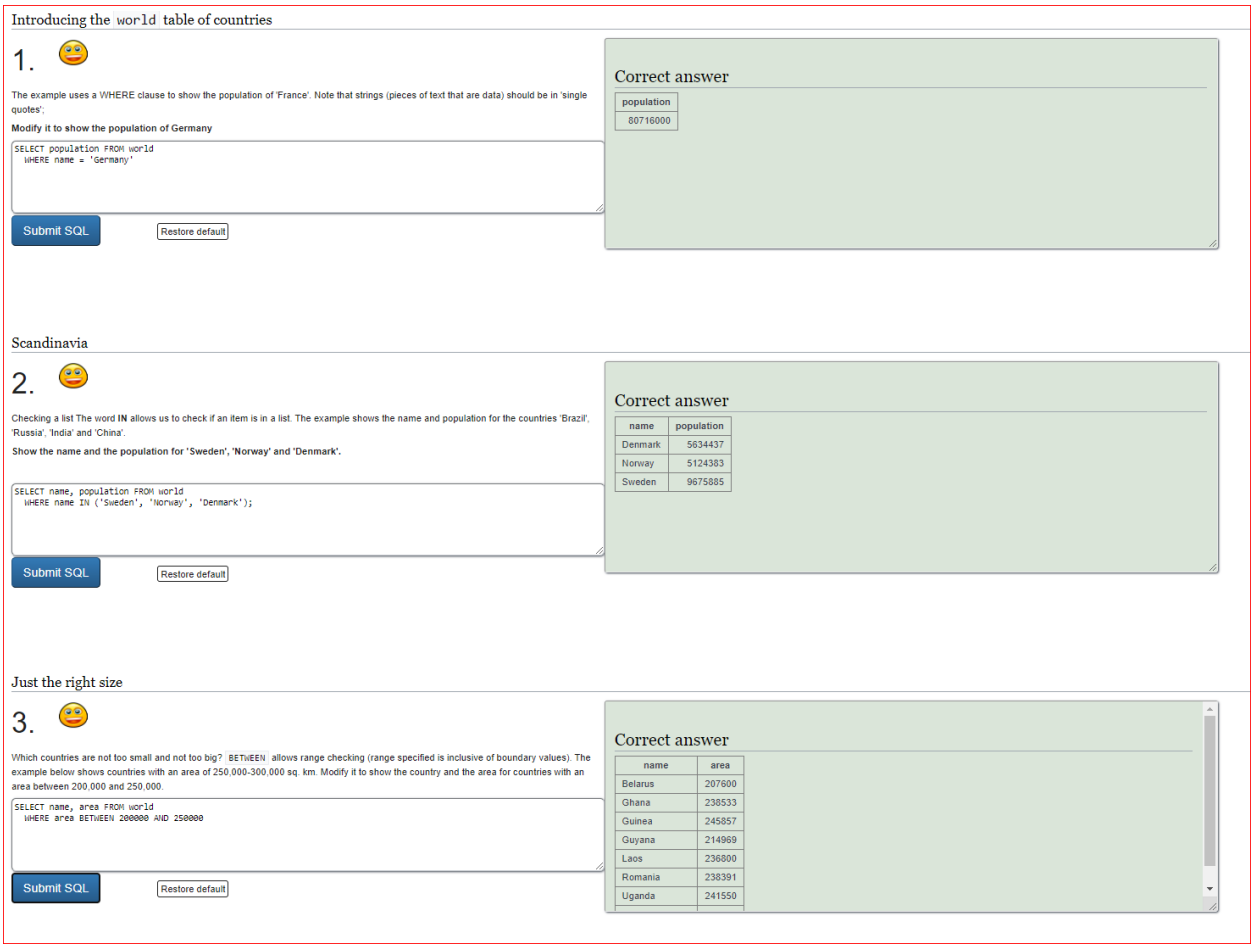
Kevin De La Torre

CS 4650 Big Data and Analytics

Project 2

SELECT basics



Introducing the `world` table of countries

1.

The example uses a WHERE clause to show the population of 'France'. Note that strings (pieces of text that are data) should be in 'single quotes';

Modify it to show the population of Germany

```
SELECT population FROM world
  WHERE name = 'Germany'
```

Submit SQL Restore default

Correct answer

population
80716000

Scandinavia

2.

Checking a list The word **IN** allows us to check if an item is in a list. The example shows the name and population for the countries 'Brazil', 'Russia', 'India' and 'China'.

Show the name and the population for 'Sweden', 'Norway' and 'Denmark'.

```
SELECT name, population FROM world
  WHERE name IN ('Sweden', 'Norway', 'Denmark');
```

Submit SQL Restore default

Correct answer

name	population
Denmark	5634437
Norway	5124383
Sweden	9675885

Just the right size

3.

Which countries are not too small and not too big? `BETWEEN` allows range checking (range specified is inclusive of boundary values). The example below shows countries with an area of 250,000-300,000 sq. km. Modify it to show the country and the area for countries with an area between 200,000 and 250,000.

```
SELECT name, area FROM world
  WHERE area BETWEEN 200000 AND 250000
```

Submit SQL Restore default

Correct answer

name	area
Belarus	207600
Ghana	238533
Guinea	245857
Guyana	214969
Laos	236800
Romania	238391
Uganda	241550

SELECT name

1.

You can use `WHERE name LIKE 'B%'` to find the countries that start with 'B'.

- The % is a wild-card it can match any characters

Find the country that start with Y

```
SELECT name FROM world
  WHERE name LIKE 'Y%'
```

Submit SQL Restore default

Correct answer

name
Yemen

2.

Find the countries that end with y

```
SELECT name FROM world
  WHERE name LIKE '%y'
```

Submit SQL Restore default

Correct answer

name
Germany
Hungary
Italy
Norway
Paraguay
Turkey
Uruguay

3.

Luxembourg has an x - so does one other country. List them both.

Find the countries that contain the letter x

```
SELECT name FROM world
  WHERE name LIKE '%x%'
```

Submit SQL Restore default

Correct answer

name
Luxembourg
Mexico

4.

Iceland, Switzerland end with land - but are there others?

Find the countries that end with land

```
SELECT name FROM world
  WHERE name LIKE '%land'
```

Submit SQL Restore default

Correct answer

name
Finland
Iceland
Ireland
New Zealand
Poland
Swaziland
Switzerland

5.

Columbia starts with a C and ends with ia - there are two more like this.

Find the countries that start with C and end with ia

```
SELECT name FROM world
  WHERE name LIKE 'C%ia'
```

Submit SQL Restore default

Correct answer

name
Cambodia
Colombia
Croatia

6.

Greece has a double e - who has a double o?

Find the country that has oo in the name

```
SELECT name FROM world
  WHERE name LIKE '%oo%'
```

Submit SQL Restore default

Correct answer

name
Cameroon

7.

Bahamas has three a - who else?

Find the countries that have three or more a in the name

```
SELECT name FROM world
  WHERE name LIKE '%a%a%a%'
```

Submit SQL Restore default

Correct answer

name
Afghanistan
Albania
Antigua and Barbuda
Australia
Azerbaijan
Bahamas
Bosnia and Herzegovina

8.

India and Angola have an n as the second character. You can use the underscore as a single character wildcard.

```
SELECT name FROM world
 WHERE name LIKE '_n%'
 ORDER BY name
```

Find the countries that have "t" as the second character.

```
SELECT name FROM world
 WHERE name LIKE '_t%'
ORDER BY name
```

Submit SQL Restore default

Correct answer

name
Ethiopia
Italy

9.

Lesotho and Moldova both have two o characters separated by two other characters.

Find the countries that have two "o" characters separated by two others.

```
SELECT name FROM world
 WHERE name LIKE '%o__o%'
```

Submit SQL Restore default

Correct answer

name
Congo, Democratic Republic of
Congo, Republic of
Lesotho
Moldova
Mongolia
Morocco
Sao Tomé and Principe

10.

Cuba and Togo have four characters names.

Find the countries that have exactly four characters.

```
SELECT name FROM world
 WHERE name LIKE '____'
```

Submit SQL Restore default

Correct answer

name
Chad
Cuba
Fiji
Iran
Iraq
Laos
Mali

Harder Questions

Well done for getting this far.

The next questions are optional and only for students who are finding the basic questions too easy.

11.

The capital of **Luxembourg** is **Luxembourg**. Show all the countries where the capital is the same as the name of the country

Find the country where the name is the capital city.

```
SELECT name
  FROM world
 WHERE name LIKE capital
```

Submit SQL Restore default

Correct answer

name
Djibouti
Luxembourg
San Marino
Singapore

12.

The capital of **Mexico** is **Mexico City**. Show all the countries where the capital has the country together with the word "City".

Find the country where the capital is the country plus "City".

The concat function

```
SELECT name
  FROM world
 WHERE capital LIKE concat(name, ' City')
```

Submit SQL Restore default

Correct answer

name
Guatemala
Kuwait
Mexico
Panama

13.

Find the capital and the name where the capital includes the name of the country.

```
SELECT capital, name
  FROM world
 WHERE capital like concat('%', name, '%')
```

Submit SQL Restore default

Correct answer

capital	name
Andorra la Vella	Andorra
Djibouti	Djibouti
Guatemala City	Guatemala
Kuwait City	Kuwait
Luxembourg	Luxembourg
Mexico City	Mexico
Monaco-Ville	Monaco

14.

Find the capital and the name where the capital is an extension of name of the country.

You *should* include **Mexico City** as it is longer than **Mexico**. You *should not* include **Luxembourg** as the capital is the same as the country.

```
select capital, name
  from world
 where capital like concat( name, '_', '%')
```

Submit SQL Restore default

Correct answer

capital	name
Andorra la Vella	Andorra
Guatemala City	Guatemala
Kuwait City	Kuwait
Mexico City	Mexico
Monaco-Ville	Monaco
Panama City	Panama

15.

For **Monaco-Ville** the name is **Monaco** and the extension is **-Ville**.

Show the name and the extension where the capital is an extension of name of the country.

You can use the SQL function REPLACE.

```
SELECT name, REPLACE(capital, name, '') AS extension
  FROM world
 where capital LIKE CONCAT(name, '_%')
```

Submit SQL Restore default

Result:

name	extension
Andorra	la Vella
Guatemala	City
Kuwait	City
Mexico	City
Monaco	-Ville
Panama	City

SELECT from World

1.

Read the notes about this table. Observe the result of running this SQL command to show the name, continent and population of all countries.

```
SELECT name, continent, population FROM world
```

Submit SQL Restore default

Correct answer

name	continent	population
Afghanistan	Asia	25500100
Albania	Europe	2821977
Algeria	Africa	38700000
Andorra	Europe	76098
Angola	Africa	19183590
Antigua and Barbuda	Caribbean	86295
Argentina	South America	42669500

Large Countries

2.

How to use WHERE to filter records. Show the name for the countries that have a population of at least 200 million. 200 million is 200000000, there are eight zeros.

```
SELECT name
  FROM world
 WHERE population > 200000000
```

Submit SQL Restore default

Correct answer

name
Brazil
China
India
Indonesia
United States

Per capita GDP

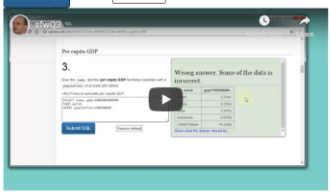
3.

Give the `name` and the **per capita GDP** for those countries with a `population` of at least 200 million.

HELP How to calculate per capita GDP

```
select name, gdp/population
  from world
 where population > 200000000
```

Submit SQL Restore default



Correct answer

name	
Brazil	11115.264751422625
China	6121.710598592322
India	1504.793124478397
Indonesia	3482.020488188676
United States	51032.29454636844

South America In millions

4.

Show the `name` and `population` in millions for the countries of the `continent` 'South America'. Divide the population by 1000000 to get population in millions.

```
select name, population/1000000
  from world
 where continent ='South America'
```

Submit SQL Restore default

Correct answer

name	
Argentina	42.6695
Bolivia	10.027254
Brazil	202.794
Chile	17.773
Colombia	47.662
Ecuador	15.7742
Guyana	0.784894

France, Germany, Italy

5.

Show the `name` and `population` for France, Germany, Italy

```
select name, population
  from world
 where name in ( 'France', 'Germany', 'Italy' )
```

Submit SQL Restore default

Correct answer

name	population
France	65906000
Germany	80716000
Italy	60782668

United

6.

Show the countries which have a `name` that includes the word 'United'

```
select name
  from world
 where name like '%United%'
```

Submit SQL Restore default

Correct answer

name
United Arab Emirates
United Kingdom
United States

Two ways to be big

7.

Two ways to be big: A country is **big** if it has an area of more than 3 million sq km or it has a population of more than 250 million.

Show the countries that are big by area or big by population. Show name, population and area.

```
select name, population, area
  from world
 where area > 3000000 or population > 250000000
```

Submit SQL | Restore default

Correct answer

name	population	area
Australia	23545500	7692024
Brazil	202794000	8515767
Canada	35427524	9984670
China	1365370000	9596961
India	1246160000	3166414
Indonesia	252164800	1904569
Russia	146000000	17125242

One or the other (but not both)

8.

Exclusive OR (XOR). Show the countries that are big by area (more than 3 million) or big by population (more than 250 million) but not both. Show name, population and area.

- Australia has a big area but a small population, it should be included.
- Indonesia has a big population but a small area, it should be included.
- China has a big population and big area, it should be excluded.
- United Kingdom has a small population and a small area, it should be excluded.

```
SELECT name, population, area
  FROM world
 WHERE (area > 3000000 AND population < 250000000) OR (area < 3000000 AND population > 250000000);
```

Submit SQL | Restore default

Correct answer

name	population	area
Australia	23545500	7692024
Brazil	202794000	8515767
Canada	35427524	9984670
Indonesia	252164800	1904569
Russia	146000000	17125242

Rounding

9.

Show the `name`, and `population` in millions and the GDP in billions for the countries of the `continent` 'South America'. Use the ROUND function to show the values to two decimal places.

For South America show population in millions and GDP in billions both to 2 decimal places.

Millions and billions

```
select name, round(population/1000000, 2) as populationMillions, round(gdp/1000000000, 2) as gdpBillions
  from world
where continent = 'South America'
```

Submit SQL | Restore default

Correct answer

name	populationMil...	gdpBillions
Argentina	42.67	477.03
Bolivia	10.03	27.04
Brazil	202.79	2254.11
Chile	17.77	268.31
Colombia	47.66	369.81
Ecuador	15.77	87.5
Guyana	0.78	2.85

Click here to play the SELECT card game!

Trillion dollar economies

10.

Show the `name`, and per-capita GDP for those countries with a GDP of at least one trillion (1000000000000; that is 12 zeros). Round this value to the nearest 1000.

Show per-capita GDP for the trillion dollar countries to the nearest $1000.

```
select name, round(gdp/population, -3)
from world
where gdp > 1000000000000
```

Submit SQL | Restore default

Correct answer

name	
Australia	66000
Brazil	11000
Canada	45000
China	6000
France	40000
Germany	42000
India	2000

Name and capital have the same length

11.

Greece has capital Athens.

Each of the strings 'Greece', and 'Athens' has 6 characters.

Show the name and capital where the name and the capital have the same number of characters.

- You can use the LENGTH function to find the number of characters in a string

```
SELECT name, capital
  FROM world
 WHERE len(name) = len(capital)
```

Submit SQL | Restore default

Correct answer

name	capital
Algeria	Algiers
Angola	Luanda
Armenia	Yerevan
Botswana	Gaborone
Canada	Ottawa
Djibouti	Djibouti
Egypt	Cairo

Matching name and capital

12.

The capital of Sweden is Stockholm. Both words start with the letter 'S'.

Show the name and the capital where the first letters of each match. Don't include countries where the name and the capital are the same word.

- You can use the function LEFT to isolate the first character.
- You can use `<>` as the NOT EQUALS operator.

```
SELECT name, capital
FROM world
where left( name, 1) = left( capital, 1) and name <> capital
```

Submit SQL | Restore default

Correct answer

name	capital
Algeria	Algiers
Andorra	Andorra la Vella
Barbados	Bridgetown
Belize	Belmopan
Brazil	Brasilia
Brunei	Bandar Seri Begawan
Burundi	Bujumbura

All the vowels

13.

Equatorial Guinea and **Dominican Republic** have all of the vowels (a e i o u) in the name. They don't count because they have more than one word in the name.

Find the country that has all the vowels and no spaces in its name.

- You can use the phrase `name NOT LIKE '%a%'` to exclude characters from your results.
- The query shown misses countries like Bahamas and Belarus because they contain at least one 'a'

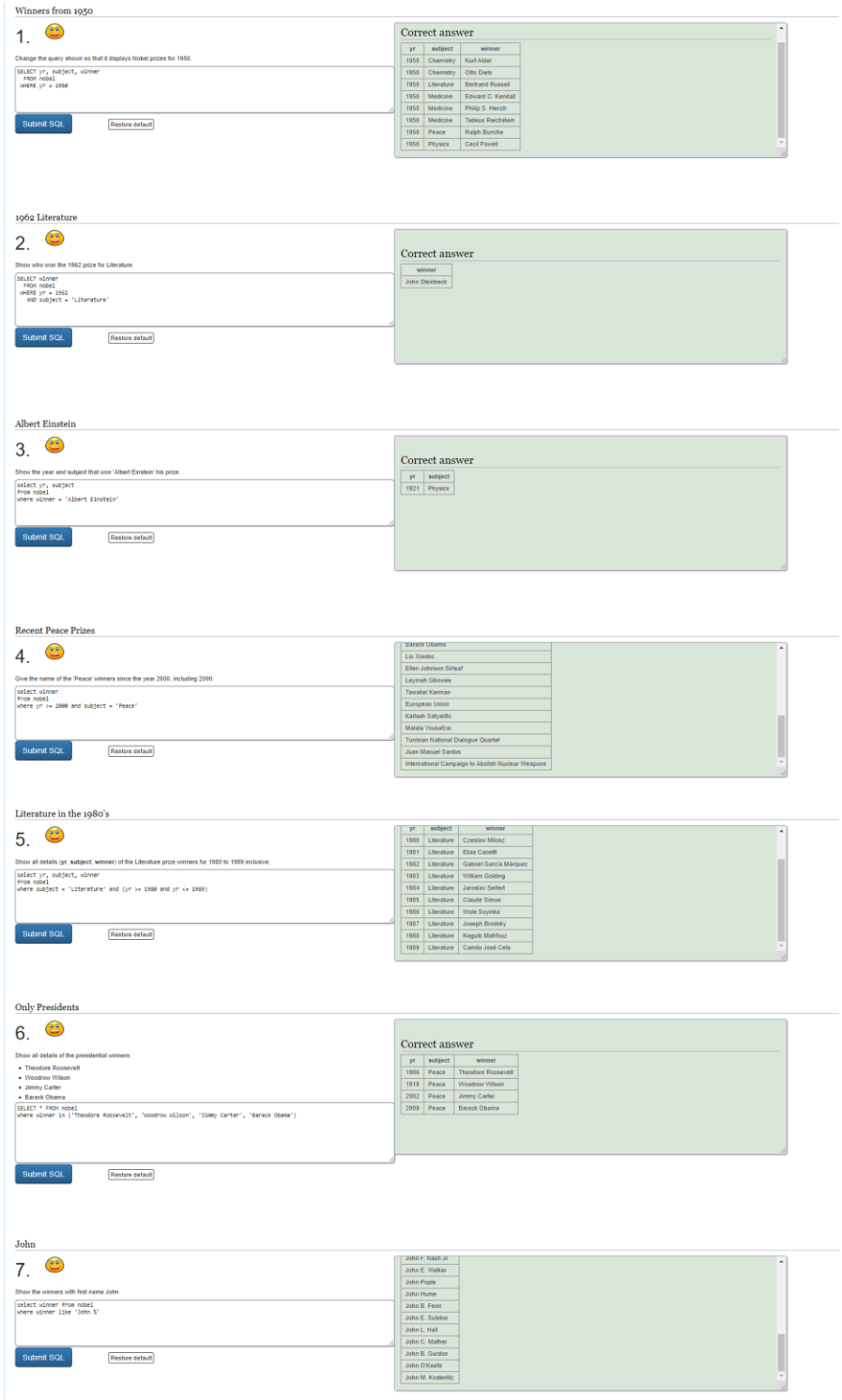
```
SELECT name
   FROM world
WHERE name LIKE '%a%'
  and name like '%e%'
  and name like '%i%'
  and name like '%o%'
  and name like '%u%'
  AND name NOT LIKE '% %'
```

Submit SQL | Restore default

Correct answer

name
Mozambique

SELECT from Nobel



Winners from 1950

1.

Change the query shown so that it displays Nobel prizes for 1950.

```
SELECT yr, subject, winner
  FROM nobel
 WHERE yr = 1950
```

Submit SQL Restore default

Correct answer

yr	subject	winner
1950	Chemistry	Kurt Alder
1950	Chemistry	Otto Diels
1950	Literature	Bertrand Russell
1950	Medicine	Edward C. Kendall
1950	Medicine	Philip S. Hench
1950	Medicine	Tadeus Reichstein
1950	Peace	Ralph Bunche
1950	Physics	Cecil Powell

1962 Literature

2.

Show who won the 1962 prize for Literature.

```
SELECT winner
  FROM nobel
 WHERE yr = 1962
   AND subject = 'Literature'
```

Submit SQL Restore default

Correct answer

winner
John Steinbeck

Albert Einstein

3.

Show the year and subject that won 'Albert Einstein' his prize.

```
select yr, subject
from nobel
where winner = 'Albert Einstein'
```

Submit SQL Restore default

Correct answer

yr	subject
1921	Physics

Recent Peace Prizes

4.

Give the name of the 'Peace' winners since the year 2000, including 2000.

```
select winner
from nobel
where yr >= 2000 and subject = 'Peace'
```

Submit SQL Restore default

Barack Obama
Liu Xiaobo
Ellen Johnson Sirleaf
Leymah Gbowee
Tawakkel Karman
European Union
Kailash Satyarthi
Malala Yousafzai
Tunisian National Dialogue Quartet
Juan Manuel Santos
International Campaign to Abolish Nuclear Weapons

Literature in the 1980's

5.

Show all details (yr, subject, winner) of the Literature prize winners for 1980 to 1989 inclusive.

```
select yr, subject, winner
from nobel
where subject = 'Literature' and (yr >= 1980 and yr <= 1989)
```

Submit SQL Restore default

yr	subject	winner
1980	Literature	Czeslaw Milosz
1981	Literature	Elias Canetti
1982	Literature	Gabriel García Márquez
1983	Literature	William Golding
1984	Literature	Jaroslav Seifert
1985	Literature	Claude Simon
1986	Literature	Wole Soyinka
1987	Literature	Joseph Brodsky
1988	Literature	Naguib Mahfouz
1989	Literature	Camilo José Cela

Only Presidents

6.

Show all details of the presidential winners:

- Theodore Roosevelt
- Woodrow Wilson
- Jimmy Carter
- Barack Obama

```
SELECT * FROM nobel
where winner in ('Theodore Roosevelt', 'Woodrow Wilson', 'Jimmy Carter', 'Barack Obama')
```

Submit SQL Restore default

Correct answer

yr	subject	winner
1906	Peace	Theodore Roosevelt
1919	Peace	Woodrow Wilson
2002	Peace	Jimmy Carter
2009	Peace	Barack Obama

John

7.

Show the winners with first name John

```
select winner from nobel
where winner like 'John %'
```

Submit SQL Restore default

John F. Nash Jr.
John E. Walker
John Pople
John Hume
John B. Fenn
John E. Sulston
John L. Hall
John C. Mather
John B. Gurdon
John O'Keefe
John M. Kosterlitz

Chemistry and Physics from different years

8.

Show the year, subject, and name of Physics winners for 1980 together with the Chemistry winners for 1984.

```
select yr, subject, winner
from nobel
where (subject = 'Physics' and yr = 1980)
  or (subject = 'Chemistry' and yr = 1984)
```

Submit SQL Restore default

Correct answer

yr	subject	winner
1980	Physics	James Cronin
1980	Physics	Val Fitch
1984	Chemistry	Bruce Merrifield

Exclude Chemists and Medics

9.

Show the year, subject, and name of winners for 1980 excluding Chemistry and Medicine

```
select yr, subject, winner
from nobel
where yr=1980 and subject not in ('Chemistry', 'Medicine')
```

Submit SQL Restore default

Correct answer

yr	subject	winner
1980	Economics	Lawrence R. Klein
1980	Literature	Czeslaw Milosz
1980	Peace	Adolfo Pérez Esquivel
1980	Physics	James Cronin
1980	Physics	Val Fitch

Early Medicine, Late Literature

10.

Show year, subject, and name of people who won a 'Medicine' prize in an early year (before 1910, not including 1910) together with winners of a 'Literature' prize in a later year (after 2004, including 2004)

```
select yr, subject, winner
from nobel
where (subject='Medicine' and yr < 1910)
  or (subject='Literature' and yr >= 2004 )
```

Submit SQL Restore default

2007	Literature	Doris Lessing
2008	Literature	Jean-Marie Gustave Le Clézio
2009	Literature	Herta Müller
2010	Literature	Mario Vargas Llosa
2011	Literature	Tomas Tranströmer
2012	Literature	Mo Yan
2013	Literature	Alice Munro
2014	Literature	Patrick Modiano
2015	Literature	Svetlana Alexievich
2016	Literature	Bob Dylan
2017	Literature	Kazuo Ishiguro

Nobel Quiz

Harder Questions

Umlaut

11.

Find all details of the prize won by PETER GRÜNBERG

Non-ASCII characters

The u in his name has an **umlaut**. You may find this link useful https://en.wikipedia.org/wiki/%C3%9C#Keyboarding

```
select * from nobel
where winner like 'PETER GR_NBERG'
```

Submit SQL Restore default

Correct answer

yr	subject	winner
2007	Physics	Peter Grünberg

Apostrophe

12.

Find all details of the prize won by EUGENE O'NEILL

Escaping single quotes

You can't put a single quote in a quote string directly. You can use two single quotes within a quoted string.

```
select * from nobel
where winner = 'EUGENE O''Neill'
```

Submit SQL Restore default

Correct answer

yr	subject	winner
1936	Literature	Eugene O'Neill

Knights of the realm

13.

Knights in order

List the winners, year and subject where the winner starts with Sir. Show the the most recent first, then by name order.

```
select winner, yr, subject
from nobel
where winner like 'Sir%'
order by
 yr desc,
 winner asc
```

Submit SQL Restore default

Sir Cyril Hinshelwood	1956	Chemistry
Sir Robert Robinson	1947	Chemistry
Sir Alexander Fleming	1945	Medicine
Sir Howard Florey	1945	Medicine
Sir Henry Dale	1936	Medicine
Sir Norman Angell	1933	Peace
Sir Charles Sherrington	1932	Medicine
Sir Venkata Raman	1930	Physics
Sir Frederick Hopkins	1929	Medicine
Sir Austen Chamberlain	1925	Peace
Sir William Ramsay	1904	Chemistry

Chemistry and Physics last

14.

The expression **subject IN ('Chemistry','Physics')** can be used as a value - it will be 0 or 1.

Show the 1984 winners and subject ordered by subject and winner name; but list Chemistry and Physics last.

```
SELECT winner, subject
  FROM nobel
 WHERE yr=1984
 ORDER BY subject IN ('Physics','Chemistry'), subject, winner
```

Submit SQL Restore default

Error:

Incorrect syntax near the keyword 'IN'.

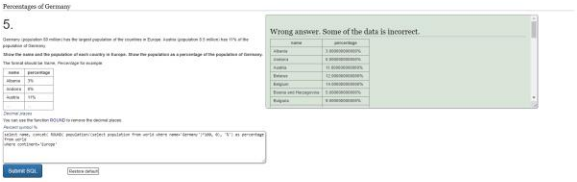
SELECT within SELECT

Richer than UK

Neighbours of Argentina and Australia

Between Canada and Poland

Percentages of Germany



Bigger than every country in Europe

Largest in each continent

First country of each continent (alphabetically)

SUM and COUNT

Total world population

1.

Show the total **population** of the world.

```
world(name, continent, area, population, gdp)
```

```
SELECT SUM(population)
FROM world
```

Submit SQL | Restore default

Correct answer

7119632738

List of continents

2.

List all the continents - just once each.

```
select distinct continent
from world
```

Submit SQL | Restore default

Correct answer

continent
Africa
Asia
Caribbean
Eurasia
Europe
North America
Oceania
South America

GDP of Africa

3.

Give the total GDP of Africa

```
select sum( gdp ) as totalGDP
from world
where continent='Africa'
```

Submit SQL | Restore default

Correct answer

totalGDP
1811788000000

Count the big countries

4.

How many countries have an **area** of at least 1000000

```
select count(name)
from world
where area > 1000000
```

Submit SQL | Restore default

Correct answer

28

Baltic states population

5.

What is the total **population** of ('Estonia', 'Latvia', 'Lithuania')

```
select sum(population)
from world
where name in ('Estonia', 'Latvia', 'Lithuania')
```

Submit SQL | Restore default

Correct answer

6251758

Using GROUP BY and HAVING

You may want to look at these examples: Using GROUP BY and HAVING.

Counting the countries of each continent

6.

For each **continent** show the **continent** and number of countries.

```
select continent, count(name)
from world
group by continent
```

Submit SQL | Restore default

Correct answer

continent	
Africa	53
Asia	47
Caribbean	11
Eurasia	2
Europe	44
North America	11
Oceania	14

Counting big countries in each continent

7.

For each **continent** show the **continent** and number of countries with populations of at least 10 million.

```
select continent, count( name )
from world
where population > 10000000
group by continent
```

Submit SQL | Restore default

Correct answer

continent	
Africa	29
Asia	26
Caribbean	2
Eurasia	1
Europe	14
North America	4
Oceania	1
South America	8

Counting big continents

8.

List the continents that have a total population of at least 100 million.

```
select continent
from world
group by continent
having sum(population) > 100000000
```

Submit SQL | Restore default

Correct answer

continent
Africa
Asia
Eurasia
Europe
North America
South America

More SUM and COUNT

1.

Show the total number of prizes awarded.

```
SELECT COUNT(winner) FROM nobel
```

Submit SQL Restore default

Correct answer

919

2.

List each subject - just once

```
select distinct subject
from nobel
```

Submit SQL Restore default

Correct answer

subject
Medicine
Peace
Chemistry
Physics
Econpmics
Literature
Economics

3.

Show the total number of prizes awarded for Physics.

```
nobel(yr, subject, winner)
```

```
select count( winner )
from nobel
where subject='Physics'
```

Submit SQL Restore default

Correct answer

207

Using GROUP BY and HAVING.

4.

For each subject show the subject and the number of prizes.

```
nobel(yr,subject, winner)
```

```
select subject, count( winner )
from nobel
group by subject
```

Submit SQL Restore default

Correct answer

subject	
Medicine	214
Peace	127
Chemistry	178
Physics	207
Econpmics	2
Literature	114
Economics	77

5.

For each subject show the first year that the prize was awarded.

```
nobel(yr, subject, winner)
```

```
select distinct subject, yr
from nobel x
where yr <= all( select yr from nobel y where (x.subject=y.subject))
```

Submit SQL Restore default

Correct answer

subject	yr
Chemistry	1901
Economics	1969
Econpmics	2016
Literature	1901
Medicine	1901
Peace	1901
Physics	1901

6.

For each subject show the number of prizes awarded in the year 2000.

```
nobel(yr, subject, winner)
```

```
select subject, count( winner )
from nobel
where yr=2000
group by subject
```

Submit SQL Restore default

Correct answer

subject	
Chemistry	3
Economics	2
Literature	1
Medicine	3
Peace	1
Physics	3

7.

Show the number of different winners for each subject.

```
nobel(yr, subject, winner)
```

```
select subject, count( distinct winner )
from nobel
group by subject
```

Submit SQL Restore default

Correct answer

subject	
Chemistry	177
Economics	77
Econpmics	2
Literature	114
Medicine	214
Peace	125
Physics	206

8.

For each subject show how many years have had prizes awarded.

```
nobel(yr, subject, winner)
```

```
select subject, count( distinct yr )
from nobel
group by subject
```

Submit SQL Restore default

Correct answer

subject	
Chemistry	109
Economics	48
Econpmics	1
Literature	110
Medicine	108
Peace	94
Physics	111

Using HAVING.

9.

Show the years in which three prizes were given for Physics.

```
nobel(yr, subject, winner)
```

```
select yr
from nobel
where subject='Physics'
group by yr
having count(winner)=3
```

Submit SQL Restore default

Correct answer

yr
1903
1956
1958
1963
1964
1965
1972

10.

Show winners who have won more than once.

```
nobel(yr, subject, winner)
```

```
select winner
from nobel
group by winner
having count( winner ) > 1
```

Submit SQL Restore default

Correct answer

winner
Frederick Sanger
International Committee of the Red Cross
John Bardeen
Linus Pauling
Marie Curie

11.

Show winners who have won more than one subject.

```
nobel(yr, subject, winner)
```

```
select winner
from nobel
group by winner
having count( distinct subject ) > 1
```

Submit SQL Restore default

Correct answer

winner
Linus Pauling
Marie Curie

GROUP BY yr, subject

12.

Show the year and subject where 3 prizes were given. Show only years 2000 onwards.

```
nobel(yr, subject, winner)
```

```
select yr, subject
from nobel
where yr >= 2000
group by yr, subject
having count( distinct winner ) = 3
```

Submit SQL Restore default

Correct answer

yr	subject
2000	Chemistry
2000	Medicine
2000	Physics
2001	Chemistry
2001	Economics
2001	Medicine
2001	Physics

JOIN

1.

The first example shows the goal scored by a player with the last name 'Bender'. The `*` says to list all the columns in the table - a shorter way of saying `matchid, teamid, player, gtime`

Modify it to show the *matchid* and *player* name for all goals scored by Germany. To identify German players, check for: `teamid = 'GER'`

```
SELECT matchid, player FROM goal
  WHERE teamid='GER'
```

Submit SQL Restore default

matchid	player
1008	Mario Gómez
1010	Mario Gómez
1010	Mario Gómez
1012	Lukas Podolski
1012	Lars Bender
1026	Philipp Lahm
1026	Sami Khedira
1026	Miroslav Klose
1026	Marco Reus
1030	Mesut Özil

2.

From the previous query you can see that Lars Bender's scored a goal in game 1012. Now we want to know what teams were playing in that match.

Notice in the that the column `matchid` in the `goal` table corresponds to the `id` column in the `game` table. We can look up information about game 1012 by finding that row in the game table.

Show id, stadium, team1, team2 for just game 1012

```
SELECT id,stadium,team1,team2
  FROM game
  where id=1012
```

Submit SQL Restore default

Correct answer

id	stadium	team1	team2
1012	Arena Lviv	DEN	GER

3.

You can combine the two steps into a single query with a `JOIN`.

```
SELECT *
  FROM game JOIN goal ON (id=matchid)
```

The **FROM** clause says to merge data from the goal table with that from the game table. The **ON** says how to figure out which rows in **game** go with which rows in **goal** - the matchid from **goal** must match id from **game**. (If we wanted to be more clear/specific we could say `ON (game.id=goal.matchid)`

The code below shows the player (from the goal) and stadium name (from the game table) for every goal scored.

Modify it to show the player, teamid, stadium and mdate for every German goal.

```
SELECT player, teamid, stadium, mdate
  FROM game JOIN goal ON (id=matchid)
  where teamid='GER'
```

Submit SQL Restore default

player	teamid	stadium	mdate
Mario Gómez	GER	Arena Lviv	2012-06-09T00:00:00
Mario Gómez	GER	Metalist Stadium	2012-06-13T00:00:00
Mario Gómez	GER	Metalist Stadium	2012-06-13T00:00:00
Lukas Podolski	GER	Arena Lviv	2012-06-17T00:00:00
Lars Bender	GER	Arena Lviv	2012-06-17T00:00:00
Philipp Lahm	GER	PGE Arena Gdansk	2012-06-22T00:00:00
Sami Khedira	GER	PGE Arena Gdansk	2012-06-22T00:00:00
Miroslav Klose	GER	PGE Arena Gdansk	2012-06-22T00:00:00
Marco Reus	GER	PGE Arena Gdansk	2012-06-22T00:00:00
Mesut Özil	GER	National Stadium, Warsaw	2012-06-28T00:00:00

4.

Use the same `JOIN` as in the previous question.

Show the team1, team2 and player for every goal scored by a player called Mario `player LIKE 'Mario%'`

```
select team1, team2, player
from game join goal on (id=matchid)
where player like 'Mario%'
```

Submit SQL Restore default

team1	team2	player
GER	POR	Mario Gómez
NED	GER	Mario Gómez
NED	GER	Mario Gómez
IRL	CRO	Mario Mandžukic
IRL	CRO	Mario Mandžukic
ITA	CRO	Mario Mandžukic
ITA	IRL	Mario Balotelli
GER	ITA	Mario Balotelli
GER	ITA	Mario Balotelli

5.

The table `eteam` gives details of every national team including the coach. You can `JOIN goal` to `eteam` using the phrase `goal JOIN eteam on teamid=id`

Show `player`, `teamid`, `coach`, `gtime` for all goals scored in the first 10 minutes `gtime<=10`

```
SELECT player, teamid, coach, gtime
  FROM goal join eteam on (teamid=id)
  WHERE gtime<=10
```

Submit SQL Restore default

Correct answer

player	teamid	coach	gtime
Petr Jiráček	CZE	Michal Bílek	3
Václav Pilař	CZE	Michal Bílek	6
Mario Mandžukic	CRO	Slaven Bilic	3
Fernando Torres	ESP	Vicente del Bosque	4

6.

To `JOIN game` with `eteam` you could use either
`game JOIN eteam ON (team1=eteam.id)` or `game JOIN eteam ON (team2=eteam.id)`

Notice that because `id` is a column name in both `game` and `eteam` you must specify `eteam.id` instead of just `id`

List the dates of the matches and the name of the team in which 'Fernando Santos' was the team1 coach.

```
select mdate, teamname
from game join eteam on (team1=eteam.id)
where coach='Fernando Santos'
```

Submit SQL Restore default

Correct answer

mdate	teamname
2012-06-12T00:00:00	Greece
2012-06-16T00:00:00	Greece

7.

List the player for every goal scored in a game where the stadium was 'National Stadium, Warsaw'

```
select player
from game join goal on (matchid=id)
where stadium='National Stadium, Warsaw'
```

Submit SQL Restore default

Correct answer

player
Dimitris Salpingidis
Robert Lewandowski
Jakub Blaszczykowski
Alan Dzagoev
Giorgos Karagounis
Cristiano Ronaldo
Mesut Özil

Music Tutorial

1.

Find the `title` and `artist` who recorded the song `'Alison'`

```
SELECT title, artist
  FROM album JOIN track
    ON (album.asin=track.album)
WHERE song = 'Alison'
```

Submit SQL Restore default

Correct answer

title	artist
The Very Best Of Elvis Costello And The Attraction	Elvis Costello

2.

Which `artist` recorded the song `'Exodus'` ?

```
SELECT artist
  FROM album JOIN track
    ON (album.asin=track.album)
WHERE song = 'Exodus'
```

Submit SQL Restore default

Correct answer

artist
Bob Marley

3.

Show the `song` for each `track` on the `album` `'Blur'`

```
SELECT song
  FROM album JOIN track
    ON (album.asin=track.album)
WHERE title= 'Blur'
```

Submit SQL Restore default

song
M.O.R.
On Your Own
Theme From Retro
You're So Great
Death Of A Party
Chinese Bombs
I'm Just A Killer For Your Love
Look Inside America
Strange News From Another Star
Movin' On
Essex Dogs

We can use the aggregate functions and `GROUP BY` expressions on the joined table.

4.

For each `album` show the `title` and the total number of `track`.

```
SELECT title, COUNT(*)
  FROM album JOIN track ON (asin=album)
GROUP BY title
```

Submit SQL Restore default

Correct answer

title	COUNT(*)
"Music from the Motion Picture ""Purple Rain"""	9
(What's The Story) Morning Glory?	12
...Baby One More Time [ENHANCED CD]	11
16 Most Requested Songs	16
50 by Bobby Short	50
50 Worldwide Gold Hits Volume 1, Parts 1 & 2	39
A Swingin' Affair! [ORIGINAL RECORDING REMASTERED]	16

5.

For each `album` show the `title` and the total number of tracks containing the word `'Heart'` (albums with no such tracks need not be shown).

And

```
SELECT title, COUNT(*)
  FROM album JOIN track ON (asin=album)
  where song like '%heart%'
  GROUP BY title
```

Submit SQL Restore default

Bing! His Legendary Years, 1931 to 1957 [BOX SET]	5
Blood on the Tracks	1
Eurythmics - Greatest Hits	1
Forty Years-Artistry of Tony B	3
Greatest Hits/King of Cool	2
Handel - Messiah / Nelson Kirkby Walkinson	1
I Left My Heart in San Francisco	1
Judy at Carnegie Hall [LIVE]	1
Les Miserables/Original London Cast Recording [CAST	1
Let's Talk About Love [ENHANCED CD]	1
Millennium	1

6.

A "title track" is where the `song` is the same as the `title`. Find the title tracks.

```
select song
from album join track on (asin=album)
where song = title
```

Submit SQL Restore default

Watermark
San Francisco Days
Greatest
Ray of Light
Are You Experienced?
Sgt. Pepper's Lonely Hearts Club Band
In It for the Money
Fumbling Towards Ecstasy
Buena Vista Social Club
The Miseducation Of Lauryn Hill
Believe

7.

An "eponymous" album is one where the title is the same as the artist (for example the album `'Blur'` by the band `'Blur'`). Show the eponymous albums.

And

```
select title
from album
where title = artist
```

Submit SQL Restore default

Correct answer

title
Blur
Toni Braxton
Metallica
The Doors

8.

Find the songs that appear on more than 2 albums. Include a count of the number of times each shows up.

And

```
select song, COUNT(DISTINCT title)
from album join track on (asin=album)
group by song
having count(distinct title) > 2;
```

Submit SQL Restore default

Dancing in the Dark	3
From This Moment On	4
I Love You	4
I've Got You Under My Skin	3
Love for Sale	3
Night and Day	4
Once upon a Time	3
One	3
Smile	5
Too Much	3

Show what the answer should be

9.

A "good value" album is one where the price per track is less than 50 pence. Find the good value album - show the title, the price and the number of tracks.

```
select title, price, count( song )
from album join track on (asin=album)
group by title, price
having price/count( song ) < .50
```

Submit SQL Restore default

Correct answer

title	price	count(song)
BasherThe Best of Nick Lowe	11.96	25
Darlings of Wapping Wharf Launderette	14.99	59
First Issue-Dinah Washington S	22.96	46
Forty Years-Artistry of Tony B	35.99	67
The Capitol Years	34.99	75
The Greatest Hits	22.99	54
Under the Table & Dreaming	13.49	34

10.

Wagner's Ring cycle has an imposing 173 tracks. Bing Crosby clocks up 101 tracks.

List albums so that the album with the most tracks is first. Show the title and the number of tracks

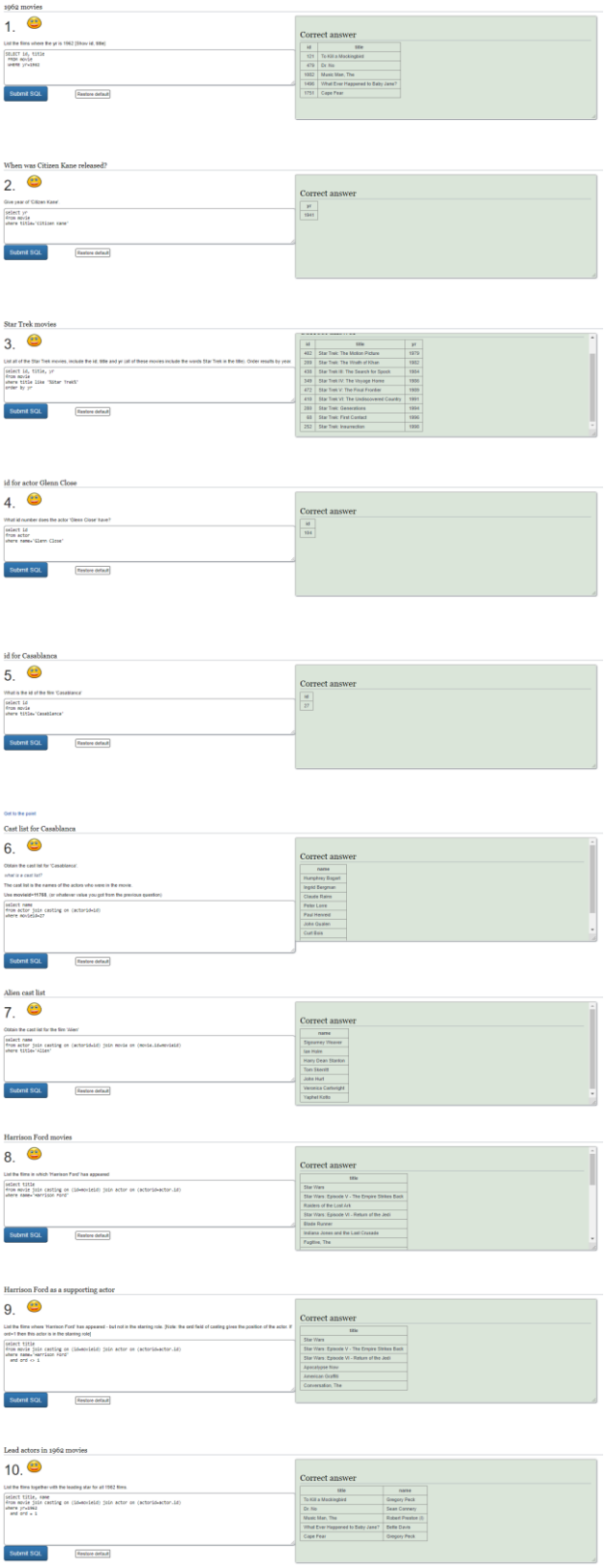
Where two or more albums have the same number of tracks you should order alphabetically

```
select title, count( song )
from album join track on (asin=album)
group by title
order by count(song) desc, title
```

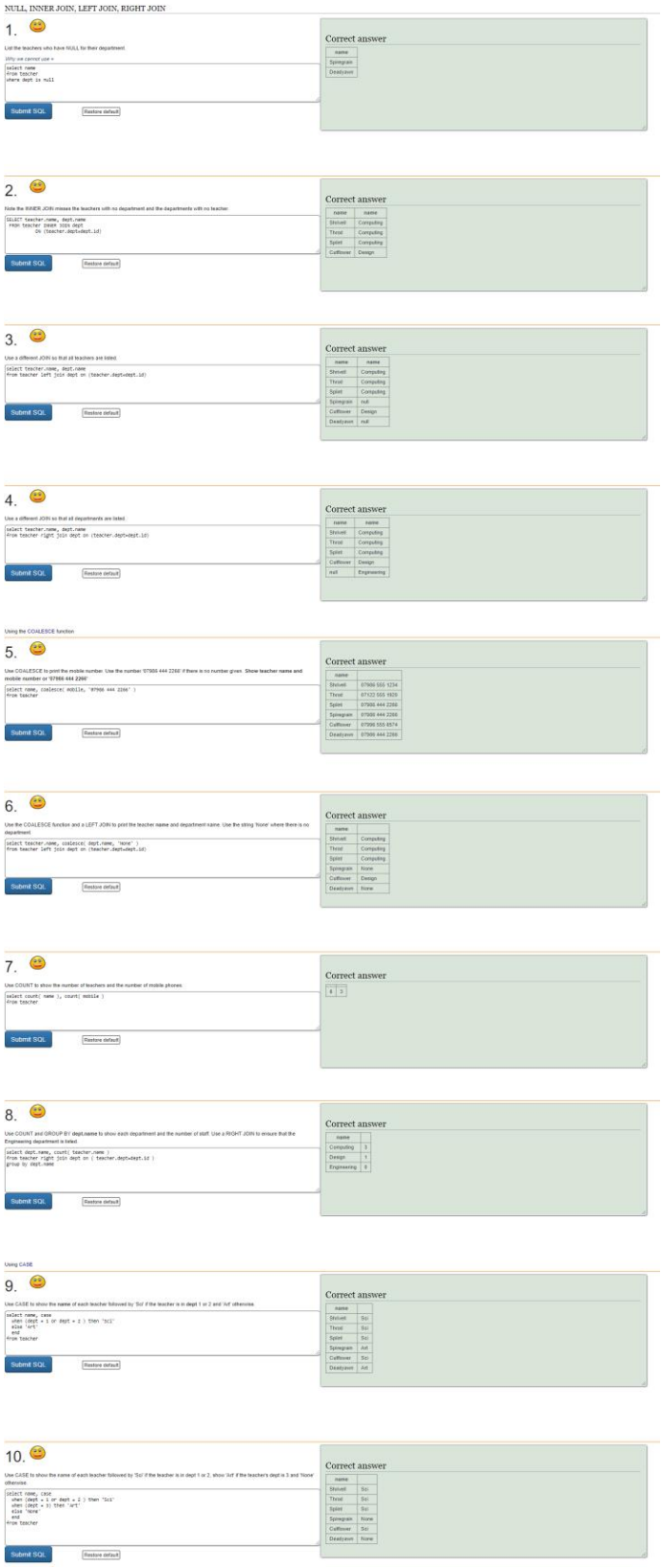
Submit SQL Restore default

Dublin LIVE [LIVE] [BOX SET]	29
Dusty in Memphis [Deluxe Edition] [EXTRA TRACKS]	25
Something Anything?	25
Greatest Hits Vol. 1-2 [ORIGINAL RECORDING REMASTE	24
Star Wars, A New HopeThe Original Motion Picture S	24
The Dionne Warwick CollectionHer All-Time Greatest	24
Fox Sparks Presents Game Time	23
The Who Sell Out [ORIGINAL RECORDING REMASTERED] [	23
The Best of Tom Jones [Polygram]	22
The Greatest Hits [Capitol]	22
The Very Best Of Elvis Costello And The Attraction	22
In It for the Money	21

More JOIN operations



Using NULL


NULL, INNER JOIN, LEFT JOIN, RIGHT JOIN
1.
List the teachers who have NULL for their department.
Why we cannot use =
select name
from teacher
where dept is null
Submit SQL
Restore default
Correct answer
name
Spinogram
Deadcavern
2.
Note the INNER JOIN misses the teachers with no department and the departments with no teacher.
SELECT teacher.name, dept.name
FROM teacher INNER JOIN dept
ON (teacher.dept=dept.id)
Submit SQL
Restore default
Correct answer
name name
Shrivell Computing
Throd Computing
Splat Computing
Craftlower Design
3.
Use a different JOIN so that all teachers are listed.
select teacher.name, dept.name
from teacher left join dept on (teacher.dept=dept.id)
Submit SQL
Restore default
Correct answer
name name
Shrivell Computing
Throd Computing
Splat Computing
Spinogram null
Craftlower Design
Deadcavern null
4.
Use a different JOIN so that all departments are listed.
select teacher.name, dept.name
from teacher right join dept on (teacher.dept=dept.id)
Submit SQL
Restore default
Correct answer
name name
Shrivell Computing
Throd Computing
Splat Computing
Craftlower Design
null Engineering
Using the COALESCE function
5.
Use COALESCE to print the mobile number. Use the number 07986 444 2266 if there is no number given. Show teacher name and mobile number or 07986 444 2266
select name, coalesce(mobile, '07986 444 2266')
from teacher
Submit SQL
Restore default
Correct answer
name
Shrivell 07986 555 1234
Throd 07122 555 1920
Splat 07986 444 2266
Spinogram 07986 444 2266
Craftlower 07986 555 8574
Deadcavern 07986 444 2266
6.
Use the COALESCE function and a LEFT JOIN to print the teacher name and department name. Use the string 'None' where there is no department.
select teacher.name, coalesce(dept.name, 'None')
from teacher left join dept on (teacher.dept=dept.id)
Submit SQL
Restore default
Correct answer
name
Shrivell Computing
Throd Computing
Splat Computing
Spinogram None
Craftlower Design
Deadcavern None
7.
Use COUNT to show the number of teachers and the number of mobile phones.
select count(name), count(mobile)
from teacher
Submit SQL
Restore default
Correct answer
8 5
8.
Use COUNT and GROUP BY dept.name to show each department and the number of staff. Use a RIGHT JOIN to ensure that the Engineering department is listed.
select dept.name, count(teacher.name)
from teacher right join dept on (teacher.dept=dept.id)
group by dept.name
Submit SQL
Restore default
Correct answer
name
Computing 3
Design 1
Engineering 0
Using CASE
9.
Use CASE to show the name of each teacher followed by 'Sci' if the teacher is in dept 1 or 2 and 'Art' otherwise.
select name, case
when (dept = 1 or dept = 2) then 'Sci'
else 'Art'
end
from teacher
Submit SQL
Restore default
Correct answer
name
Shrivell Sci
Throd Sci
Splat Sci
Spinogram Art
Craftlower Sci
Deadcavern Art
10.
Use CASE to show the name of each teacher followed by 'Sci' if the teacher is in dept 1 or 2, show 'Art' if the teacher's dept is 3 and 'None' otherwise.
select name, case
when (dept = 1 or dept = 2) then 'Sci'
when (dept = 3) then 'Art'
else 'None'
end
from teacher
Submit SQL
Restore default
Correct answer
name
Shrivell Sci
Throd Sci
Splat Sci
Spinogram None
Craftlower Sci
Deadcavern None

Scottish Parliament

Dealing with `NULL`

1.

One MSP was kicked out of the Labour party and has no party. Find him.

Why we cannot use =

```
select name
from msp
where party is null
```

Submit SQL Restore default

Correct answer

name
Canavan MSP, Dennis

2.

Obtain a list of all parties and leaders.

```
select name, leader
from party
```

Submit SQL Restore default

name	leader
Communist	null
Conservative	McLetchie MSP, David
Green	null
Labour	Dewar MSP, Rt Hon Donald
Liberal Democrat	Wallace QC MSP, Mr Jim
Natural Law Party	null
Scottish National Party	Salmond MSP, Mr Alex
Scottish Socialist Party	null
Socialist Workers Party	null

3.

Give the party and the leader for the parties which have leaders.

```
select name, leader
from party
where leader is not null
```

Submit SQL Restore default

Correct answer

name	leader
Conservative	McLetchie MSP, David
Labour	Dewar MSP, Rt Hon Donald
Liberal Democrat	Wallace QC MSP, Mr Jim
Scottish National Party	Salmond MSP, Mr Alex

4.

Obtain a list of all parties which have at least one MSP.

```
select distinct party.name
from party join msp on (party.code=msp.party)
```

Submit SQL Restore default

Correct answer

name
Conservative
Green
Labour
Liberal Democrat
Scottish National Party
Scottish Socialist Party

Outer joins

5.

Obtain a list of all MSPs by name, give the name of the MSP and the name of the party where available. Be sure that `Canavan MSP, Dennis` is in the list. Use ORDER BY msp.name to sort your output by MSP.

```
select distinct msp.name, party.name
from msp left join party on (msp.party=party.code)
order by msp.name
```

Submit SQL Restore default

Adam MSP, Brian	Scottish National Party
Aitken MSP, Bill	Conservative
Alexander MSP, Ms Wendy	Labour
Baillie MSP, Jackie	Labour
Barrie MSP, Scott	Labour
Boyack MSP, Ms Sarah	Labour
Brankin MSP, Rhona	Labour
Brown MSP, Robert	Liberal Democrat
Campbell MSP, Colin	Scottish National Party
Canavan MSP, Dennis	null
Chisholm MSP, Malcolm	Labour

6.

Obtain a list of parties which have MSPs. include the number of MSPs.

```
select distinct party.name, count(msp.name)
from msp join party on (msp.party=party.code)
group by party.name
```

Submit SQL Restore default

Correct answer

name	count(msp.nam..
Conservative	19
Green	1
Labour	55
Liberal Democrat	17
Scottish National Party	35
Scottish Socialist Party	1

7.

A list of parties with the number of MSPs. include parties with no MSPs.

```
select distinct party.name, count(msp.name)
from msp right join party on (msp.party=party.code)
group by party.name
```

Submit SQL Restore default

name	count(msp.nam..
Communist	0
Conservative	19
Green	1
Labour	55
Liberal Democrat	17
Natural Law Party	0
Scottish National Party	35
Scottish Socialist Party	1
Socialist Workers Party	0

Numeric Examples

1.

The example shows the number who responded for:

- question 1
- at 'Edinburgh Napier University'
- studying '(8) Computer Science'

Show the the percentage who STRONGLY AGREE

```
SELECT A_STRONGLY_AGREE
  FROM nss
WHERE question='Q01'
  AND institution='Edinburgh Napier University'
  AND subject='(8) Computer Science'
```

Submit SQL | Restore default

Correct answer

A_STRONGLY_AG..
23

Calculate how many agree or strongly agree

2.

Show the institution and subject where the score is at least 100 for question 15.

```
SELECT institution, subject
  FROM nss
WHERE question='Q15'
and score >= 100
```

Submit SQL | Restore default

Correct answer

institution	subject
Kingston College	(I) Education
Royal Holloway, University of London	(L) Geographical Studies
Solihull College	(I) Education
Stafford College	(D) Business and Administrative studies
University of Southampton	(E) Mass Communications and Documentation
University of Wolverhampton	(7) Mathematical Sciences
University of Leicester	(2) Subjects allied to Medicine

Unhappy Computer Students

3.

Show the institution and score where the score for '(8) Computer Science' is less than 50 for question 'Q15'

```
SELECT institution,score
  FROM nss
WHERE question='Q15'
  AND subject='(8) Computer Science'
  and score < 50
```

Submit SQL | Restore default

Correct answer

institution	score
Blackburn College	45
North Lindsey College	30
Plymouth College of Art	47
Somerset College of Arts and Technology	48
University of Wales, Newport	30
Universities of East Anglia and Essex: Joint Provision at University Campus Suffolk	45

More Computing or Creative Students?

4.

Show the subject and total number of students who responded to question 22 for each of the subjects '(8) Computer Science' and '(H) Creative Arts and Design'.

HINT

```
SELECT subject, sum(response)
  FROM nss
WHERE question='Q22'
  AND (subject='(8) Computer Science'
  or subject='(H) Creative Arts and Design')
group by subject
```

Submit SQL | Restore default

Correct answer

subject	sum(response)
(8) Computer Science	10612
(H) Creative Arts and Design	34370

Strongly Agree Numbers

5.

Show the subject and total number of students who A_STRONGLY_AGREE to question 22 for each of the subjects '(8) Computer Science' and '(H) Creative Arts and Design'.

HINT

```
SELECT subject, sum( response*A_strongly_agree)/100
  FROM nss
WHERE question='Q22'
  AND (subject='(8) Computer Science'
  or subject='(H) Creative Arts and Design')
group by subject
```

Submit SQL | Restore default

Correct answer

subject	sum(response..
(8) Computer Science	3563.56
(H) Creative Arts and Design	12484.01

Strongly Agree, Percentage

6.

Show the percentage of students who A_STRONGLY_AGREE to question 22 for the subject '(8) Computer Science' show the same figure for the subject '(H) Creative Arts and Design'.

Use the ROUND function to show the percentage without decimal places

```
SELECT subject, round(sum( response*A_strongly_agree)/sum(response))
  FROM nss
WHERE question='Q22'
  AND (subject='(8) Computer Science'
  or subject='(H) Creative Arts and Design')
group by subject
```

Submit SQL | Restore default

Correct answer

subject	round(sum(re..
(8) Computer Science	34
(H) Creative Arts and Design	36

Scores for Institutions in Manchester

7.

Show the average scores for question 'Q22' for each institution that include 'Manchester' in the name.

The column score is a percentage - you must use the method outlined above to multiply the percentage by the response and divide by the total response. Give your answer rounded to the nearest whole number.

```
SELECT institution, round(sum(response*score)/sum(response))
  FROM nss
WHERE question='Q22'
  AND (institution LIKE '%Manchester%')
group by institution
ORDER BY institution
```

Submit SQL | Restore default

Correct answer

institution	round(sum(resp..
Manchester Metropolitan University	81
The Manchester College	72
University of Manchester	83

Number of Computing Students in Manchester

8.

Show the institution, the total sample size and the number of computing students for institutions in Manchester for 'Q01'.

```
SELECT institution,
 sum(sample),
 sum
 (
 case when subject='(8) Computer Science' then sample else 0 end
 )
  FROM nss
WHERE question='Q01'
  AND (institution LIKE '%Manchester%')
group by institution
```

Submit SQL | Restore default

Correct answer

institution	sum(sample)	sum (case..
Manchester Metropolitan University	6094	310
The Manchester College	537	46
University of Manchester	8065	100

Window function

Warming up

1.

Show the **lastName**, **party** and **votes** for the **constituency** 'S14000024' in 2017.

```
SELECT lastName, party, votes
  FROM ge
 WHERE constituency = 'S14000024' AND yr = 2017
ORDER BY votes DESC
```

Submit SQL Restore default

Correct answer

lastName	party	votes
MURRAY	Labour	26269
EADIE	SNP	10755
SMITH	Conservative	9428
BEAL	Liberal Democrats	1388

Who won?

2.

You can use the RANK function to see the order of the candidates. If you RANK using (ORDER BY votes DESC) then the candidate with the most votes has rank 1.

Show the party and RANK for constituency S14000024 in 2017. List the output by party

```
SELECT party, votes,
       RANK() OVER (ORDER BY votes DESC) as posn
  FROM ge
 WHERE constituency = 'S14000024' AND yr = 2017
ORDER BY party
```

Submit SQL Restore default

Correct answer

party	votes	posn
Conservative	9428	3
Labour	26269	1
Liberal Democrats	1388	4
SNP	10755	2

PARTITION BY

3.

The 2015 election is a different PARTITION to the 2017 election. We only care about the order of votes for each year.

Use PARTITION to show the ranking of each party in S14000021 in each year. Include yr, party, votes and ranking (the party with the most votes is 1).

```
SELECT yr,party, votes,
       RANK() OVER (PARTITION BY yr ORDER BY votes DESC) as posn
  FROM ge
 WHERE constituency = 'S14000021'
ORDER BY party,yr
```

Submit SQL Restore default

Correct answer

yr	party	votes	posn
2015	Conservative	12465	3
2017	Conservative	21496	1
2019	Conservative	19451	2
2015	Labour	19295	2
2017	Labour	14346	3
2019	Labour	6855	3
2015	Liberal Democrats	1069	4
2017	Liberal Democrats	1112	4
2019	Liberal Democrats	4174	4

Edinburgh Constituency

4.

Edinburgh constituencies are numbered S14000021 to S14000026.

Use PARTITION BY constituency to show the ranking of each party in Edinburgh in 2017. Order your results so the winners are shown first, then ordered by constituency.

```
SELECT constituency,party, votes, rank() over (partition by constituency order by votes
desc) as rank
  FROM ge
 WHERE constituency BETWEEN 'S14000021' AND 'S14000026'
   AND yr  = 2017
ORDER BY rank, constituency
```

Submit SQL Restore default

S14000023	Conservative	15385	3
S14000024	Conservative	9428	3
S14000025	Labour	13213	3
S14000026	Conservative	11559	3
S14000021	Liberal Democrats	1112	4
S14000022	Liberal Democrats	1849	4
S14000023	Liberal Democrats	2579	4
S14000024	Liberal Democrats	1388	4
S14000025	Liberal Democrats	2124	4
S14000026	Labour	7876	4
S14000023	Green	1727	5

Winners Only

5.

You can use SELECT within SELECT to pick out only the winners in Edinburgh.

Show the parties that won for each Edinburgh constituency in 2017.

```
SELECT constituency,party
from (SELECT constituency,party, votes, rank() over (partition by constituency order by
votes desc) as rank
  FROM ge
 WHERE constituency BETWEEN 'S14000021' AND 'S14000026'
   AND yr  = 2017
ORDER BY rank, constituency ) x
where x.rank = 1
```

Submit SQL Restore default

Correct answer

constituency	party
S14000021	Conservative
S14000022	SNP
S14000023	SNP
S14000024	Labour
S14000025	SNP
S14000026	Liberal Democrats

Scottish seats

6.

You can use **COUNT** and **GROUP BY** to see how each party did in Scotland. Scottish constituencies start with 'S'

Show how many seats for each party in Scotland in 2017.

```
select party, count(1)
 from (select constituency,party
  from (SELECT constituency,party, votes,
   RANK() over (partition by constituency order by votes desc) as rank
  FROM ge
 WHERE constituency like 'S%'
   AND yr  = 2017
ORDER BY rank, constituency
) x
where x.rank=1) y
group by party
```

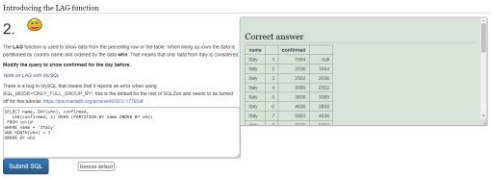
Submit SQL Restore default

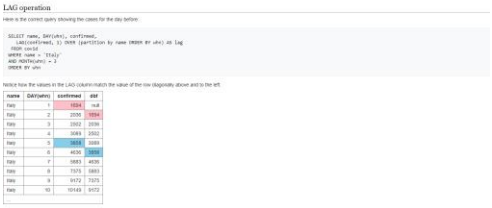
Correct answer

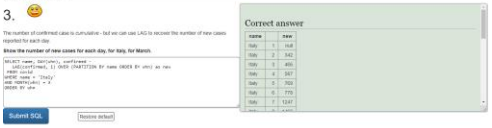
party	count(1)
Conservative	13
Labour	7
Liberal Democrats	4
SNP	35

COVID 19

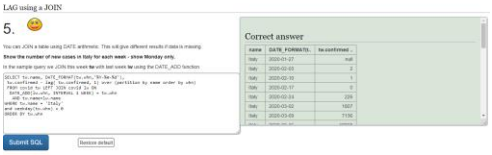

Introducing the covid table
1.
Correct answer
Submit SQL
Restore default


Introducing the LAG function
2.
Correct answer
Submit SQL
Restore default

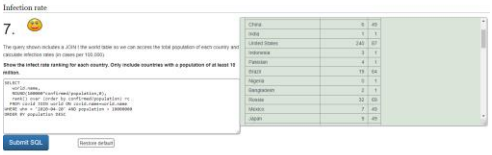

LAG operation


Number of new cases
3.
Correct answer
Submit SQL
Restore default


Weekly changes
4.
Submit SQL
Restore default


LAG using a JOIN
5.
Correct answer
Submit SQL
Restore default


RANK()
6.
Correct answer
Submit SQL
Restore default


Infection rate
7.
Submit SQL
Restore default


Turning the corner
8.
Submit SQL
Restore default