

```

1  /* CSCI 5715      Fall 2020 */
2  /* Lab 1      9/29/2020 */
3  /*
4      Group 1:      Matthew Eagon
5                      Harish Panneer Selvam
6  */
7
8  /*-----*/
9
10 @country.sql;
11
12 /* Output Options */
13 set echo on
14 set trimspool on
15 set pagesize 24
16 set linesize 100
17
18 spool lab1_tutorial.txt
19
20 /* Part A: SQL/Oracle Tutorial */
21
22 /* Example Queries */
23 select tablespace_name, table_name from user_tables;
24 describe COUNTRY
25 select distinct name from country where region='South America';
26
27 /* Suggested Spool Queries*/
28 select distinct name from country where region='Africa';
29 select distinct name from country where region = 'Europe' and name like 'A%';
30
31 spool off
32
33 /*-----*/
34
35 /* Part B: Simple SQL Queries */
36
37 spool lab1_out.txt
38
39 /* Part 1: Selection and Projection */
40
41 /* List all countries (without duplicates) in South America and Africa, sorted by
42 population in year 2008 in descending order. */
43 select distinct co.name, co.population from country co where co.year=2008 and
44 (co.region='South America' or co.region='Africa') order by co.population desc;
45 /* List all European countries (without duplicates) with a population more than one
46 million (2,500,500) in year 2006. */
47 select distinct co.name, co.population from country co where co.year=2006 and
48 (co.region='South America' or co.region='Africa') and co.population > 1000000 order by
49 co.population desc;
50 /* List the regions (without duplicates) of all countries starts with the letter "a" or
51 "i" (lowercase) in their names. */
52 select distinct co.region from country co where substr(lower(co.name), 1, 1)='a' or
53 substr(lower(co.name), 1, 1)='i' order by co.region;
54 /* List the regions (without duplicates) of all countries whose name ends with the
55 letter "a" or "i". */
56 select distinct co.region from country co where co.name like '%a' or co.name like '%i'
57 order by co.region;
58
59 /*-----*/
60
61 /* Part 2: Summarization, Aggregation */
62
63 /* Find how many countries (without duplicates) there are in Asia and show their
64 average GDP in year 2006. */
65 select distinct count(co.name) as numCountriesAsia_2006, avg(co.gdp) as
66 regionGDPAsia_2006 from country co where co.year=2006 and region='Asia' group by
67 co.region;
68 /* List all the regions (without duplicates) with at least 8 countries whose population
69 is greater than 500,000 in year 2007. */

```

```

57 select distinct co.region from country co where co.year=2007 and co.population>=500000
58 group by co.region having count(co.name) >= 8 order by co.region asc;
59
60 /*-----*/
61 /* Part 3: Insert, Update, and Delete */
62
63 /* Insert a new row with Country name = "MyNewCountry", with population = 1 and area =
64 5 (with any year and continent you want). */
65 insert into country (name,year,region,area,population,gdp) values
66 ('MyNewCountry',2000,'North America',5,1,0.0);
67 /* Update the area to 95 for all the rows that have an area below 95. */
68 update country set area=95 where area<95;
69 /* Update the population value of countries that are zero or Null to the average
70 population in that region. */
71 --select distinct co.region, avg(co.population), co.year as avgRegionPop from country
72 co group by co.region,co.year;
73 --select distinct co.name, co.year, co.region, co.population from country co where
74 co.population=0 or co.population is Null;
75 update country co set population=(select distinct avg(population) from country where
76 region=co.region group by region) where population=0 or population is Null;
77 --update country co set co.population=(select distinct avg(col.population) from country
78 col where col.region = co.region and col.year=co.year group by col.region, col.year)
79 where co.population=0 or co.population is Null;
80 --select distinct co.name, co.population, co.year from country co where
81 co.region='Commonwealth of Independent States - Central Asian States' and co.year=1991;
82 --select distinct co.name, co.region,co.population as avgRegionPop, co.year from
83 country co where co.name='Uzbekistan' and co.year='1991'; /* Check if update worked. */
84
85 /* Delete all the rows that have null values for the gdp or population field. */
86 delete from country where population is Null or gdp is Null;
87
88
89 spool off
90
91 drop table country;
92

```

```

SQL>
SQL> /* Part A: SQL/Oracle Tutorial */
SQL>
SQL> /* Example Queries */
SQL> select tablespace_name, table_name from user_tables;

```

TABLESPACE_NAME

TABLE_NAME

USERS

COUNTRY

```

SQL> describe COUNTRY

```

Name	Null?	Type
-----	-----	
NAME	NOT NULL	
VARCHAR2(50)		
YEAR	NOT NULL	CHAR(4)
REGION		CHAR(60)
AREA		NUMBER(10)
POPULATION		NUMBER(11)
GDP		NUMBER

```

SQL> select distinct name from country where region='South America';

```

NAME

Brazil

Chile

Guyana

Paraguay

Peru

Suriname

Venezuela

Bolivia

Ecuador

Argentina

Uruguay

11 rows selected.

```
SQL>
SQL> /* Suggested Spool Queries*/
SQL> select distinct name from country where region='Africa';
```

NAME

Algeria
Kenya
South Africa
Sudan
Swaziland
Somalia
Zambia
Zimbabwe
Comoros
Botswana
Chad
Liberia
Mauritania
Malawi
Togo
Ethiopia
Mali
Uganda
Sierra Leone
Lesotho
Mozambique

NAME

Senegal
Nigeria
Angola
Central African Republic
Equatorial Guinea
Gabon
Djibouti
Egypt
Benin
Burundi
Rwanda
Seychelles
Niger
Zaire

Cameroon
Eritrea
Guinea
Namibia
Ghana
Morocco
Madagascar

NAME

Sao Tome and Principe
Tunisia

44 rows selected.

SQL> select distinct name from country where region = 'Europe' and name
like 'A%';

NAME

Austria
Andorra

SQL>

SQL> spool off

SQL>

SQL> /* Part 1: Selection and Projection */

SQL>

SQL> /* List all countries (without duplicates) in South America and
Africa, sorted by population in year 2008 in descending order. */

SQL> select distinct co.name, co.population from country co where
co.year=2008 and (co.region='South America' or co.region ='Africa') order
by co.population desc;

NAME	POPULATION
-----	-----
Zaire	
Brazil	190010647
Nigeria	135031164
Egypt	80335036
Ethiopia	76511887
South Africa	43997828
Argentina	40301927
Sudan	39379358

Kenya	36913721
Morocco	33757175
Algeria	33333216
Uganda	30262610
Peru	28674757
Venezuela	26023528
Ghana	22931299
Mozambique	20905585
Madagascar	19448815
Cameroon	18060382
Chile	16284741
Ecuador	13755680
Malawi	13603181

NAME	POPULATION
-----	-----
Niger	12894865
Senegal	12521851
Zimbabwe	12311143
Angola	12263596
Mali	11995402
Zambia	11477447
Tunisia	10276158
Guinea	9947814
Rwanda	9907509
Chad	9885661
Bolivia	9119152
Somalia	9118773
Burundi	8390505
Benin	8078314
Paraguay	6669086
Sierra Leone	6144562
Togo	5701579
Eritrea	4906585
Central African Republic	4369038
Uruguay	3460607
Mauritania	3270065

NAME	POPULATION
-----	-----
Liberia	3195931
Lesotho	2125262
Namibia	2055080
Botswana	1815508
Gabon	1454867

Swaziland	1133066
Guyana	769095
Comoros	711417
Equatorial Guinea	551201
Djibouti	496374
Suriname	470784
Sao Tome and Principe	199579
Seychelles	81895

55 rows selected.

```
SQL> /* List all European countries (without duplicates) with a population
more than one million (2,500,500) in year 2006. */
SQL> select distinct co.name, co.population from country co where
co.year=2006 and (co.region='South America' or co.region ='Africa') and
co.population > 1000000 order by co.population desc;
```

NAME	POPULATION
-----	-----
Brazil	188078227
Nigeria	131859731
Egypt	78887007
Ethiopia	74777981
South Africa	44187637
Sudan	41236378
Argentina	39921833
Kenya	34707817
Morocco	33241259
Algeria	32930091
Peru	28302603
Uganda	28195754
Venezuela	25730435
Ghana	22409572
Mozambique	19686505
Madagascar	18595469
Cameroon	17340702
Chile	16134219
Ecuador	13547510
Malawi	13013926
Niger	12525094

NAME	POPULATION
-----	-----
Zimbabwe	12236805
Angola	12127071

Senegal	11987121
Mali	11716829
Zambia	11502010
Tunisia	10175014
Chad	9944201
Guinea	9690222
Bolivia	8989046
Somalia	8863338
Rwanda	8648248
Burundi	8090068
Benin	7862944
Paraguay	6506464
Sierra Leone	6005250
Togo	5548702
Eritrea	4786994
Central African Republic	4303356
Uruguay	3431932
Mauritania	3177388
Liberia	3042004

NAME	POPULATION
-----	-----
Namibia	2044147
Lesotho	2022331
Botswana	1639833
Gabon	1424906
Swaziland	1136334

47 rows selected.

```
SQL> /* List the regions (without duplicates) of all countries starts with
the letter "a" or "i" (lowercase) in their names. */
SQL> select distinct co.region from country co where
substr(lower(co.name), 1, 1)='a' or substr(lower(co.name), 1, 1)='i' order
by co.region;
```

REGION

Africa
Arctic Region
Asia
Central America and the Caribbean
Commonwealth of Independent States - European States
Ethnic Groups in Eastern Europe, Europe
Europe

Middle East
Oceania
South America
Southeast Asia

11 rows selected.

```
SQL> /* List the regions (without duplicates) of all countries whose name
ends with the letter "a" or "i". */
SQL> select distinct co.region from country co where co.name like '%a' or
co.name like '%i' order by co.region;
```

REGION

Africa
Asia
Central America and the Caribbean
Commonwealth of Independent States - European States
Ethnic Groups in Eastern Europe, Europe
Europe
Middle East
North America
Oceania
South America
Southeast Asia

11 rows selected.

```
SQL>
SQL>
/*-----
---*/
SQL>
SQL> /* Part 2: Summarization, Aggregation */
SQL>
SQL> /* Find how many countries (without duplicates) there are in Asia and
show their average GDP in year 2006. */
SQL> select distinct count(co.name) as numCountriesAsia_2006, avg(co.gdp)
as regionGDPAAsia_2006 from country co where co.year=2006 and region='Asia'
group by co.region;
```

NUMCOUNTRIESASIA_2006 REGIONGDPAAsia_2006

11 .059454545

```
SQL> /* List all the regions (without duplicates) with at least 8
countries whose population is greater than 500,000 in year 2007. */
SQL> select distinct co.region from country co where co.year=2007 and
co.population>=500000 group by co.region having count(co.name) >= 8 order
by co.region asc;
```

REGION

```
-----
Africa
Asia
Central America and the Caribbean
Ethnic Groups in Eastern Europe, Europe
Europe
Middle East
South America
```

7 rows selected.

SQL>

SQL>

```
/*-----
---*/
```

SQL>

SQL> /* Part 3: Insert, Update, and Delete */

SQL>

```
SQL> /* Insert a new row with Country name = "MyNewCountry", with
population = 1 and area = 5 (with any year and continent you want). */
SQL> insert into country (name,year,region,area,population,gdp) values
('MyNewCountry',2000,'North America',5,1,0.0);
```

1 row created.

```
SQL> /* Update the area to 95 for all the rows that have an area below 95.
*/
```

```
SQL> update country set area=95 where area<95;
```

208 rows updated.

```
SQL> /* Update the population value of countries that are zero or Null to
the average population in that region. */
```

```
SQL> --select distinct co.region, avg(co.population), co.year as
avgRegionPop from country co group by co.region,co.year;
```

```
SQL> --select distinct co.name, co.year, co.region, co.population from
country co where co.population=0 or co.population is Null;
```

```
SQL> update country co set population=(select distinct avg(population)
from country where region=co.region group by region) where population=0 or
population is Null;
```

103 rows updated.

```
SQL> --update country co set co.population=(select distinct
avg(col.population) from country col where col.region = co.region and
col.year=co.year group by col.region, col.year) where co.population=0 or
co.population is Null;
SQL> --select distinct co.name, co.population, co.year from country co
where co.region='Commonwealth of Independent States - Central Asian
States' and co.year=1991;
SQL> --select distinct co.name, co.region,co.population as avgRegionPop,
co.year from country co where co.name='Uzbekistan' and co.year='1991'; /*
Check if update worked. */
SQL>
SQL> /* Delete all the rows that have null values for the gdp or
population field. */
SQL> delete from country where population is Null or gdp is Null;
```

461 rows deleted.

SQL>

SQL>

SQL> spool off