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 regionGDPAsia\_2006 from country co where co.year=2006 and region='Asia' group by co.region;

NUMCOUNTRIESASIA\_2006 REGIONGDPASIA\_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(co1.population) from country co1 where co1.region = co.region and co1.year=co.year group by co1.region, co1.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