ASSIGNMENT 7.2

DATE SET DESCRIPTION:

Olympix_data.csv

The data set consists of the following fields.

Athlete: This field consists of the athlete name

Age: This field consists of athlete ages

Country: This fields consists of the country names which participated in Olympics

Year: This field consists of the year

Closing Date: This field consists of the closing date of ceremony

Sport: Consists of the sports name

Gold Medals: No. of Gold medals

Silver Medals: No. of Silver medals

Bronze Medals: No. of Bronze medals

Total Medals: Consists of total no. of medals

Let’s create a table in Hive based on above description.

Table creation query:

```
CREATE TABLE IF NOT EXISTS olympics_data
(
  athlete_name STRING,
  age INT,
  country STRING,
  year INT,
  closing_date STRING,
  sport STRING,
  gold_medals INT,
  silver_medals INT,
  bronze_medals INT,
  total_medals INT
)
ROW FORMAT DELIMITED
FIELDS TERMINATED BY '\t';
```

```
hive> CREATE TABLE IF NOT EXISTS olympics_data
    > (
    >  athlete_name STRING,
    >  age INT,
    >  country STRING,
    >  year INT,
    >  closing_date STRING,
    >  sport STRING,
    >  gold_medals INT,
    >  silver_medals INT,
    >  bronze_medals INT,
    >  total_medals INT
    > )
    > ROW FORMAT DELIMITED
    > FIELDS TERMINATED BY '\t';
OK
Time taken: 0.131 seconds
hive> SHOW TABLES;
OK
employee
olympics_data
temperature_data
temperature_data_new
Time taken: 0.042 seconds, Fetched: 4 row(s)
```

Let’s load the data from given CSV file into the table we created above.

Data load query:

LOAD DATA LOCAL INPATH '/home/acadgild/olympix_data.csv' INTO TABLE olympics_data;

```
hive> LOAD DATA LOCAL INPATH '/home/acadgild/olympix_data.csv' INTO TABLE olympics_data;
Loading data to table custom.olympics_data
Table custom.olympics_data stats: [numFiles=1, totalSize=518669]
OK
Time taken: 0.609 seconds
```

SELECT * FROM olympics_data;

```
Xue Haifeng     28      China   2008    08-24-08        Archery 0       0       1       1
Chen Li-Ju      23      Chinese Taipei  2004    08-29-04        Archery 0       0       1       1
Chen Szu-Yuan   23      Chinese Taipei  2004    08-29-04        Archery 0       1       0       1
Tim Cuddihy     17      Australia       2004    08-29-04        Archery 0       0       1       1
Marco Galiazzo  21      Italy   2004    08-29-04        Archery 1       0       0       1
He Ying 27      China   2004    08-29-04        Archery 0       1       0       1
Dmytro Hrachov  20      Ukraine 2004    08-29-04        Archery 0       0       1       1
Im Dong-Hyeon   19      South Korea     2004    08-29-04        Archery 1       0       0       1
Jang Yong-Ho    28      South Korea     2004    08-29-04        Archery 1       0       0       1
Lin Sang        26      China   2004    08-29-04        Archery 0       1       0       1
Liu Ming-Huang  19      Chinese Taipei  2004    08-29-04        Archery 0       1       0       1
Park Gyeong-Mo  28      South Korea     2004    08-29-04        Archery 1       0       0       1
Viktor Ruban    23      Ukraine 2004    08-29-04        Archery 0       0       1       1
Oleksandr Serdiuk       26      Ukraine 2004    08-29-04        Archery 0       0       1       1
Wang Cheng-Pang 17      Chinese Taipei  2004    08-29-04        Archery 0       1       0       1
Alison Williamson       32      Great Britain   2004    08-29-04        Archery 0       0       1       1
Wu Hui-Ju       21      Chinese Taipei  2004    08-29-04        Archery 0       0       1       1
Hiroshi Yamamoto        41      Japan   2004    08-29-04        Archery 0       1       0       1
Yuan Shu-Chi    19      Chinese Taipei  2004    08-29-04        Archery 0       0       1       1
Yun Mi-Jin      21      South Korea     2004    08-29-04        Archery 1       0       0       1
Zhang Juanjuan  23      China   2004    08-29-04        Archery 0       1       0       1
Matteo Bisiani  24      Italy   2000    10-01-00        Archery 0       1       0       1
Nataliya Burdeina       26      Ukraine 2000    10-01-00        Archery 0       1       0       1
Ilario Di Buò   43      Italy   2000    10-01-00        Archery 0       1       0       1
Simon Fairweather       30      Australia       2000    10-01-00        Archery 1       0       0       1
Michele Frangilli       24      Italy   2000    10-01-00        Archery 0       1       0       1
Jang Yong-Ho    24      South Korea     2000    10-01-00        Archery 1       0       0       1
Butch Johnson   45      United States   2000    10-01-00        Archery 0       0       1       1
Kim Cheong-Tae  20      South Korea     2000    10-01-00        Archery 1       0       0       1
Barbara Mensing 39      Germany 2000    10-01-00        Archery 0       0       1       1
O Gyo-Mun       28      South Korea     2000    10-01-00        Archery 1       0       0       1
Cornelia Pfohl  29      Germany 2000    10-01-00        Archery 0       0       1       1
Olena Sadovnycha        32      Ukraine 2000    10-01-00        Archery 0       1       0       1
Kateryna Serdiuk        17      Ukraine 2000    10-01-00        Archery 0       1       0       1
Wietse van Alten        21      Netherlands     2000    10-01-00        Archery 0       0       1       1
Sandra Wagner-Sachse    31      Germany 2000    10-01-00        Archery 0       0       1       1
Rod White       23      United States   2000    10-01-00        Archery 0       0       1       1
Time taken: 0.127 seconds, Fetched: 8618 row(s)
hive>
```

Problem Statement:

1. Write a Hive program to find the number of medals won by each country in swimming.

Hive query:

SELECT country, SUM(total_medals)

FROM olympics_data

WHERE sport = 'Swimming'

GROUP BY country;

Comments: The query uses SUM() function to calculate total medals won by each country, groups the result set country wise with the constraint of specific sport, swimming in this case.

```
hive> SELECT country, SUM(total_medals)
    > FROM olympics_data
    > WHERE sport = 'Swimming'
    > GROUP BY country;
Query ID = acadgild_20171224225959_a2f3869d-85a9-43f2-845e-9fdb59c33732
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1514121655167_0007, Tracking URL = http://localhost:8088/proxy/application_1514121655167_0007/
```

Output:

```
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 7.73 sec   HDFS Read: 518905 HDFS Write: 386 SUCCESS
Total MapReduce CPU Time Spent: 7 seconds 730 msec
OK
Argentina       1
Australia       163
Austria 3
Belarus 2
Brazil  8
Canada  5
China   35
Costa Rica      2
Croatia 1
Denmark 1
France  39
Germany 32
Great Britain   11
Hungary 9
Italy   16
Japan   43
Lithuania       1
Netherlands     46
Norway  2
Poland  3
Romania 6
Russia  20
Serbia  1
Slovakia        2
Slovenia        1
South Africa    11
South Korea     4
Spain   3
Sweden  9
Trinidad and Tobago     1
Tunisia 3
Ukraine 7
United States   267
Zimbabwe        7
Time taken: 105.318 seconds, Fetched: 34 row(s)
hive>
```

2. Write a Hive program to find the number of medals that India won year wise.

Hive query:

SELECT year, SUM(total_medals)

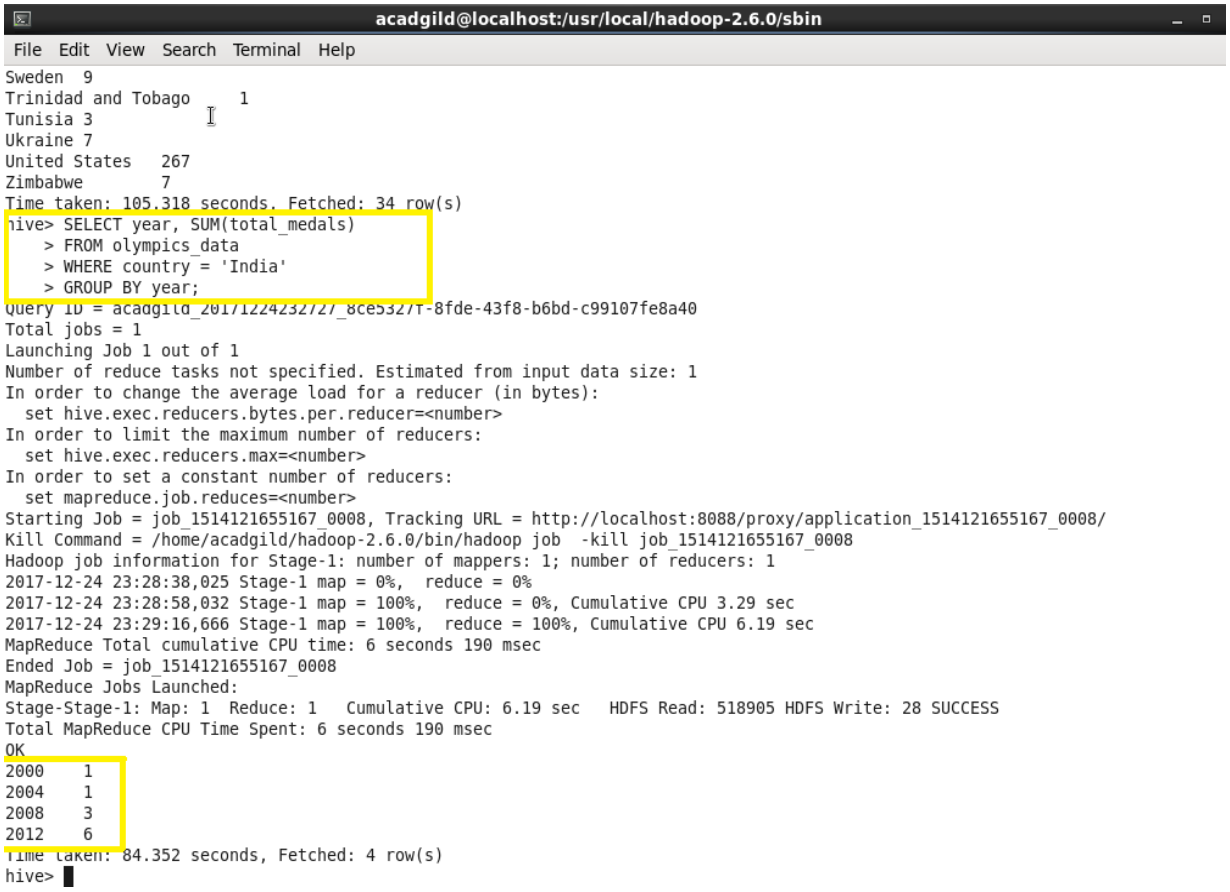
FROM olympics_data

WHERE country = 'India'

GROUP BY year;

Comments: The query uses SUM() function to calculate total medals won by India, groups the result set by its year of participation.

Query with output:



3. Write a Hive Program to find the total number of medals each country won.

Hive query:

SELECT country, SUM(total_medals)

FROM olympics_data

GROUP BY country;

Comments: The query uses SUM() function to calculate total medals won and groups the result set by country.

```
hive> SELECT country, SUM(total_medals)
    > FROM olympics_data
    > GROUP BY country;
Query ID = acadgild_20171224233636_4751870-99f1-4fed-8796-53287749ea3a
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1514121655167_0009, Tracking URL = http://localhost:8088/proxy/application_1514121655167_0009/
```

Output:

```
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 3.93 sec   HDFS Read: 518905 HDFS Write: 1315 SUCCESS
Total MapReduce CPU Time Spent: 3 seconds 930 msec
OK
Afghanistan     2
Algeria 8
Argentina       141
Armenia 10
Australia       609
Austria 91
Azerbaijan      25
Bahamas 24
Bahrain 1
Barbados        1
Belarus 97
Belgium 18
Botswana        1
Brazil  221
Bulgaria        41
Cameroon        20
Canada  370
Chile   22
China   530
Chinese Taipei  20
Colombia        13
Costa Rica      2
Croatia 81
Cuba    188
Cyprus  1
Czech Republic  81
Denmark 89
Dominican Republic      5
Ecuador 1
Egypt   8
Eritrea 1
Estonia 18
Ethiopia        29
```

```
Ecuador 1
Egypt   8
Eritrea 1
Estonia 18
Ethiopia        29
Finland 118
France  318
Gabon   1
Georgia 23
Germany 629
Great Britain   322
Greece  59
Grenada 1
Guatemala       1
Hong Kong       3
Hungary 145
Iceland 15
India   11
Indonesia       22
Iran    24
Ireland 9
Israel  4
Italy   331
Jamaica 80
Japan   282
Kazakhstan      42
Kenya   39
Kuwait  2
Kyrgyzstan      3
Latvia  17
Lithuania       30
Macedonia       1
Malaysia        3
Mauritius       1
Mexico  38
Moldova 5
Mongolia        10
Montenegro      14
Morocco 11


Panama  1
Paraguay        17
Poland  80
Portugal        9
Puerto Rico     2
Qatar   3
Romania 123
Russia  768
Saudi Arabia    6
Serbia  31
Serbia and Montenegro   38
Singapore       7
Slovakia        35
Slovenia        25
South Africa    25
South Korea     308
Spain   205
Sri Lanka       1
Sudan   1
Sweden  181
Switzerland     93
Syria   1
Tajikistan      3
Thailand        18
Togo    1
Trinidad and Tobago     19
Tunisia 4
Turkey  28
Uganda  1
Ukraine 143
United Arab Emirates    1
United States   1312
Uruguay 1
Uzbekistan      19
Venezuela       4
Vietnam 2
Zimbabwe        7
Time taken: 44.864 seconds, Fetched: 110 row(s)
hive>
```

4. Write a Hive program to find the number of gold medals each country won.

Hive query:

SELECT country, SUM(gold_medals)

FROM olympics_data

GROUP BY country;

Comments: The query uses SUM() function to calculate the number of gold medals won by each country and groups the result set by country.

```
hive> SELECT country, SUM(gold_medals)
    > FROM olympics_data
    > GROUP BY country;
Query ID = acadgild_20171224204141_d07e5502-dd85-4af6-b91d-ffca16a90de2
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1514121655167_0006, Tracking URL = http://localhost:8088/proxy/application_1514121655167_0006/
Kill Command = /home/acadgild/hadoop-2.6.0/bin/hadoop job  -kill job_1514121655167_0006
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2017-12-24 20:41:52,494 Stage-1 map = 0%,  reduce = 0%
2017-12-24 20:42:14,400 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.22 sec
2017-12-24 20:42:30,490 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 4.46 sec
```

Output:

```
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 4.46 sec   HDFS Read: 518905 HDFS Write: 1276 SUCCESS
Total MapReduce CPU Time Spent: 4 seconds 460 msec
OK
Afghanistan     0
Algeria 2
Argentina       49
Armenia 0
Australia       163
Austria 36
Azerbaijan      6
Bahamas 11
Bahrain 0
Barbados        0
Belarus 17
Belgium 2
Botswana        0
Brazil  46
Bulgaria        8
Cameroon        20
Canada  168
Chile   3
China   234
Chinese Taipei  2
Colombia        2
Costa Rica      0
Croatia 35
Cuba    57
Cyprus  0
Czech Republic  14
Denmark 46
Dominican Republic      3
Ecuador 0
Egypt   1
Eritrea 0
Estonia 6
Ethiopia        13
Finland 11
```

```
Eritrea 0
Estonia 6
Ethiopia        13
Finland 11
France  108
Gabon   0
Georgia 6
Germany 223
Great Britain   124
Greece  12
Grenada 1
Guatemala       0
Hong Kong       0
Hungary 77
Iceland 0
India   1
Indonesia       5
Iran    10
Ireland 1
Israel  1
Italy   86
Jamaica 24
Japan   57
Kazakhstan      13
Kenya   11
Kuwait  0
Kyrgyzstan      0
Latvia  3
Lithuania       5
Macedonia       0
Malaysia        0
Mauritius       0
Mexico  19
Moldova 0
Mongolia        2
Montenegro      0
Morocco 2
Mozambique      1
Netherlands     101


Norway  97
Panama  1
Paraguay        0
Poland  20
Portugal        1
Puerto Rico     0
Qatar   0
Romania 57
Russia  234
Saudi Arabia    0
Serbia  1
Serbia and Montenegro   11
Singapore       0
Slovakia        10
Slovenia        5
South Africa    10
South Korea     110
Spain   19
Sri Lanka       0
Sudan   0
Sweden  57
Switzerland     21
Syria   0
Tajikistan      0
Thailand        6
Togo    0
Trinidad and Tobago     1
Tunisia 2
Turkey  9
Uganda  1
Ukraine 31
United Arab Emirates    1
United States   552
Uruguay 0
Uzbekistan      5
Venezuela       1
Vietnam 0
Zimbabwe        2
Time taken: 76.539 seconds, Fetched: 110 row(s)
```