ReadMe:

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CSE532 HW4

**I am using Docker to do the assignment since both HDP Sandbox and Cloudera are too heavy for my Mac laptop.**

**Task 1.**

The arguments are the same as indicated in the assignment page.

“InputFilePath worldFlagBoolean OutputDirectoryPath”

When flag is set to true: all data will be displayed.

When flag is set to false: International and World data will be ignored.

When flag is set to something else: default to false.

**Task 2.**

The arguments are the same as indicated in the assignment page.

“InputFilePath startDate endDate OutputDirectoryPath”

Both startDate and endDate use the **yyyy-mm-dd** format.

The result includes world and international counts.

**Task 3.**

The arguments are the same as indicated in the assignment page.

“InputFilePath populationFilePathWithHDFS OutputDirectoryPath”

**For example:**

**VM:** “/cse532/input/covid19\_full\_data.csv hdfs://localhost:9000/cse532/cache/populations.csv /cse532/output/”

**Docker:** “/cse532/input/covid19\_full\_data.csv hdfs://9ae81bae0044:9000/cse532/cache/populations.csv /cse532/output/”

I followed the lecture slide and used a HashTable to store data for population.csv in reducer. So the file will only be accessed once (by the setup method) and the HashTable will only be accessed once by every different key (country).

The result ignores “Bonaire, Saint Eustatius and Saba” and locations with no population.

**I used AWS EMR for the Spark Extra Credit part of the HW.**

**Task 4. Extra Credit 1:**

The arguments are the same as indicated in the assignment page.

“spark-submit --class className Filename.jar HDFSInputFilePath startDate endDate HDFSOutputDirectoryPath”

**For example:**

spark-submit --class SparkCovid19\_1 SparkCovid19\_1.jar hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/input/covid19\_full\_data.csv 2020-01-01 2020-03-31 hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/output/

**Task 5. Extra Credit 2:**

The arguments are the same as indicated in the assignment page.

“spark-submit --class className Filename.jar HDFSInputFilePath HDFSPopulationFilePath HDFSOutputDirectoryPath”

**For example:**

spark-submit --class SparkCovid19\_2 SparkCovid19\_2.jar hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/input/covid19\_full\_data.csv hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/input/populations.csv hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/output/

On Piazza, the TA mentioned that we are using BroadCast Variable for DistributedCache. I read and parse the population.csv file once before calling mapper or reducer and store the data in a HashTable. Then I store this HashTable as a BroadCast Variable since I am reading it multiple times later on and I don’t need to modify any data in the HashTable. I read data from HashTable and does calculation after the reducer part.

**Task 6. Extra Credit 3:**

See performance.pdf

**Outputs:**

**Task 1: /cse532/input/covid19\_full\_data.csv true /cse532/output/**

Afghanistan 367

Albania 383

Algeria 1468

Andorra 545

Angola 17

Anguilla 3

Antigua and Barbuda 15

Argentina 1715

Armenia 853

Aruba 74

Australia 5956

Austria 12640

Azerbaijan 717

Bahamas 36

Bahrain 811

Bangladesh 164

Barbados 63

Belarus 861

Belgium 22194

Belize 7

Benin 26

Bermuda 39

Bhutan 5

Bolivia 210

Bonaire Sint Eustatius and Saba 2

Bosnia and Herzegovina 781

Botswana 7

Brazil 13717

British Virgin Islands 3

Brunei 135

Bulgaria 577

Burkina Faso 384

Burundi 3

Cambodia 117

Cameroon 685

Canada 17883

Cape Verde 7

Cayman Islands 45

Central African Republic 9

Chad 9

Chile 5116

China 82757

Colombia 1780

Congo 45

Costa Rica 483

Cote d'Ivoire 349

Croatia 1282

Cuba 396

Curacao 13

Cyprus 494

Czech Republic 5017

Democratic Republic of Congo 180

Denmark 5071

Djibouti 121

Dominica 15

Dominican Republic 1956

Ecuador 3995

Egypt 1322

El Salvador 78

Equatorial Guinea 16

Eritrea 31

Estonia 1149

Ethiopia 52

Faeroe Islands 184

Falkland Islands 5

Fiji 15

Finland 2308

France 78167

French Polynesia 47

Gabon 30

Gambia 4

Georgia 196

Germany 103228

Ghana 287

Gibraltar 113

Greece 1832

Greenland 11

Grenada 12

Guam 121

Guatemala 80

Guernsey 166

Guinea 144

Guinea-Bissau 33

Guyana 33

Haiti 25

Honduras 312

Hungary 895

Iceland 1586

India 5194

Indonesia 2738

International 696

Iran 62589

Iraq 1031

Ireland 5709

Isle of Man 150

Israel 9248

Italy 135586

Jamaica 63

Japan 3906

Jersey 170

Jordan 349

Kazakhstan 704

Kenya 172

Kosovo 184

Kuwait 743

Kyrgyzstan 270

Laos 12

Latvia 548

Lebanon 548

Liberia 14

Libya 19

Liechtenstein 78

Lithuania 880

Luxembourg 2970

Macedonia 599

Madagascar 85

Malawi 8

Malaysia 3963

Maldives 19

Mali 56

Malta 293

Mauritania 6

Mauritius 268

Mexico 2785

Moldova 1056

Monaco 79

Mongolia 15

Montenegro 241

Montserrat 6

Morocco 1184

Mozambique 10

Myanmar 22

Namibia 16

Nepal 9

Netherlands 19580

New Caledonia 18

New Zealand 969

Nicaragua 6

Niger 278

Nigeria 254

Northern Mariana Islands 8

Norway 5863

Oman 419

Pakistan 4072

Palestine 260

Panama 2249

Papua New Guinea 2

Paraguay 115

Peru 2954

Philippines 3764

Poland 4848

Portugal 12442

Puerto Rico 573

Qatar 2057

Romania 4417

Russia 7497

Rwanda 105

Saint Kitts and Nevis 11

Saint Lucia 14

Saint Vincent and the Grenadines 8

San Marino 279

Saudi Arabia 2795

Senegal 237

Serbia 2447

Seychelles 11

Sierra Leone 6

Singapore 1481

Sint Maarten (Dutch part) 40

Slovakia 581

Slovenia 1055

Somalia 8

South Africa 1749

South Korea 10384

South Sudan 1

Spain 140510

Sri Lanka 185

Sudan 14

Suriname 10

Swaziland 10

Sweden 7693

Switzerland 22164

Syria 19

Taiwan 376

Tanzania 24

Thailand 2369

Timor 1

Togo 65

Trinidad and Tobago 107

Tunisia 596

Turkey 34109

Turks and Caicos Islands 8

Uganda 52

Ukraine 1462

United Arab Emirates 2359

United Kingdom 55242

United States 398809

United States Virgin Islands 45

Uruguay 424

Uzbekistan 504

Vatican 7

Venezuela 166

Vietnam 251

World 1391863

Zambia 39

Zimbabwe 10

**Task 2: /cse532/input/covid19\_full\_data.csv 2020-01-01 2020-03-31 /cse532/output/**

Afghanistan 4

Albania 12

Algeria 31

Andorra 8

Angola 2

Anguilla 0

Antigua and Barbuda 0

Argentina 24

Armenia 3

Aruba 0

Australia 19

Austria 108

Azerbaijan 4

Bahamas 0

Bahrain 4

Bangladesh 5

Barbados 0

Belarus 0

Belgium 513

Belize 0

Benin 0

Bermuda 0

Bhutan 0

Bolivia 6

Bosnia and Herzegovina 8

Brazil 159

British Virgin Islands 0

Brunei 1

Bulgaria 8

Burkina Faso 12

Cambodia 0

Cameroon 2

Canada 89

Cape Verde 1

Cayman Islands 1

Central African Republic 0

Chad 0

Chile 8

China 3309

Colombia 14

Congo 0

Costa Rica 2

Cote d'Ivoire 1

Croatia 6

Cuba 4

Curacao 1

Cyprus 7

Czech Republic 24

Democratic Republic of Congo 8

Denmark 77

Djibouti 0

Dominica 0

Dominican Republic 42

Ecuador 62

Egypt 40

El Salvador 0

Equatorial Guinea 0

Eritrea 0

Estonia 3

Ethiopia 0

Faeroe Islands 0

Fiji 0

Finland 13

France 3024

French Polynesia 0

Gabon 1

Gambia 1

Georgia 0

Germany 583

Ghana 5

Gibraltar 0

Greece 43

Greenland 0

Grenada 0

Guam 1

Guatemala 1

Guernsey 0

Guinea 0

Guinea-Bissau 0

Guyana 1

Haiti 0

Honduras 7

Hungary 16

Iceland 2

India 32

Indonesia 122

International 7

Iran 2757

Iraq 46

Ireland 54

Isle of Man 0

Israel 17

Italy 11591

Jamaica 1

Japan 56

Jersey 2

Jordan 5

Kazakhstan 1

Kenya 1

Kosovo 1

Kuwait 0

Kyrgyzstan 0

Laos 0

Latvia 0

Lebanon 11

Liberia 0

Libya 0

Liechtenstein 0

Lithuania 7

Luxembourg 22

Macedonia 7

Madagascar 0

Malaysia 37

Maldives 0

Mali 0

Malta 0

Mauritania 0

Mauritius 3

Mexico 28

Moldova 2

Monaco 0

Mongolia 0

Montenegro 1

Montserrat 0

Morocco 33

Mozambique 0

Myanmar 0

Namibia 0

Nepal 0

Netherlands 864

New Caledonia 0

New Zealand 1

Nicaragua 1

Niger 3

Nigeria 2

Northern Mariana Islands 0

Norway 26

Oman 0

Pakistan 18

Palestine 1

Panama 26

Papua New Guinea 0

Paraguay 3

Peru 24

Philippines 88

Poland 31

Portugal 140

Puerto Rico 6

Qatar 1

Romania 44

Russia 10

Rwanda 0

Saint Kitts and Nevis 0

Saint Lucia 0

Saint Vincent and the Grenadines 0

San Marino 25

Saudi Arabia 8

Senegal 0

Serbia 13

Seychelles 0

Singapore 3

Sint Maarten (Dutch part) 0

Slovakia 0

Slovenia 11

Somalia 0

South Africa 3

South Korea 163

Spain 7340

Sri Lanka 1

Sudan 2

Suriname 0

Swaziland 0

Sweden 146

Switzerland 295

Syria 2

Taiwan 5

Tanzania 1

Thailand 10

Timor 0

Togo 1

Trinidad and Tobago 3

Tunisia 8

Turkey 168

Turks and Caicos Islands 0

Uganda 0

Ukraine 11

United Arab Emirates 5

United Kingdom 1408

United States 3170

United States Virgin Islands 0

Uruguay 1

Uzbekistan 2

Vatican 0

Venezuela 3

Vietnam 0

World 37272

Zambia 0

Zimbabwe 1

**Task 3: /cse532/input/covid19\_full\_data.csv hdfs://9ae81bae0044:9000/cse532/cache/populations.csv /cse532/output/**

Afghanistan 9

Albania 133

Algeria 33

Andorra 7053

Angola 0

Anguilla 199

Antigua and Barbuda 153

Argentina 37

Armenia 287

Aruba 693

Australia 233

Austria 1403

Azerbaijan 70

Bahamas 91

Bahrain 476

Bangladesh 0

Barbados 219

Belarus 91

Belgium 1914

Belize 17

Benin 2

Bermuda 626

Bhutan 6

Bolivia 17

Bosnia and Herzegovina 238

Botswana 2

Brazil 64

British Virgin Islands 99

Brunei 308

Bulgaria 83

Burkina Faso 18

Burundi 0

Cambodia 6

Cameroon 25

Canada 473

Cape Verde 12

Cayman Islands 684

Central African Republic 1

Chad 0

Chile 267

China 57

Colombia 34

Congo 8

Costa Rica 94

Cote d'Ivoire 13

Croatia 312

Cuba 34

Curacao 79

Cyprus 409

Czech Republic 468

Democratic Republic of Congo 2

Denmark 875

Djibouti 122

Dominica 208

Dominican Republic 180

Ecuador 226

Egypt 12

El Salvador 12

Equatorial Guinea 11

Eritrea 8

Estonia 866

Ethiopia 0

Faeroe Islands 3765

Falkland Islands 1435

Fiji 16

Finland 416

France 1197

French Polynesia 167

Gabon 13

Gambia 1

Georgia 49

Germany 1232

Ghana 9

Gibraltar 3354

Greece 175

Greenland 193

Grenada 106

Guam 716

Guatemala 4

Guinea 10

Guinea-Bissau 16

Guyana 41

Haiti 2

Honduras 31

Hungary 92

Iceland 4647

India 3

Indonesia 10

Iran 745

Iraq 25

Ireland 1156

Isle of Man 1764

Israel 1068

Italy 2242

Jamaica 21

Japan 30

Jordan 34

Kazakhstan 37

Kenya 3

Kosovo 95

Kuwait 173

Kyrgyzstan 41

Laos 1

Latvia 290

Lebanon 80

Liberia 2

Libya 2

Liechtenstein 2045

Lithuania 323

Luxembourg 4744

Macedonia 287

Madagascar 3

Malawi 0

Malaysia 122

Maldives 35

Mali 2

Malta 663

Mauritania 1

Mauritius 210

Mexico 21

Moldova 261

Monaco 2013

Mongolia 4

Montenegro 383

Montserrat 1200

Morocco 32

Mozambique 0

Myanmar 0

Namibia 6

Nepal 0

Netherlands 1142

New Caledonia 63

New Zealand 200

Nicaragua 0

Niger 11

Nigeria 1

Northern Mariana Islands 138

Norway 1081

Oman 82

Pakistan 18

Palestine 50

Panama 521

Papua New Guinea 0

Paraguay 16

Peru 89

Philippines 34

Poland 128

Portugal 1220

Puerto Rico 200

Qatar 713

Romania 229

Russia 51

Rwanda 8

Saint Kitts and Nevis 206

Saint Lucia 76

Saint Vincent and the Grenadines 72

San Marino 8220

Saudi Arabia 80

Senegal 14

Serbia 359

Seychelles 111

Sierra Leone 0

Singapore 253

Sint Maarten (Dutch part) 932

Slovakia 106

Slovenia 507

Somalia 0

South Africa 29

South Korea 202

South Sudan 0

Spain 3005

Sri Lanka 8

Sudan 0

Suriname 17

Swaziland 8

Sweden 761

Switzerland 2560

Syria 1

Taiwan 15

Tanzania 0

Thailand 33

Timor 0

Togo 7

Trinidad and Tobago 76

Tunisia 50

Turkey 404

Turks and Caicos Islands 206

Uganda 1

Ukraine 33

United Arab Emirates 238

United Kingdom 813

United States 1204

United States Virgin Islands 430

Uruguay 122

Uzbekistan 15

Vatican 8652

Venezuela 5

Vietnam 2

Zambia 2

Zimbabwe 0

**Task 4: spark-submit --class SparkCovid19\_1 SparkCovid19\_1.jar hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/input/covid19\_full\_data.csv 2020-01-01 2020-03-31 hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/output/**

(Australia,19)

(Brazil,159)

(Uzbekistan,2)

(Papua New Guinea,0)

(Greenland,0)

(Finland,13)

(Peru,24)

(Guernsey,0)

(Djibouti,0)

(Montenegro,1)

(Uruguay,1)

(Gibraltar,0)

(United States Virgin Islands,0)

(Sweden,146)

(Vietnam,0)

(Serbia,13)

(Iran,2757)

(Slovakia,0)

(Madagascar,0)

(Angola,2)

(Denmark,77)

(Saudi Arabia,8)

(Paraguay,3)

(Curacao,1)

(Isle of Man,0)

(Suriname,0)

(New Caledonia,0)

(Iceland,2)

(Netherlands,864)

(French Polynesia,0)

(Vatican,0)

(Mongolia,0)

(Kazakhstan,1)

(Fiji,0)

(Indonesia,122)

(Eritrea,0)

(Somalia,0)

(Norway,26)

(Liberia,0)

(Bermuda,0)

(Democratic Republic of Congo,8)

(Poland,31)

(Afghanistan,4)

(Israel,17)

(Saint Vincent and the Grenadines,0)

(Jersey,2)

(Canada,89)

(Barbados,0)

(Japan,56)

(San Marino,25)

(Equatorial Guinea,0)

(Cyprus,7)

(Singapore,3)

(Benin,0)

(Turks and Caicos Islands,0)

(Moldova,2)

(Colombia,14)

(Cote d'Ivoire,1)

(Dominica,0)

(Mozambique,0)

(Tanzania,1)

(Taiwan,5)

(Cameroon,2)

(Luxembourg,22)

(Turkey,168)

(Congo,0)

(International,7)

(Panama,26)

(Chad,0)

(Hungary,16)

(Portugal,140)

(United Kingdom,1408)

(Bolivia,6)

(Guam,1)

(Jamaica,1)

(Sint Maarten (Dutch part),0)

(Georgia,0)

(Honduras,7)

(Dominican Republic,42)

(Kyrgyzstan,0)

(Faeroe Islands,0)

(Morocco,33)

(Zambia,0)

(Belarus,0)

(Cambodia,0)

(Nepal,0)

(World,37272)

(Kenya,1)

(Saint Kitts and Nevis,0)

(Bhutan,0)

(Syria,2)

(Uganda,0)

(Albania,12)

(British Virgin Islands,0)

(Puerto Rico,6)

(Jordan,5)

(Trinidad and Tobago,3)

(Grenada,0)

(Brunei,1)

(Guinea,0)

(Mexico,28)

(Anguilla,0)

(France,3024)

(South Korea,163)

(Myanmar,0)

(Germany,583)

(Cayman Islands,1)

(Northern Mariana Islands,0)

(Macedonia,7)

(Cuba,4)

(Cape Verde,1)

(Kosovo,1)

(Bahrain,4)

(El Salvador,0)

(Oman,0)

(Bangladesh,5)

(Libya,0)

(Ghana,5)

(Venezuela,3)

(Senegal,0)

(Saint Lucia,0)

(Sudan,2)

(Iraq,46)

(Gambia,1)

(Namibia,0)

(Greece,43)

(Italy,11591)

(Slovenia,11)

(Mauritania,0)

(Maldives,0)

(Kuwait,0)

(Spain,7340)

(Liechtenstein,0)

(Montserrat,0)

(Malaysia,37)

(Ukraine,11)

(Malta,0)

(Romania,44)

(Egypt,40)

(Latvia,0)

(Rwanda,0)

(Timor,0)

(Antigua and Barbuda,0)

(Armenia,3)

(Monaco,0)

(Thailand,10)

(Togo,1)

(Pakistan,18)

(Ethiopia,0)

(Burkina Faso,12)

(Chile,8)

(Niger,3)

(Belgium,513)

(Guyana,1)

(Nicaragua,1)

(China,3309)

(Zimbabwe,1)

(Algeria,31)

(Seychelles,0)

(Sri Lanka,1)

(United Arab Emirates,5)

(Costa Rica,2)

(Bulgaria,8)

(Aruba,0)

(Mauritius,3)

(Haiti,0)

(New Zealand,1)

(Palestine,1)

(Philippines,88)

(India,32)

(Austria,108)

(Lebanon,11)

(Argentina,24)

(Croatia,6)

(Estonia,3)

(Lithuania,7)

(Ecuador,62)

(Laos,0)

(Belize,0)

(Guinea-Bissau,0)

(Switzerland,295)

(Bosnia and Herzegovina,8)

(Swaziland,0)

(Tunisia,8)

(Mali,0)

(Qatar,1)

(Ireland,54)

(United States,3170)

(South Africa,3)

(Azerbaijan,4)

(Central African Republic,0)

(Nigeria,2)

(Guatemala,1)

(Russia,10)

(Gabon,1)

(Andorra,8)

(Bahamas,0)

(Czech Republic,24)

**Task 5: --class SparkCovid19\_2 SparkCovid19\_2.jar hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/input/covid19\_full\_data.csv hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/input/populations.csv hdfs://ip-172-31-35-46.ec2.internal:8020/cse532/output/**

(Australia,233)

(Brazil,64)

(Uzbekistan,15)

(Papua New Guinea,0)

(Greenland,193)

(Finland,416)

(Peru,89)

(Djibouti,122)

(Montenegro,383)

(Uruguay,122)

(Gibraltar,3354)

(United States Virgin Islands,430)

(Sweden,761)

(Vietnam,2)

(Serbia,359)

(Iran,745)

(Slovakia,106)

(Madagascar,3)

(Angola,0)

(Denmark,875)

(Saudi Arabia,80)

(Paraguay,16)

(Curacao,79)

(Isle of Man,1764)

(Suriname,17)

(New Caledonia,63)

(Iceland,4647)

(Netherlands,1142)

(French Polynesia,167)

(Vatican,8652)

(Mongolia,4)

(Kazakhstan,37)

(Fiji,16)

(Indonesia,10)

(Eritrea,8)

(Somalia,0)

(Norway,1081)

(Liberia,2)

(Bermuda,626)

(Democratic Republic of Congo,2)

(Poland,128)

(Afghanistan,9)

(Israel,1068)

(Saint Vincent and the Grenadines,72)

(Canada,473)

(Barbados,219)

(Japan,30)

(San Marino,8220)

(Equatorial Guinea,11)

(South Sudan,0)

(Cyprus,409)

(Singapore,253)

(Benin,2)

(Turks and Caicos Islands,206)

(Moldova,261)

(Colombia,34)

(Cote d'Ivoire,13)

(Dominica,208)

(Mozambique,0)

(Tanzania,0)

(Taiwan,15)

(Cameroon,25)

(Luxembourg,4744)

(Turkey,404)

(Congo,8)

(Panama,521)

(Chad,0)

(Hungary,92)

(Portugal,1220)

(United Kingdom,813)

(Bolivia,17)

(Guam,716)

(Jamaica,21)

(Sint Maarten (Dutch part),932)

(Georgia,49)

(Honduras,31)

(Dominican Republic,180)

(Kyrgyzstan,41)

(Faeroe Islands,3765)

(Morocco,32)

(Zambia,2)

(Belarus,91)

(Cambodia,6)

(Nepal,0)

(Kenya,3)

(Saint Kitts and Nevis,206)

(Bhutan,6)

(Syria,1)

(Uganda,1)

(Albania,133)

(British Virgin Islands,99)

(Puerto Rico,200)

(Jordan,34)

(Trinidad and Tobago,76)

(Grenada,106)

(Brunei,308)

(Guinea,10)

(Mexico,21)

(Anguilla,199)

(France,1197)

(South Korea,202)

(Myanmar,0)

(Germany,1232)

(Cayman Islands,684)

(Northern Mariana Islands,138)

(Macedonia,287)

(Cuba,34)

(Cape Verde,12)

(Kosovo,95)

(Bahrain,476)

(El Salvador,12)

(Oman,82)

(Bangladesh,0)

(Libya,2)

(Ghana,9)

(Venezuela,5)

(Senegal,14)

(Falkland Islands,1435)

(Saint Lucia,76)

(Sudan,0)

(Iraq,25)

(Gambia,1)

(Botswana,2)

(Namibia,6)

(Greece,175)

(Italy,2242)

(Slovenia,507)

(Mauritania,1)

(Maldives,35)

(Kuwait,173)

(Spain,3005)

(Liechtenstein,2045)

(Montserrat,1200)

(Malaysia,122)

(Ukraine,33)

(Malta,663)

(Romania,229)

(Egypt,12)

(Latvia,290)

(Rwanda,8)

(Timor,0)

(Antigua and Barbuda,153)

(Armenia,287)

(Monaco,2013)

(Burundi,0)

(Thailand,33)

(Togo,7)

(Pakistan,18)

(Ethiopia,0)

(Burkina Faso,18)

(Chile,267)

(Belgium,1914)

(Niger,11)

(Guyana,41)

(Nicaragua,0)

(China,57)

(Zimbabwe,0)

(Algeria,33)

(Seychelles,111)

(Sri Lanka,8)

(United Arab Emirates,238)

(Costa Rica,94)

(Bulgaria,83)

(Aruba,693)

(Mauritius,210)

(Haiti,2)

(Sierra Leone,0)

(New Zealand,200)

(Palestine,50)

(Philippines,34)

(India,3)

(Austria,1403)

(Lebanon,80)

(Argentina,37)

(Croatia,312)

(Estonia,866)

(Lithuania,323)

(Ecuador,226)

(Laos,1)

(Belize,17)

(Malawi,0)

(Guinea-Bissau,16)

(Switzerland,2560)

(Bosnia and Herzegovina,238)

(Swaziland,8)

(Tunisia,50)

(Mali,2)

(Qatar,713)

(Ireland,1156)

(United States,1204)

(South Africa,29)

(Azerbaijan,70)

(Central African Republic,1)

(Nigeria,1)

(Guatemala,4)

(Russia,51)

(Gabon,13)

(Bahamas,91)

(Andorra,7053)

(Czech Republic,468)