

CENSUS 2010

Your job is to write a program that would help us analyze the data from 2010 census. Make sure to download counties.txt. You will need to read this file and display a series of reports on the data.

Features 1 to 4 -- each feature must be in its own function with prototypes. Make sure to send in arguments by reference where necessary.

Feature 0 (40): Read counties.txt into 3 parallel arrays. You will see that the data file contains counties, and for each county, you have *county name*, *state of the country* and *population*.

Make sure that your program displays an error message and exits the program if it cannot find the file counties.txt.

Assume that you may have up to 5000 counties in the data file.

Feature 1 (60): Population Report feature displays the most and least populous counties in US. It also displays the average county population.

Feature 2 (60): Allow user to enter a population range (min and max) and then display all counties that have population within that range.

Feature 3 (50): Two counties are similar if they have the same population and they are in the same state. Display all counties that are similar. *Hint: you need a nested loop here -- loop inside loop. For each county, you need to check its similarity with every other county.*

Feature 4 (30): Find and display the state with the most population.

Hint: because states are on multiple rows, we need to keep track of the state of each county. Fortunately, the counties are sorted by state. So assume you have a variable named currState which will keep the state you are currently following. currStatePop will keep the population of this state. Also let's keep maxState and maxStatePop variables. These will hold the state with the maximum population. Now go through each county, check if the state of the county is same as CurrState. If so, we need to add the population of this county to currStatePop. Otherwise, that means we found a county with a new state. That also means we are done with reading counties from currState. At this point currState has the state name and the currStatePop has the total population of currState. Check if currStatePop is larger than maxStatePop, if so, we need to set maxState and maxStatePop to currState and currStatePop, respectively. And then we need to set currState to the state at i'th index of the for loop and currStatePop will be set to the population of the county at i'th index.

Feature 0 (10): Exit

Avoid Penalties!

- 60 points penalty if your code is not properly indented or contains no comments.
- 100 points penalty if you do not use functions, or your code does not compile or you use global variables.
- Refer to screenshot displayed above for more information..

```
Census Analysis 2010
=====
1- Population Report
2- Counties By Range
3- Similar Counties
4- Populous State
0- Exit
What do you want to do: 1
Least Populated Country: Loving_County(TX)
Most Populated Country: Los_Angeles_County(CA)
Average County Population is 98232

Census Analysis 2010
=====
1- Population Report
2- Counties By Range
3- Similar Counties
4- Populous State
0- Exit
What do you want to do: 2
Enter Min. Population: 20000
Enter Max. Population: 20050
Plumas_County(CA): 20007

Census Analysis 2010
=====
1- Population Report
2- Counties By Range
3- Similar Counties
4- Populous State
0- Exit
What do you want to do: 3
Here are similar counties:
Clay_County(IA) and Dickinson_County(IA)
Linn_County(KS) and Pratt_County(KS)
Nodaway_County(MO) and Saline_County(MO)
Holmes_County(MS) and Winston_County(MS)
Bennett_County(SD) and Hand_County(SD)
Crockett_County(TX) and Knox_County(TX)
Galax_city(VA) and Lexington_city(VA)

Census Analysis 2010
=====
1- Population Report
2- Counties By Range
3- Similar Counties
4- Populous State
0- Exit
What do you want to do: 4
Most populous state is CA with population 3.7254e+07

Census Analysis 2010
=====
1- Population Report
2- Counties By Range
3- Similar Counties
4- Populous State
0- Exit
What do you want to do: 0
Press any key to continue . . .
```