CT103: Week 16 Lab Session (30/01/2024)

*Note: This assignment will count towards your final grade. Make sure you submit your solution by following the "**Submission Instructions**" at the end of this document. You have **until midnight tonight to submit your solution on Canvas**.*

Late assignment submissions will receive a penalty.

Please make sure you **write comments** explaining what your code does. Start your C program with a **comment stating your; Name, Student ID and Date**.

Today you will be given two datasets stored as text (.txt) files. The first is called "dogs.txt" and contains a list of dog breeds. The second is called "countries.txt" and contains a list of countries and their populations.

Write a C program that does the following:

1. Read in the data from the file "dogs.txt". Get the size of the file in bytes and print it to the screen. (**20 marks**)

2. Update "dogs.txt" to replace the dog breed on the final line of the file with the breed "Boxer". (**25 marks**)

3. Read in the data from the file "countries.txt". As you read in the data, store the full name of each country as a string and the population as an integer. Print the data in the file to the screen. **Hint**: "atoi()" converts strings to ints. (**35 marks**)

4. Update "countries.txt" by appending a new country and corresponding population to the end of the file. Select a country that begins with the same letter as either your first name or surname, e.g. if your name is "Bob" you could pick "Brazil", "Smith" could be "South Africa". (**20 marks**)

Your program should output something similar to the following screenshot. You must **upload screenshots** showing your program working. You should upload a **screenshot showing the updated file**. You should also **include the updated .txt file in your submission folder**. Screenshots should look similar to the screenshots in Figures 2 and 3.

Figure 1: Datasets

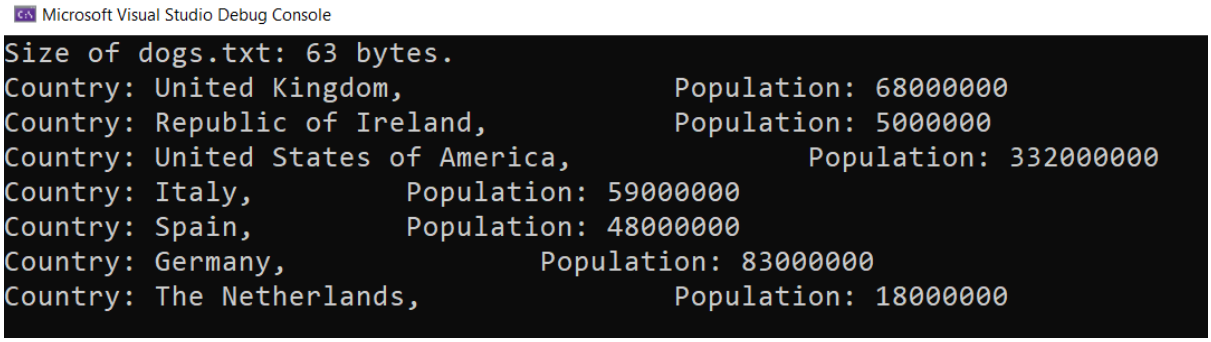

Figure 2: Code Output

Figure 3: Updated Datasets

Plagiarism Notice:

A definition of plagiarism is passing off the work of another personas one's own.
You are allowed to ask the lab tutors for help, collaborate with your classmates and review online and print resources for high-level problem solving and background research. You are each expected to complete this assignment individually. This means that every line of code and comment in your submission should be written by you alone. Please see the University of Galway Code of Practice for Dealing with Plagiarism for further information on plagiarism:
https://www.universityofgalway.ie/media/registrar/policiesmay2023/QA220-Academic-Integrity-Policy-v2.0-Sept-2023.pdf
Plagiarism is a serious academic offence and may lead to a loss of some or all marks and/or disciplinary proceedings if it is detected in any of your submissions. Students who facilitate others to copy their work are also subject to plagiarism sanctions (including loss of marks), so you should not share your assignment solutions with classmates.

Submission Instructions:

Please do the following to submit your solutions to the assignment.

- Copy and paste your code into a word document labelled 'AssignmentX_YOURNAME_ID.doc', e.g. 'Assignment7_JoeBloggs_123456789.doc'.

- Make sure to **include screenshots of your code working** in the .doc file. Use: 'Windows' + 'Shift' + 'S' on your keyboard. On a Mac, you should use the keys: 'shift' + 'command' + '3' or 'shift' + 'command' + '4'.

- Add both: **your .c program and your .doc files** to a folder called 'AssignmentX_YOURNAME_ID_Submission'.

- Zip the folder up and **submit the .zip file on Canvas** under CT103 Assessments. To zip the folder, right click and press 'Send To' then 'Compressed (zipped) folder'. On Mac, right click the folder and press 'Compress'.

- If for some reason you still cannot access Canvas. Send your .zip folder to the lab instructors by email. They will be available for the duration of the lab.