

Question 1

An ordinary text file contains a database of personal information. Each line contains the information for one person in plain human-readable text, and the fields are space separated.

Each line contains

1. Last name, as a string
2. First initial, one letter
3. Social security number, nine digits
4. Latitude of birth, floating point
5. Longitude of birth, floating point

Using the C and/or Unix input/output functions, write a function that reads the information from this file, and outputs it into a binary non-text file, in which each item only occupies the number of bytes that it would occupy in the computer's RAM. That amount should be the minimum possible.

Any name that is more than 12 characters long should be abbreviated to its first 12 characters. Any name that is less than 12 characters long should be padded with spaces.

Question 2

Implement each of these four functions in C, without using `string.h`

- i. `strlen`
- ii. `strcmp`
- iii. `strdup`
- iv. `strcpy`

Question 3

This is about `fork`, `exec`, etc.

Write a C program that:

- Uses the C compiler to compile another C program, whose name is provided on the command line.
- Any error messages that the compiler produces should be displayed for the user to see as usual, and stored for later viewing in a file called `errors.txt`.
- If there are no errors, your program should print "no errors" and proceed to run the resulting executable.