

CS1337 – Fall 2016

Assignment #2 – Arrays, Structure, String and Pointer

September 28th, 2016

Due Date: October, 9th, 2016 – 11:59pm

Question 1. Each of the following declarations and program segments has errors.

Locate and explain those. (30 points)

- A) `int x, *ptr; &x = ptr;`
- B) `int x, *ptr; *ptr = &x;`
- C) `int numbers[] = {10, 20, 30, 40, 50};`
`cout << "The third element in the array is ";`
`cout << *numbers + 3 << endl;`
- F) `int values[20], *iptr;`
`iptr = values;`
`iptr *= 2;`
- I) `void doubleVal(int val) {`
`*val *= 2;`
`}`
- M) `int *getNum() {`
`int wholeNum;`
`cout << "Enter a number: ";`
`cin >> wholeNum;`
`return &wholeNum;`
`}`

Question 2. (30 points) Write a function

`void switchEnds(int *array, int size);`

that is passed the address of the beginning of an array and the size of the array. The function swaps the values in the first and last entries of the array.

Question 3. (40 points) Assume we have the following data shown below: (data is also available in *candidatedata.txt*).

Name,Gender,Height,Weight

Tanner,M,71.8,180.25

John,M,70.75,185.3

Parker,F,65.25,120.3

Meeks,M,57.25,210.2

Big,M,57.5,150.1

Jackson,F,52.1,163.4

Tillis,M,78.75,157.75

Boop,F,54.5,108.7

Kay,F,71.25,153.6
Monroe,F,68.5,145.4
Thomas,M,66.0,182.7
Ferris,M,73.6,153.1
Appleworth,F,65.75,154.9
Prince,F,57.1,121.3
Schultz,F,67.25,144.6
Brooks,M,68.75,168.5
Loris,F,66.75,136.0
Martin,M,72.0,172.8
Smithe,M,75.25,230.7
Brians,F,72.75,102.6

Write a program that:

- a) Create a *struct* for each data record.
- b) Create structure array, dynamically allocate memory and read in all records from the TXT file into the structure array.
- c) Output the numbers and percentages of female and male candidates.
- d) Output the average height for male candidates.
- e) Output the average height for female candidates.
- f) Output the overall average weight.
- g) List the candidates (Name and Gender) who have the least weight and the most weight.
- h) List the candidates (Name and Gender) who is the shortest and the tallest.
- i) Free the memory and exit the program.

Deliverables:

Turn in your code file(s) (.cpp file) and results (Word Document, or pdf).