2021 Spring CPSC 240

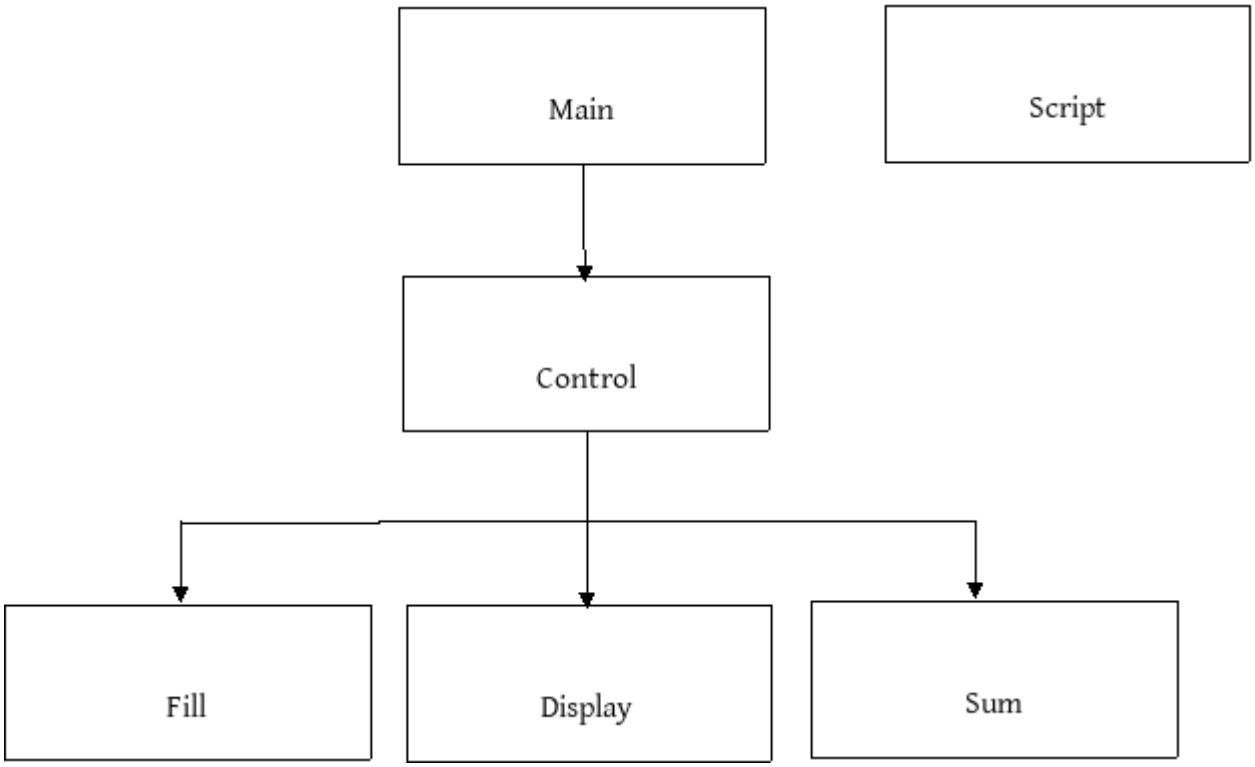
Assignment 3 Sum of an Array

Preface

Create a program in mixed languages (C, C++, and of course x86) that will compute the sum of the float numbers in an array.

Requirements

The following is the calling diagram of the required program.



There are three assembly files, one C++ file, one C file, and one Bash file.

Dialog between User and Program

Welcome to High Speed Array Summation by Jose Miracat.
Software Licensed by GNU GPL 3.0
Version 1.0 released on January 28, 2021.
Welcome to HSAS. The accuracy and reliability of this program is guaranteed by Jose M.
Please enter floating point numbers separated by ws.
When finished press enter followed by cntl+D.
6.5
3.2
-7.4 5.1 2.9
1.0
<cntl+D>
The numbers you entered are these:
6.50000000
3.20000000
-7.40000000
5.10000000
2.90000000
1.00000000
The sum of these values is 11.30000000.
The control module will now return the sum to the caller module.
The main has received this number 11.3000000000 and will keep it.
Thank you for using High Speed Array Software.
For system support contact Jose Miracat at jose@hsas.net
A zero will be returned to the operating system.

Color codes
Yellow: Output from driver
Blue: Output from the Control module
Green: Output from the Fill module
Pink: Output from the Display module
The Sum module does not output to standard out device.

Additional requirements

Make the source files meet the standard we refer to as the professional level

There must be six files in the languages indicated in the calling diagram. The script file must execute the entire program correctly out of the box. It will be tested in a Bash system.

In the dialog replace the fake name Jose with your own real name. Replace Jose's fake email address with your real one.

All the float numbers in this assignment are 64-bit float numbers. There is no input validation requirement for this assignment as there was in the previous assignment. [Don't discard your technique of validating inputs. We may need it in the future.]

When outputting a float number always show at least 8 decimal digits on the right side of the decimal point. You decide how many digits to display on the left side of the point. Always show the point. If the float number is 25.000 then do not output it as 25. You may show more than 8 decimal places on the right of the point if desired.

When your program is finished

Check your program one last time for professionalism. It is easy to miss things like statement of purpose or name of program or correct platform.

Next send all six file (not zipped) to holliday@fullerton.edu. With subject line "240-x assignment 3 for credit". Replace the 'x' with your section number 1, 5, or 7.

Dates: March 21 at 2:00am to March 22 at 2:00am That is like an appointment to get a covid vaccination. You have to keep your appointment.

Be sure you submit all six files at the same time.

Planning ahead: We will soon reach the midpoint of the semester. We need to choose a date for quiz on concepts. Theses quizzes are a sequence of question on any assembly related subject. These have a strict time limit based on a reasonable estimate of time needed to complete the test. Two or three hours is the common time period.

Questions may have short one- word answers or long calculations.

The test is open notes and open internet.

Don’t study for the test in the sense of memorizing facts. You should organize your notes to make access to information easy. You should practice mathematical techniques such as converting an integer from decimal to binary or converting a decimal float number to IEEE754 or using GDB to show the top three quad word on the stack..

We can say that you prepare by organizing and practicing.

It seems that the best time is the class meeting before spring vacation. Spring vacation begins March 27. Set your appointment