# 2021 Spring  CPSC 240

## Assignment 2  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**

The source files must be professional in appearance. This is assembly programming after all. Assembly code is held to a higher standard of professionalism than the academic grade stuff produced in other languages. The modules submitted for assignments in 240 class must be of such high caliber that the technical interviewer during the job application process will pause upon seeing such beautiful source files. In short make your source file exceed the quality of the posted sample files. When that happens you will have moved from making academic programs to making professional program.

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.

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 has reached the professional level**

Check your program one last time for professionalism. It must be so good that your job interviewer will want you in the company. If you are not sure ask a past student like AJ or Nicolas or Patricia or any other former assembly student to review your code level.

When you're sure yours passes the professional test then send all six file (not zipped) to holliday@fullerton.edu. With subject line "240-x assignment 2 for credit". Replace the 'x' with your section number 1, 5, or 7.

Dates: Submitted programs must be time stamped (Pacific time zone) between February 28, 2021 at 2:00am and March 1, 2021 at 2:00am.

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

**We can all learn from the past.**

Scenario 1 from the past: An email arrives. Hey prof, I forgot to include my bash and I will send it to you within three days and then the program will be complete. That program was never graded.

Scenario 2 from the past: An email arrives. Hi professor I used wordpad to edit my source files and they have the wrong end of line terminators. If you will simply convert my files to open source line terminators then then the program will run and I will get full credit. That program received a zero.

Scenario 3 from the past: Another email. Hi professor I thought I could do the whole program by starting on it about 8pm before it is due. That would give me 6 full hours to complete it. I always did all my programming the night before it was due. Now it is 2am and I don't know how to start programming. Can I have another week to finish? He received a zero.

Scenario 4. Hi prof. I was in a hurry and I submitted a program that almost works but it still has all of your comments in it. Will I still get half-credit? He got a zero.

Scenario 5. Oh prof, I just found out that you will test my program in a bash environment and it is now 1:58am. I am sending your my program that works in visual studio. Is that ok? He received a zero.

Scenario 6. Dear teacher. I don't have time to learn any assembly stuff, so I did the whole assignment in C++. That is proof that I am a real programmer. Now can I have my full credit? He received a zero.

Scenario 7: Hi prof. I really don't want to use my time learning to program. So, I am sending you one of your own programs from the web. I know it meets the professional requirements. Now do I get all the points. He got a zero. [He submitted my own program back to me. These are all real cases from a recent semester.]