

Note: All work must be done independently. You may not copy code from any source. Write your own code! Any suspicion of plagiarism in your code will result in a referral to the SBU Academic Judiciary

Assignment 13

Due: 2:00PM 12/6/19

Develop an encapsulated C++ class for 3-d vectors (look at the Fortran example of a vector class in the notes for lecture 32) that implements methods for the following operations: vector output (a print function), vector addition, vector subtraction, a vector norm, vector dot product, and a vector cross product. All member variables should be defined as private. The class should also have a class constructor that allows the initialization of the three components of each vector as well as a default constructor. The class should be packaged in a namespace. Also provide a driver program that demonstrates how each of the methods works by exercising them on instances of this class. **All the code for this assignment should be packaged into a single file.**

Make sure that you code compiles (programs receive a zero if they are not able to be compiled on the Math SINC site machines) and make sure to test it by running it and observing that you get the correct answer! Submit only the source code file, i.e. the .cpp file containing the C++ code, by uploading it into blackboard using the “attachments” button under the assignment. **Do not submit the executable file. If you submit the executable file you will receive zero credit**

If you have any problems see the TAs or the instructor for help. Do not ask other students to help you debug your code. Submissions via email will not be accepted. **DO NOT WAIT UNTIL THE LAST MINUTE TO SUBMIT THE ASSIGNMENT! LATE ASSIGNMENTS WILL NOT BE ACCEPTED.**

Note:

1. All programs should have a block of comment statements at the beginning of the code containing your name, **section number** (consult SOLAR if you are in doubt as to which section you are registered for), and a description of what the code does. Consult the lecture notes for examples.
2. Your file should be named in the form of <yourlastname>_<yourIDNumber>_<hw#>.cpp (Do not put the # sign in the file name!)
3. All programs must compile using the g++ compiler on the Mathlab machines. **Programs that do not compile will receive an automatic grade of zero.** There are no exceptions to this policy
4. Programs must be uploaded into the blackboard assignment page. Programs may not be submitted via email or hardcopy. Programs that are not uploaded into the blackboard assignment page will not be graded.