# 24780 Engineering Computation: Problem Set 12

(*) In the following instructions (and in all course materials), substitute your Andrew ID wherever you see *yourAndrewId*.

You need to create a ZIP file (which may appear as a compressed folder in Windows) and submit the ZIP file via the 24-780 Canvas. The filename of the ZIP file must be:

```
PS12-YourAndrewID.zip
```

For example, if your Andrew account is hummingbird@andrew.cmu.edu, the filename must be:

```
PS12-hummingbird.zip
```

Failure to comply with this naming rule will result in an automatic 5% deduction from this assignment's credit. If we cannot identify the submitter of the file, an additional 5% credit will be lost. If we are ultimately unable to connect you with the submitted ZIP file, you will receive 0 points for this assignment. Therefore, ensure strict adherence to this naming rule before submitting a file.

The ZIP file must be submitted to the 24-780 Canvas. If you find a mistake in a previous submission, you can re-submit the ZIP file with no penalty as long as it's before the submission deadline.

Your Zip file should contain only:

- ps11.cpp
- noerror.png or noerror.jpg. A screenshot from the compiler server showing there is no error either in .png or .jpg format.

Notice: The grade will be assigned to the final submission only. In the case of multiple file submissions, earlier versions will be discarded. Therefore, when resubmitting a ZIP file, it MUST include all the required files. Also, if your final version is submitted after the submission deadline, the late-submission policy will be applied, regardless of how early your earlier version was submitted.

**Ensure that your program can be compiled without errors on one of the compiler servers. Do not wait until the last minute, as the compiler servers may become very busy just minutes before the submission deadline!**

Submission Due: Please refer to Canvas.

# START EARLY!

Unless you are a good programmer, there is no way to finish the assignment overnight.

## Reminder

Faculty Course Evaluation is open. Please fill FCE. If you do, we honor your contribution for the improvement of this class, and give you 1% credit toward your final grade.

To take advantage of this, please take a screenshot of the FCE confirmation, either immediately after you submitted your FCE for 24-780A, or the list of FCEs you have completed, and submit to "FCE Thank You!" in the Canvas.

Final project presentation will be Wednesday 12/4 during the class. Sorry, I initially forgot updating the information here. If you downloaded early, please disregard. It wlil be in class. I'll try to get some free food for you.

Please set up two laptops, one for explanation and one for running your product. Imagine you are promoting your program in a convention. Tell visitors why your program is great. Also, please include who was responsible for what part. And, please make sure to upload the explanation document to the group area of the Canvas.

## Virtual, override, dynamic_cast, and const [ps12.cpp] (100 pts)

I know you like more assignments, but it is the last one of this semester!

The base code is an almost complete drawing tool.

First read the program.

I made a program and then erased all const, virtual, and override keywords.

Your goal is to add those keyword to make the program compile, run, and const-correct.

For each missing essential const qualifiers, you will lose 1 point. You can add optional const qualifiers, but it won't gain or lose a point.

Make sure to test the program so that it passes the compiler server, and include the screenshot of the compiler server in the Zip file.

Good luck! :-)

## Test Your Program with One of the Compiler Servers

Test your program with one of the following compiler servers:

```
http://freefood1.lan.local.cmu.edu
http://freefood2.lan.local.cmu.edu
http://freefood3.lan.local.cmu.edu
http://freefood4.lan.local.cmu.edu
```

You need to make sure you are not getting any errors (red lines) from the compiler server.

It is a good practice to remove warnings as well. However, we will not take points off for warnings as long as your program satisfies requirements of the assignment.

You can only access these servers from CMU network. If you need to access from your home, use CMU VPN. Please visit the CMU computing services web site how to install the VPN.