CIS 441/541: Project #1B
Due January 14th, 2019 (meaning 6am Jan 15th)
Worth 3% of your grade

Instructions

1) Download and build project1B.cxx. Re-use your CMakeLists.txt from project1A, and just replace "1A" with "1B"
2) Project1B.cxx contains a routine that will generate 100 triangles.
    a. All of these triangles have two points with the same Y value and the third point with a lower Y value (i.e., "going down" triangles)
3) Implement the scanline algorithm to these triangles and fill up the image buffer with their colors.
4) The correct image (100triangles.png) is posted to the website.

When you are done, upload your code to Canvas.

If your code does not produce exactly the same image, you should expect to get less than half credit. You can confirm that it produces the same image with the difference program and the reference image on the website (100triangles.png).

Some notes:

1) I began my implementation by figuring out which vertex was which, i.e., which was top-left, which was top-right, and which was bottom.
2) There are vertical lines, and they need special handling. Otherwise you get divide-by-zero in slope calculations.
3) Some pixels may be outside the screen. Plan for that.
4) Don't forget to use double precision and the floor_441 and ceil_441 functions.
5) What I printed when debugging:
    a. The triangle (I added a print method)
    b. Which vertices were which (top-left, top-right, bottom)
    c. The range of scanlines for a triangle
    d. ALSO: I sometimes modified the for loop to only do one triangle at a time, so it would be fewer print statements.