

CIS 441/541: Project #1A Due 11:59pm April 3rd, 2021
(which means 6am April 4th, 2021)

Worth 2% of your grade

Setup:

- 1) Download and install CMake. I recommend you use at least version 3.16.
- 2) Download, build, and install VTK. I strongly recommend you use version 8.2.0.
- 3) Make a directory called "project1A"
- 4) Download file project1A.cxx and CMakeLists.txt from class website and copy them into directory project1A.
- 5) Update the CMakeLists.txt file to point at the correct location for your VTK.
- 6) Run CMake. This will create build files.
- 7) Compile the project1A program. For Unix/Mac, this means "make"
- 8) Run the program.
- 9) It should output an image that is 1024x1024 called proj1A.png. The first pixel of the file should be red (although that might be hard to eyeball, especially if the corners of your window are curved, like with Macs).

Assignment:

- 1) You are to make an image that is 1024x1350. (1024 in width, 1350 in height)
 - a. The image will be broken into 27 horizontal strips, with each strip consisting of 50 rows of pixels
- 2) The color for the Xth strip should be:
 - a. $X \% 3 = 0 \rightarrow B=0$
 - b. $X \% 3 = 1 \rightarrow B=127$
 - c. $X \% 3 = 2 \rightarrow B=255$
 - d. $(X/3) \% 3 = 0 \rightarrow G = 0$
 - e. $(X/3) \% 3 = 1 \rightarrow G=127$
 - f. $(X/3) \% 3 = 2 \rightarrow G=255$
 - g. $X/9 = 0 \rightarrow R=0$
 - h. $X/9 = 1 \rightarrow R=127$
 - i. $X/9 = 2 \rightarrow R=255$
- 3) Examples
 - a. The first strip (which is at the beginning of the image buffer and at the bottom of the image) is to be black. $R=0, G=0, B=0$
 - b. The strip immediately above that should be dark blue, $R=0, G=0, B=127$
 - c. Above that should be bright blue $R=0, G=0, B=255$
 - d. Above that should be dark green, $R=0, G=127, B=0$

The correct answer is located on the class website. There is also an image differencer program on the class website. You can use that to verify that your image is correct. You should do this for this assignment.

If your program produces the wrong output, you can receive no more half credit. (It is critical you check your work with the differencer).

What to submit: your source code (project1A.cxx)