Question 4: PNG from Array

Description

Given the PNG and HSLAPixel classes as seen in mp_stickers and lab_debug, write a function `PNG makePNG(unsigned width, unsigned height, std::vector<HSLAPixel> pix_list)`. The output image should be of size width x height and the pixels in pix_list should be used to fill in the image from left-to-right and top-to-bottom.

Hint: Remember that the PNG convention for accessing pixels is (width, height) with (0,0) being the top left corner, (width-1, 0) being the top right corner, and (0, height-1) being the bottom left corner.

Hint: Remember that the PNG class is built off of HSLAPixels, which are three dimensional objects.

Example Output

Given the following input:

```
width = 3
height = 5
pix_list = [(283, 0.67, 0.35), (226, 0.92, 0.49), (226, 0.92, 0.49), (62, 0.3, 0.62), (283, 0.67, 0.35), \\
(8, 0.67, 0.29), (181, 0.62, 0.27), (52, 0.36, 0.11), (115, 0.93, 0.35), (226, 0.92, 0.49), \\
(283, 0.67, 0.35), (181, 0.62, 0.27), (115, 0.93, 0.35), (283, 0.67, 0.35), (50, 0.59, 0.63)]
```

The corresponding output would create a PNG containing these pixels in the following order (corresponding to a 3x5 PNG):

```
(283, 0.67, 0.35) (226, 0.92, 0.49) (226, 0.92, 0.49)
(62, 0.3, 0.62) (283, 0.67, 0.35) (8, 0.67, 0.29)
(181, 0.62, 0.27) (52, 0.36, 0.11) (115, 0.93, 0.35)
(226, 0.92, 0.49) (283, 0.67, 0.35) (181, 0.62, 0.27)
(115, 0.93, 0.35) (283, 0.67, 0.35) (50, 0.59, 0.63)
```

Note on Autograding: If your image does not match the expected image, the autograder will return the printed 'value' of a PNG compared to the expected solution. However the autograder is actually comparing every pixel individually (which is not printed). So you may encounter errors like:

```
REQUIRE( sol == out )
with expansion:
PNG(w=6, h=2, hash=0)
==
PNG(w=6, h=2, hash=0)
```

This is not an issue with the autograder -- it is merely that your image is correctly sized but has incorrect pixels.

While developing this code remember to use all the tools you have seen in the lab and mp, including valgrind.

Developing with VSCode workspaces

To open a terminal: click the button with three horizontal lines in the top left -> Terminal -> New Terminal.

To build your code: Follow the same method as our labs and mps.

- `mkdir build`
- `cd build`
- `cmake ..`

Once you have done that, you can compile and run your code using `make` and `./main` to compile and execute respectively.

Graded files

The only file that will be submitted for grading on this problem is **exam.cpp**

Open workspace

Save & Grade *40 attempts left* Save only

40 points available for this attempt
(following attempts are worth: 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40)

Practice Exam 1

Assessment overview

Question 4

Status: unanswered

Available points: 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40, 40

Total points: — /40

Auto-graded question

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Personal Notes

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