ECS 175 Project 2

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How To Compile and Run Program

1) On the command line, run "make".
2) My Makefile should create an executable called "main"
3) Run "main" to start program
4) Run "make clean" to clean-up object files

How to Run Program

1) You can start my program one of two ways:
    1. Run "main *inputFile*"
    2. Run "main"
2) If you provided an input file, then it will grab matrix data from that input file, otherwise it will ask you for an input file.
    1. The executable expects only 1 input file, if you put in multiple input files then it will warn you that there were too many entries and exit
    2. The input files are in this order:
        i. # of Polyhedrons
        ii. # of Vertexes
        iii. Vertexes
        iv. # of Triangles
        v. Triangle Points
3) After an input file has been specified, the program will ask you to specify the Phong Model Inputs, being:
    1. Ia (between 0 and 1)
    2. Il (between 0 and 1)
    3. K (large value)
    4. N (is an int)
    5. Ka (RGB values 0-1)
    6. Kd (RGB values 0-1)

7. Ks (RGB values 0-1)
8. X values (x, y, z)
9. F values (x, y, z)

4) After you input the phong model inputs, it will ask you whether or not you want to have half toning (yes or no question)
5) After that it will draw the diagram with the specific details.Once it has finished drawing, it will ask the user whether or not they would want to quit, choosing y quits and n sends you back to the beginning of the menu phase. .

<u>Where did I implement my Algorithms and notes about them:</u>

Note: If no note included, then I suspect that the algorithm is working as intended.

Phong: Bresenham.cpp from lines 160 to 227

Gouraud Shading: main.cpp from lines 328 to 388 and in bresenham.cpp in select places (Lines 33-169)

Half-Toning: main.cpp lines 420 to 622

Note: For the most part it works, but at one triangle the rasterizing is failing/getting corrupted somewhere, and I don't know what is causing it. I am unsure if it is the rasterizing (since it works for everything else) or something with he half-toning at that one location. Other than that, it seems to work

Painters Algorithm: main.cpp lines 229 to 326

Example Inputs:

This should give a gray scene

Input-File: input.txt

Ia: 0.8

IL: 0.8

k: 10000

n: 1

Ka

  R: 0.4

  G:: 0.4

  B:0.4

Kd

  R: 0.4

  G:: 0.4

  B:0.4

Ks

  R: 0.4

  G:: 0.4

  B:0.4

x

  x: 0

  y: 0

  z: 0

f

  x: 40

  y: 40

  z: 40

half-Toning: Yes