COSC4370 Spring 2021 HW1 - Rasterizer

Feb. 11, 2020
Due: Feb. 18, 11:59 PM

1 Introduction

In this assignment, we are going to derive and implement a similar algorithm for rasterizing circles. In particular, we will rasterize the half of the circle $x^2 + y^2 = R^2$ where $x \geq 0$ and positive integer $R = 100$ and the half of the circle $x^2 + y^2 = R^2$ where $y \geq 0$ and positive integer $R = 150$. The centers are at original point.

We suggest you to read "Computer Graphics Principles and Practice - Foley et. al" section 3.2 "Scan Converting Lines" and section 3.3 "Scan Converting Circles". It should be included in the handout as reading.pdf.

2 Setup

Linux \OS X
Compile main.cpp using the following command: g++ main.cpp
Windows
Create a new solution as an empty project, then add existing file - main.cpp

3 Note

The code for your rasterizer is in one file - hw1.cpp . Do NOT add source files because the entire assignment is self-contained to this one file. Also, use integer arithmetic in your code as opposed to doubles or others!

4 Requirements

- Do the assignment independently.
- You need to write a detail report(50 percent points of the assignment, pdf format), you should state the assignment problem, explain the algorithm or method you use, explain details of implementation, discuss your results and etc.

- upload your source code contained in a single file: hw1.cpp and other necessary files
- upload your final results(circle.ppm - an image file generated from hw1.cpp)
- In your Github readme file, put your name and student ID there, and also coding environment and compiling method (command).
- You can only use the library we provide.
- You will lose points if violate any requirement above