Pd6 Final Project 2023-05-20 Petr Ermishkin

Worked with no one.

## Light Ray Simulator

### Description

The purpose of this project is to simulate light rays in different environments. Planned functionalities include light ray reflection and refraction with rectangular objects and lenses as well as presets to test different situations with user input. Additional functionality could include objects with more complex shapes, objects at different angles, the ability to draw virtual parts of a ray, and the ability to determine the location of an object’s image given two rays.

### List of Current Functionalities

0. Create a photon (leading edge of the line / ray) which is used in rays and lines.

1. Draw a line (mathematically a ray but I call them lines to avoid confusions with rays) given a starting position and heading.

2. Other features are yet to be tested.

### List of Functionalities Planned to be Done by the Next Meeting

0. Draw a line given a starting position and angle heading.

1. Create rays which consist of 1 or more lines and 1 photon.

2. Update the heading of the ray and create a new line to simulate changes in the direction of light.

3. Create objects (no object interaction yet).

### Problems / Concerns

0. I still have to decide on what classes should handle what parts of the code and how they will interact. For example, while making this document I’ve realized that a photon should actually be used by the line and not by the ray since they have similar functionality.

1. I’m not sure how to handle collisions between the ray and objects, I’m sure I can come up with a solution but I doubt it would be a very efficient one.

2. Processing continues to be a horrific text editor. If I’m going to be working on this project, I’m considering finding another text editor to use.

3. I don’t fully understand how to utilize Git branches. I’ll ask Ms. Novillo for a more detailed breakdown once the first round of meetings is over.

### UML

Not required for the first meeting.