Path tracing c++

Path_tracing_niilo_heinonen_3

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Scope of work

The plan is to implement a simple path tracer for rendering realistic looking images. The scenes are loaded from an input file. The user should be able to see the rendering in real time, as well as move the camera. They can also save the rendered image to a file.

Requirements

Project description

1. Input of scene file
2. Output of image file
3. Light source
4. Geometry object
5. Material model
6. Shadows
7. Reflections
8. Other
    a. Any number of objects in the scene
    b. Freely modifiable camera parameters: (position, field of view, resolution)
    c. Example scene demonstrating all the features

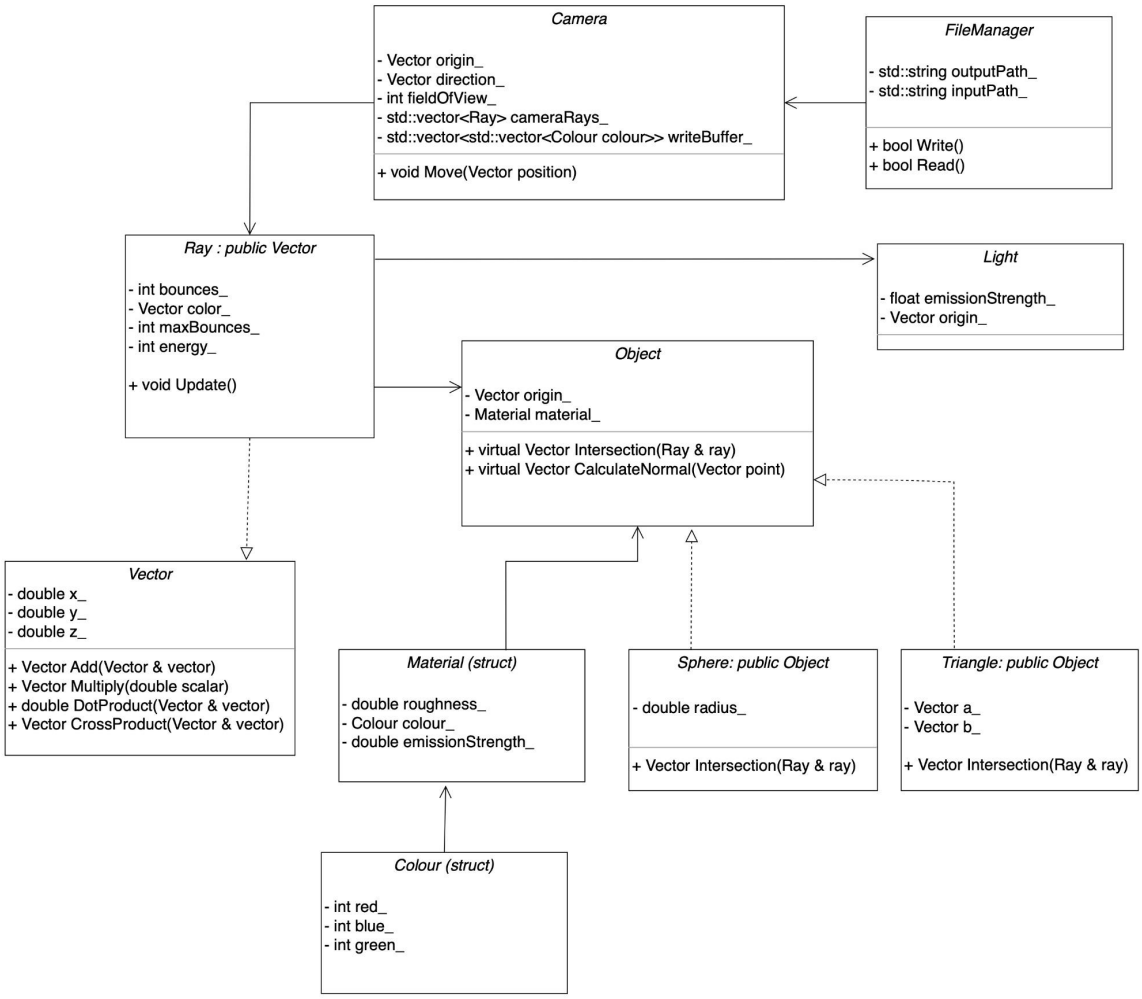
Additional

1. Real time preview
2. Camera movement
3. Triangle meshes

Non-functional

1. Performance (less computation solutions heavy are preferred)
2. Usability (understandable interface and/or usage instruction)

High level structure



Library usage

- Eigen (linear algebra)
- SFML (I/O library, window and graphics)

Responsibilities

Developer

- testing (writing tests before committing)
- documenting (writing comments above functions to explain functionality and parameters)
- keeping track of hours worked!
- pair 1 (Wero, Markus)

    tangible things like Vector, Objects, FileManager, Camera

- pair 2 (Johannes, Aleksi)

    ray tracing things considered like Rays, Effects, Materials

Organiser (Wero)

- scheduling weekly meetings
- keeping documents on track
- updating the todo list

Note keeper (Aleksi)

- writing notes during meetings that include:

    date

    attending members

    problems discussed

    proposed changes

- committing notes to the repository (with a format “Notes [date]”)

Schedule

Plan submission - 31.10

Project demo meeting - 04.12 - 9.12

Final commit - 10.12

Milestones

First render - 10.11

Light and reflections - 17.11

Working real time camera - 24.11

Improved performance - 01.12