

Assignment 1

Due: March 26, 2020, 00:05 WIB

Overview

There are two parts of the assignment. In the first part you are asked to do an experiment related to 2D Affine Transformation, and the second experiment you are to demonstrate different 3D rotational methods. The specification in which programming language is not determined and up to student to choose. However we recommend to use Python for the first part of the Assignment, and use Unity 3D to experimented on.

Task 1: Affine Transformation

Affine is general transformation to do various tasks related to either 2D or 3D geometric primitives.

It can do transformation by only specifying An Affine matrix which may define the following operation:

1. Scaling
2. Translation
3. Rotation
4. Projectives

Do some experiment related to these tasks, regardless of what task you interested. Projective transformation must be experimented on. Since most of the tasks is runnable on Cartesian coordinate, while computer coordinate use separate coordinate. It is recommended to run the experiment in some kind of 2D game development platform which support 2D transformation primitives.

Task 2: 3D Rotation

On class, it was mentioned that there are three kinds of rotation method on 3D geometry

1. Euler Angle
2. Axis
3. Unit Quaternion

Your task at least is to experiment Axis rotation or unit quaternion rotation. The output of this task is a report which summarized your finding post experimentation. The report must written:

- What rotation method you used
- Your own comprehension of how the method works
- How its translation to code sequence
- Interesting things you found when do an experiment

Submission

- For each task create separate Github Repository
- For each repository put your own codes
- originality.md which foretells which part of codes you import from external sources, and which parts you wrote yourselves
- readme.md which is the report