BBM 414 - Computer Graphics Laboratory

HACETTEPE UNIVERSITY
Department of Computer Engineering

Programming Assignment 1
Fall 2023-2024
Assoc. Prof. Dr. Ufuk Çelikcan

Due Date: 23:59 pm on Friday, October 27th, 2023

WebGL2 canvas and simple drawing

In this assignment, you will get familiar with WebGL2 canvas and learn simple drawing. First of all, you will create a canvas using **WebGL2**. Then, you will implement gl's drawing function to draw the requirements below.

- Draw two snowflakes on a white background; where the bigger one is blue. The end result is supposed to look like the figure below (See Figure 1).
- Do not read the vertices from any file.

Hint: You can use Koch's triangle to draw the snowflake [1].

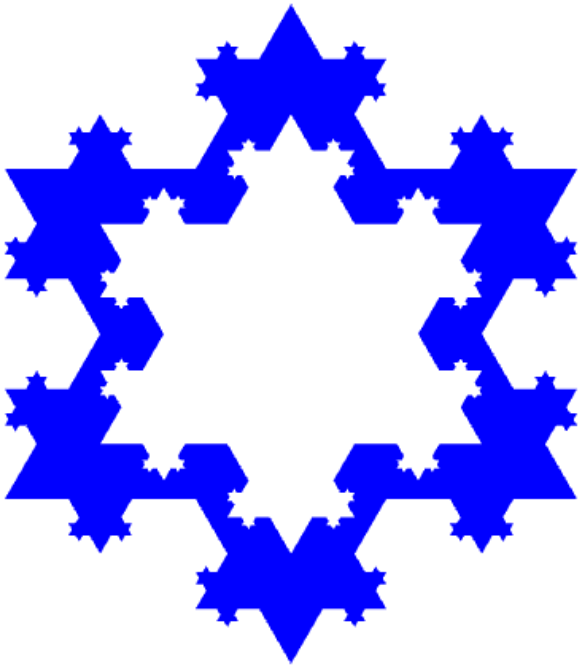

Figure 1: Snowflake.

The Implementation Details

1. Implement your homework using **WebGL2**. All programming assignments must use the shader-based functionality of **WebGL2**: at least one vertex shader and one fragment shader.
2. The assignment must be original work. Turning in someone else's work, in whole or in part, as your own will be considered as a violation of academic integrity. Please note that the former condition also holds for the material found on the web as everything on the web has been written by someone else. **Detection of such plagiarism in a submission will automatically void the submission and establish grounds to trigger an official disciplinary investigation.** General discussion of the assignment among peers is allowed, but do not share answers, algorithms or source codes. **Also using other resources (example source code, book, webpage etc.) as a code and javascript libraries (except jquery, Angel's book) are not allowed.**

3. Do not write the scripts into the html file. Reference your scripts in html.
4. You should use Netbeans or Webstorm as IDE for your projects.

The Report

You will write a report on latex for this assignment. You will explain the code parts and algorithm for drawing snowflake.

What to Hand In

You should submit entire Netbeans or Webstorm project directory including javascript files and html file in a zip file extracted from IDE. Submission file structure is as given in below:

- b<studentNumber>.zip

  |–Experiment1_2023 **(The whole Netbeans or Webstorm project)**

  |–report.pdf

Archieve this folder as **b<studentNumber>.zip** and send to the submit system.

Grading

The assignment will be graded out of 100:

- CODE: 0 (no implementation), 50 (a partial solution– some parts of snowflake), 75 (a partially correct solution - the outer snowflake), 100 (a correct solution - the shape given in Figure 1).

Academic Integrity

All work on assignments must be done individually unless stated otherwise. You are encouraged to discuss with your classmates about the given assignments, but these discussions should be carried out in an abstract way. That is, discussions related to a particular solution to a specific problem (either in actual code or in the pseudocode) will not be tolerated. In short, turning in someone else's work, in whole or in part, as your own will be considered as a violation of academic integrity. Please note that the former condition also holds for the material found on the web as everything on the web has been written by someone else.

References

[1] `https://en.wikipedia.org/wiki/Koch%27s_triangle`