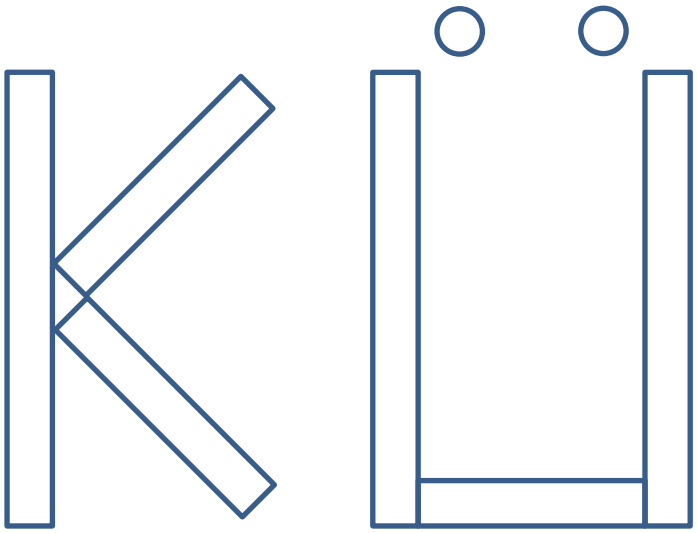
ANKARA UNIVERSITY
Computer Engineering
2020-2021 Fall Semester
COM3(0)37 Computer Graphics
Practical Assignment 1

Important Note: The students are expected to complete the tasks using shader-based graphics programming approach and WebGL. Solutions using fixed-function style or other graphics libraries (including Javascript graphics libraries) will be graded zero. This includes solutions that have code segments such as glBegin-glEnd sections, those that are not using a vertex or a fragment shader, or "webgl" context from canvas element.

Tasks: Some example simple programs have been discussed in the class and slides on the course page have information about them. Before starting this coursework, you should understand and be able to run those programs on your computer.

Your task for this coursework is to write a WebGL application (HTML and Javascript codes) that displays the first letter of your first name and the last letter of your surname. Simple, right? But, there is a condition! You must write the letters only using geometric primitives (points, lines, and triangles). For example, the first letter of my first name is "K" and the last letter of my surname is "Ü" and one way to visualize these can be as below.



Here, each rectangle can be drawn with 2 triangles and the circles can be drawn as large size points. I wanted to show how letters can be split into primitives in the example above. The actual output will not appear like this but with colored shapes like below.

1. In your program, by using GUI elements and through keyboard and mouse, user should be able to
    a. change the color for the letters;
    b. reposition (translate), rotate, or scale the letters together or (bonus, see below) separately.

2. You are free to design how and for what the user can use the keyboard and mouse but there has to be at least some interaction with both of them. Also your choices should be natural and easy to use.
3. **Bonuses (10 points each):**
    a. The nicer and easier to use your program is, the more points you will get.
    b. Bonus points can be earned if your program can transform the two letters separately.
    c. Drawing 3D letters instead of 2D ones (you will need to display the sides with different colors to make 3D structure visible) can also earn you bonus points.

Warning

You are free to discuss with your friends (e.g., over the forum on the course ekampus page) and research on the web but your code should be your own work. If there is high level of similarity with other students' solutions, it will be treated as plagiarism. In such a case, Higher Education Council (YÖK) regulations will be strictly applied.

Deadline and Submission

You should complete your work until **23:59 on November 16, Monday**. You will submit your code via the homework submission mechanism on ekampus course page. Also you will need to demonstrate your program and answer questions about it. If you only submit your code but do not give a demonstration, your solution **will not be graded**.

COM3037 students will do their demos during the lab hours on November 17. If you are unable to attend that lab hour, contact the course instructor before that time. For **COM337 students**, a separate announcement will be made for the demo time.