ANKARA UNIVERSITY
Computer Engineering
2017-2018 Fall Semester
COM337 Computer Graphics
Coursework 1

The code below is as simple as it gets when you want to program using OpenGL and GLUT libraries. If you correctly installed the GLUT library and have OpenGL on your system, you should be able to compile and run this simple code. The result will be a window positioned at the top left of your screen which is painted black. The window will show the title that you send as a string parameter to the `glutCreateWindow` function (`GLUT example 1`).

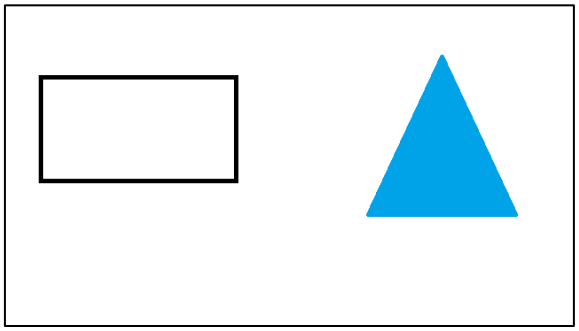
```
#include <GL/glut.h>

void display(void) {
	glClear(GL_COLOR_BUFFER_BIT);
	glFlush();
}

int main(int argc, char *argv[]) {

	glutInit(&argc, argv);
	glutCreateWindow("GLUT example 1");
	glutDisplayFunc(display);
	glutMainLoop();
	return 1;
}
```

The functions that are used in this code have been discussed in the class and slides on the course web page have information about them. Before going further to do the tasks asked in this coursework, you should be able to build and execute the code above.

Your task for this coursework is to write a C++ program that uses OpenGL and GLUT libraries. Your program should work according to the following descriptions:

1. The window size should be 640x360 and it should be placed some distance away from the top left corner.
2. The window should close and the program should stop if the user presses the Q key on the keyboard.
3. The window should display the following shapes on white background:
    a. A rectangle on the left which is drawn only with its borders in black.
    b. A blue triangle on the right.

    So, the window should approximately look like the image below.



4. When the user clicks on the triangle, its color should change to a different color. And this should happen again and again as the user continues to click. You are free to develop your own method to decide the next color.
5. The user should be able to drag the rectangle around and place it in a new position with the mouse.

Warning

Your solutions will be analyzed using code similarity software. Of course you are free to discuss with your friends but your code should be your own work. If there is unacceptable level of similarity with others' 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 **October 25**. There will be a demo announcement until that time explaining how and exactly when you will show your work to the course assistants and how you will submit your code.