

SCIT

School of Computing & Information Technology

CSCI336 – Interactive Computer Graphics SIM Session 3 2017


Assignment 1

Task

Write an OpenGL program using GLFW that does the following:

- Create and open a 1024×768 window with the title “Assignment 1 – 1024 x 768”
(0.5 marks)
- Handle the following user input:
 - Quit the application when the “ESC” key is pressed
 - When the left mouse button is pressed, output the current mouse cursor coordinates to the console
 - When the “b” key is pressed, change the background colour. Cycle through the following colours: black, white, red, green, blue
 - When the window is resized, update the window title to contain the new window dimensions
 - i.e. window title = “Assignment 1 – [new width] x [new height]”
 - Toggle the polygon render mode between wireframe and fill, when the “w” key is pressed

(1 mark)

- Display the following basic shapes using OpenGL primitives:
 - Points. Use a point size of 10.
 - Lines. Set the line width to 5.
 - Use a line loop to display a 5-point star: 
 - Triangles.
 - Use a triangle strip to display a rectangle.
 - Use a triangle fan to display a circle.

(2.5 marks)

- Display each shape using a different colour (make sure the colours are different from the background colours).

(0.5 marks)

- For the circle shape, allow the user to use up and down arrow keys to increase and decrease the number of triangle fan slices (within a certain maximum and minimum value).

(0.5 marks)

Instructions and Assessment

Submit an electronic copy of your work to your tutor at the start of the lab in which this assessment task is due. Do not try to fix your code during this lab, otherwise late penalties may apply. Your program must work on the computers in the lab or you must demonstrate it in the lab using your own laptop. The assignment must be your own work. If asked, you must be able to explain what you did and how you did it. Marks will be deducted if you cannot correctly explain your code.

The marking allocations shown above are merely a guide. Marks will be awarded based on the overall quality of your work. Marks may be deducted for other reasons, e.g., if your code is too messy or inefficient, is not well commented, if you cannot correctly explain your code, etc. For code that does not compile, does not work or for programs that crash, the most you can get is half the assessment marks or less.