COMP115 Introduction to Computer Science

Session 1, 2015

Assignment One: Paper Plane Part One

Due: 11:00am, Sunday March 15, 2015 (Week 3)
Worth: 6%

Learning Goals

This assignment contributes to the learning outcomes of COMP115 as follows:

• *Apply problem solving skills to develop algorithms that solve small to medium-sized computational problems*: Introductory experience in developing an algorithm to solve a problem from an informal specification of the problem.

• *Design and code implementations of their algorithms in an imperative programming language*: Practical experience in translating a simple algorithm into an equivalent Processing program that uses drawing, animation and variables.

• *Use standard software engineering practices to document, debug and test their programs*: Experience in developing a clear program from a specification, testing the conformance of the program to the specification, and debugging any problems that are detected.

Introduction

This assignment asks you to write a program to draw and animate shapes. You should only need to use material from up to and including Chapter Four of the textbook. The most relevant module is Pixels and Variables.

We strongly suggest that you divide the assignment up into pieces, tackle each piece separately and don't move on until you get each one working.

Questions

If you have questions about the programming for this assignment, ask on the Assignments Forum on iLearn, consult with your tutor or ask Matt Roberts. No extensions will be granted except for serious and unavoidable disruption. Contact Matt Roberts as soon as possible, preferably before the due date, if you have suffered a disruption that affects your ability to submit this assignment.

What your program needs to do

The aim of this assignment is to start the implementation of a game called "Paper Plane". You will continue the implementation in the other assignment. This assignment starts things off by setting up the game's window, then drawing and animating the plane.

The following instructions explain what your program should do. There is also a video in the Assignment One materials on iLearn that gives you some more guidance about how your program should look and behave.

Your program should use a window that is 512 pixels wide and 768 pixels high. The background should be a brown colour to simulate a building. Your colour should approximate the colour shown in the assignment video as closely as you can.

After the initial window has been drawn, your program should behave as follows:

• An isosceles triangle (the plane) with its short edge parallel to the top border is drawn in the centre top of the screen. The whole plane should initially be fully visible at the very top of the screen.

• After the plane is initially drawn it should move slowly down the screen to the bottom, staying at the same horizontal position in the window. When a plane reaches the bottom edge of the window it should keep going until it disappears, never to be seen again.

• If any key is pressed, the position of the plane is reset to the top (and the middle) of the screen.

• Exactly 15 marks are reserved for making the plane look more realistic.

Submission

Before the due date and time, you must submit your Processing program online via the COMP115 iLearn site. You must submit your program as a single Processing source file called **ass1.pde**.

You can find the pde file inside the folder that stores your Processing sketch. Please rename it (if necessary) and submit just that file. Do not submit the whole sketch.

Marking

85% for the correctness of your code excluding the realistic plane.

15% for making the plane more realistic than an isosceles triangle.