

Lab Week 1. Introduction to Java Programming Using Processing

Revision:

During your induction activity you should have produced a piece of art using processing and should now be familiar with the processing resources at Processing.org website (add to favourites) and creating and saving processing sketch files. You should also have become familiar with MacOSX.

Learning Objectives

- Familiarity with Processing Environment
 - Writing and saving a program
 - Running a program
 - Correcting syntax errors
- Program flow (order of commands)
- Using Variables within expressions

Look at the **reference** page at www.processing.org


Resources:

open these and have them available for reference

- Lecture Notes (moodle)
- Processing.org website (add to favourites)

Note that you should complete up to and including Exercise 5 (drawing a scalable STICK PERSON) before next week's lab

Exercise 1: familiarisation

Using **LaunchPad** or **Finder** or **Spotlight** : Find the Processing Icon  and launch the application. You'll see a text editor with "sketch" at the top and a text editor below (white background)

```
//A simple drawing Program
float x;
x = 50;

//screen size 500x500 pixels
size(500,500);

point(0,0);

ellipse(x,250,40,40);
```

Enter the code above (you can copy and paste) precisely as above. Press play



You should made a 'point' (spot) at the origin corner (top left) and a white circle at position 50,250 with width and height of 40 pixels.

Now stop the program, this will clear the display.

1. Make the circle appear in the middle of the screen (alter the value of variable x)
2. Make the circle larger, then smaller
3. Introduce a new variable

```
float size = 50;
```

4. Use the size variable inside the ellipse command, so that, you can more easily alter the size of the circle, only changing one value in the program (rather than 2). Try this out.

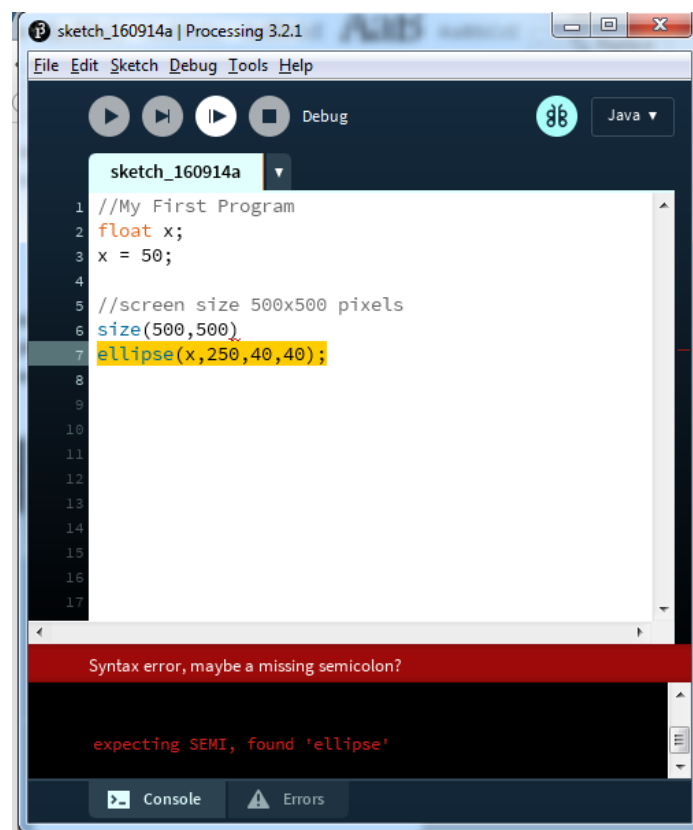
Saving a Program

Click on the **File** menu (top toolbar – on an apple, across the top of the screen) and select **Save As...** Navigate to your **root directory** and save in your directory called “Programming”.

Correcting Errors

When entering or writing your code its easy to introduce errors.

Syntax errors are those where a line (or more) of code are not formatted correctly. For example (see image above) I've altered our first program a little to introduce an error and pressed play. Processing has told me there is an error either on or before the **highlighted line**. Try this out, remove a semi-colon (end of command marker) from a line and hit play.



Another common error is to miss one of the parameters to a command.

Try swapping the line `size(500,500);` for `size(500);`

Press play and look at the error. Correct this and continue. we'll meet other errors as we go.

Exercise 2 . Drawing a face

```
//this is a comment - draw a face
```

```
ellipse(20,20,10,10);
```

```
point(20,20);
```

```
line(20,50,50,50);
```

In the lecture we looked at drawing a face starting with the code above. Run this.

Now alter the code to get a face similar to the picture

The fill command (see processing reference page) changes the fill colour using 3 parameters

```
fill(Red,Green,Blue);
```

Where each parameter has a range of [0..255], so `fill(255,0,0)` would be **red**.

Because, maximum amount of red and 0 Green and 0 Blue.

Alter your code so that we get a nice froggy face

Experiment with the colours of the face and eyes using the fill command parameters.

Save your program, in “**Programming/week1**”.



Exercise 3. We are going to amend our froggy face to allow it to be positioned at an **x** and **y** location. Introduce 2 global variables, **x** and **y** to the top of your code and set them to (100,100). Amend the appropriate commands replacing fixed values with variables.

Exercise 4 – Alter your code so that the face can be scaled as well as positioned, depending on **x,y** & **size** variables. You should introduce new variables to ease the coding.

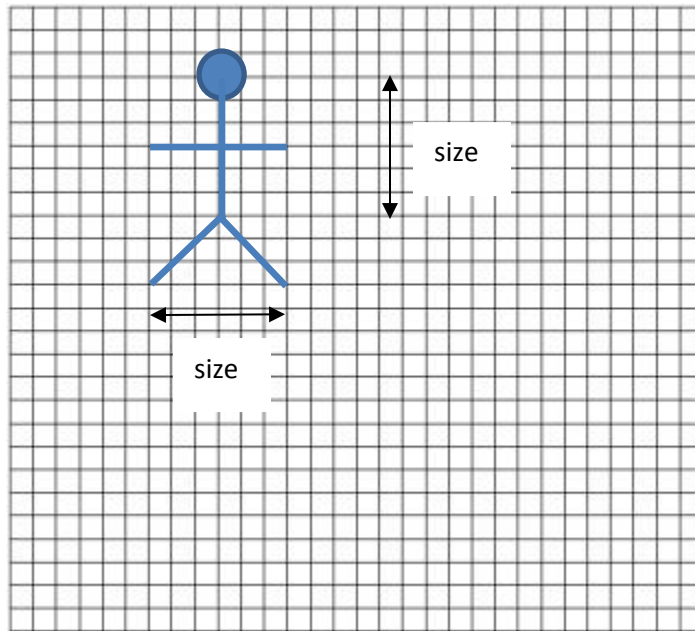
Exercise 5 - (portfolio). Drawing a Stick Person of variable size

Using the 3 variables **x,y,size** and only the `line` and `ellipse` drawing commands, you must draw a stick person similar to the diagram below (with the same relative sizes and positions of each part) where **x,y** is the centre of the head and the value of **size** the length of the torso (centre of head down). Other sizes

can be seen by counting the number of graph squares relative to size. You SHOULD add extra variables as required to store suitable starting points for the arms, legs etc.

Your code should be clearly commented to show what each block of commands is drawing.

Experiment with the values of size, x and y to draw different sized people in different places on the screen (remember that processing will allow you to draw off the screen, so if nothing appears alter x and y).



Save your program as “sticky.pde” in “[Programming/week1](#)”..

Extension exercise A, Add the scalable face code to your stick person

Extension exercise B. Same idea as above but for a scalable house. The location **x,y** should dictate the bottom left corner of the roof.

