

## PROGRAMMING

# Programming BootCamp 4/11 – 10/11

Posted by MYSIXC on NOVEMBER 14, 2016

EDIT

THE FOLLOWING WILL DOCUMENTATION WILL INCLUDE THE FOLLOWING FOR EACH DAY:

1. A RECAPITULATION OF THE TOPICS FROM THE "LISTEN" SEGMENT OF THE DAY (200-300 WORDS)
2. A DESCRIPTION OF THAT DAY'S "CREATE" ASSIGNMENT DESCRIBING WHAT THE ASSIGNMENT WAS, WHAT I TRIED TO ACHIEVE AND HOW I APPLIED THE TOPICS FROM THE "LISTEN" SEGMENT. (200-300 WORDS)
3. THE "CREATE" ASSIGNMENT. INCLUDE SCREENSHOTS/SCREEN CAPTURES AND THE CODE OR FILE AS A DOWNLOAD.

AND FINALLY AT THE END OF THE COURSE, A REFLECTION ON THE COURSE AS A WHOLE. A DESCRIPTION OF WHAT I HAVE LEARNT AND WHAT I LIKED AND DISLIKED AND HOW WILL I APPLY WHAT I HAVE LEARNT IN THE FUTURE.

## DAY 1 – Shapes, Color, Variables and Flow

### Listen

Today's listen section was mainly about the basics of programming. We were introduced to the PDE (Processing Development Environment), and also the folder structure of the saved file location.

Today's first part of the listening section was mainly about the basics of programming. How to program and how a program works with the code created for it.

We were then briefed on the introduction of Processing, how it works and what it is used for. The different types of shapes functions were shown, and the main ones were introduced. The canvas was also introduced, learning the importance of the

dimension of a drawing surface, the fact that the computer screen is a grid of pixels.

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For programming and Processing, the x axis is also towards to right but the y axis is increasing towards the bottom.

The rest of the lecture was on about the different functions, and how to create a variable such as "int", "String", "float. We were also taught on about how to create shapes such as, rectangle "rect(x,y,size\_x,size\_y);", ellipse"ellipse(center\_x,center\_y,diameter\_x,diameter\_y)".

We also learnt about arithmetics, and how we can use mathematical functions in the code/ operations.

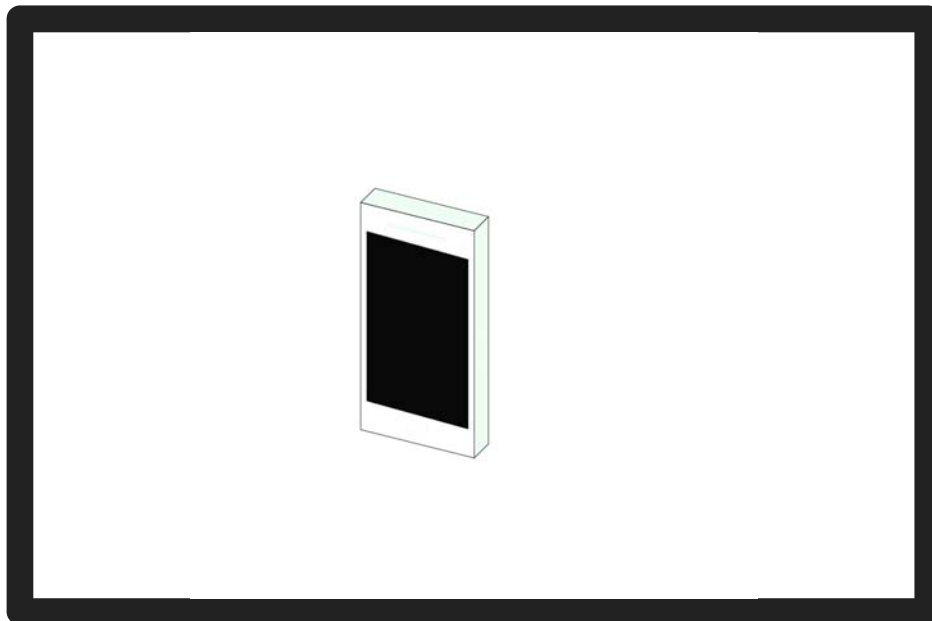
To me, I feel like coding is very much like maths, algebras and such. Although coding doesn't really follow all the rules of maths, but they follow most of it.

### Create – Dynamic Drawing

In today's create assignment, we were briefed on our assignment and we are to create a dynamic drawing with the functions we learnt today. The meaning behind dynamic drawing is that, whenever we were to run the code again from the start, the drawing will be changing. Whether the drawing might be changing or colours might be changing, it doesn't matter.

So what my idea was, to create a mobile phone viewed from the side, and the colour of the phone will be changed every time the program is restarted. The sides of the phone will have a slightly darker colour in comparison to the front of the phone.

Here are the screenshots of my creation:



Instructions: This program is a program that will provide the mobile phone a different

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## Day 2 – Flow and Interactivity

### Listen

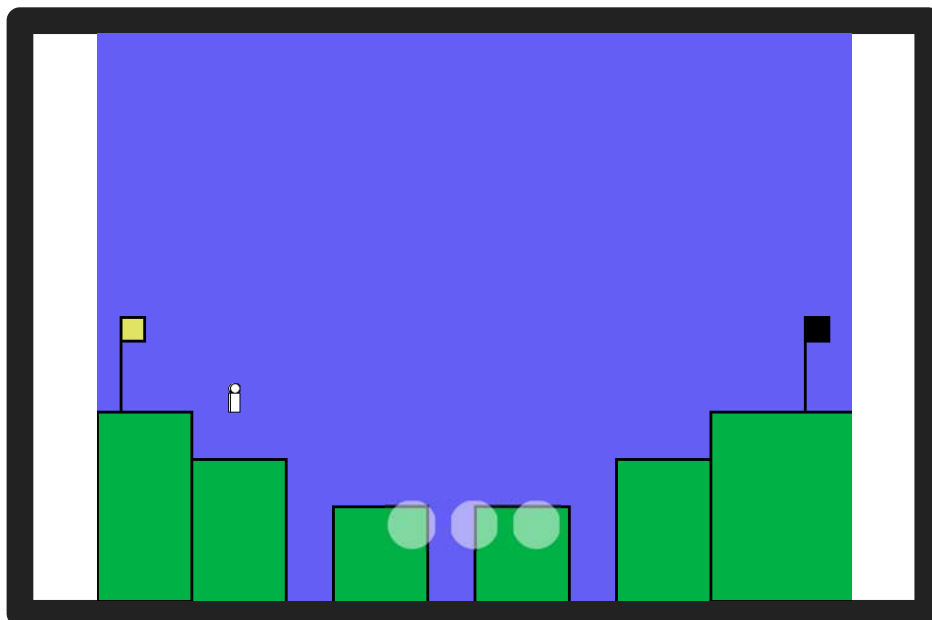
Today we learnt about relational operators and how they work in an “if” statement. With these relational operators of (>,<,>=,<=,==,!=), we are able to create tests in “if” in order to then carryout a statement if the test was true. This function allowed us to create loops, due to the loop being continuously run until the test becomes false. We managed to create moving objects with a criteria by using an if statement with the addition of the code “background();”. We also learnt about else and else if.

This part of the lesson was particularly useful with the hands-on exercise the lecturer provided. We were to human interaction to carryout these if statements, and it made it much easier to understand.

The second part of was about human interaction with human input. This included the use of mouse positions, mouse clicks and keyboard input. We were taught how to create patterns and interactions with a mouse/keyboard input.

### Create – Game

For this create part, I thought of creating a platformer. It will be somewhat like mario, where you have to pass obstacles throughout the map and reach the end point. I used what we learnt about rectangles and created a map for the game. I then tried to managed to create a left right movement for keypressed, but I failed to create a jump function for my avatar.

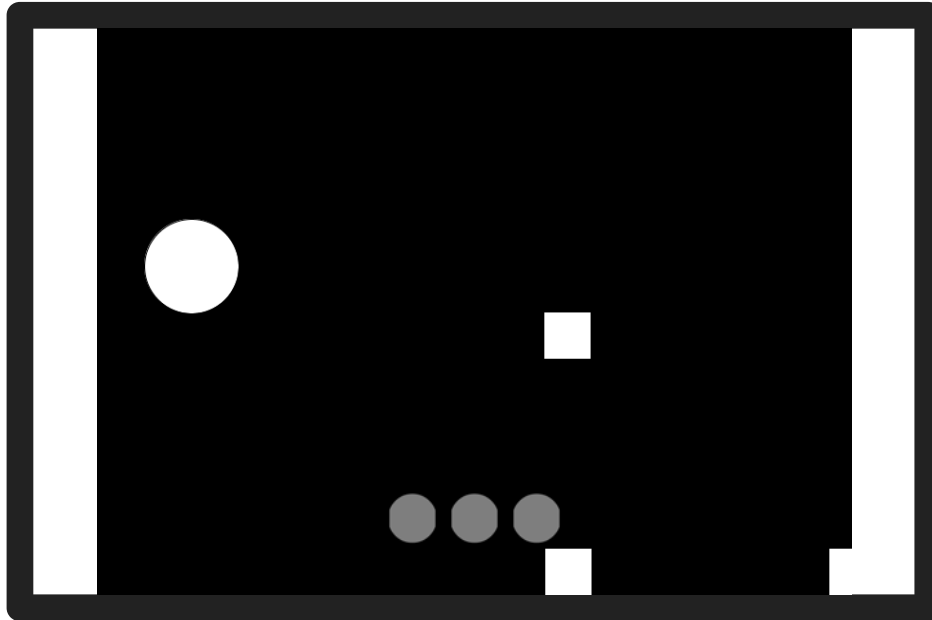


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function. I created various rectangles that would move to the left as the game runs, and you will have to dodge these squares. This game lacks the collision detection though.



## Day 3 – Repeat & Functions

### Listen

For this part of the day, we learnt about for and while loops. These loops have a fundamental structure to them: 1. Initialize, then a loop from test>action>update and back to test and will rerun if the test is true.

While loops use a variable to calculate how frequent a code should be ran. It has the same structure in terms of process.

For loops are usually used (at a basic level) for creating diagrams/grids or things that have multiple of the same thing and hence it being a repeat function.

The second part was about voids and returns, where void allows us to create our own function, and void meaning nothing. That means that the function we created using void, is neither a String, int, float or whatever. With our own customizable function, void function(), we can put our own "int, float" variable in the () of the function. That allows us to create multiple versions of the same function, but with different variables that are specified in each ().

## Create – Interactive Patterns

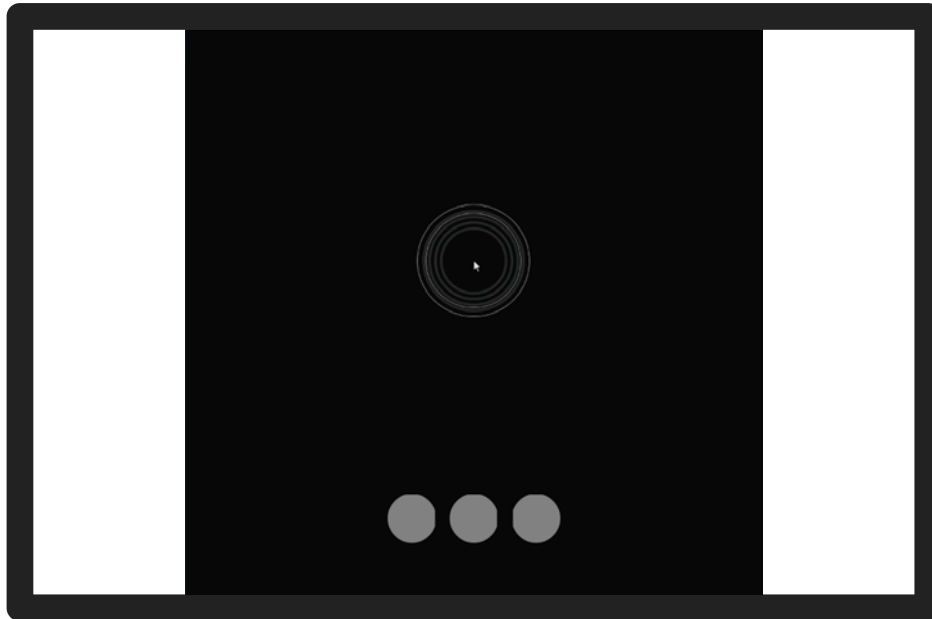
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and a `penUp` method. I tried to create these multiple circles in a `void` function and created and added a `for` loop into it. Thinking that since it is a `for` loop, the circle drawings would loop and thus making an animation, but that didn't work obviously.

What I managed to create instead, was circles around your mouse cursor that increases in size as time passes, and also a click function where circles in between the circles will appear with a random colour everytime you click your mouse. The circle around the mouse also fades as it becomes smaller.

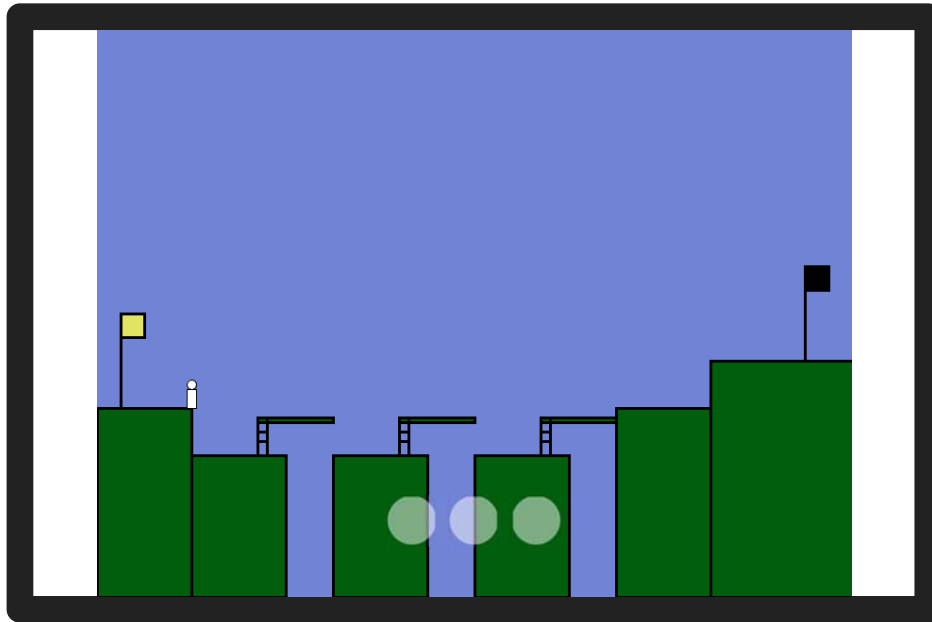


## Day 4 – Arrays

### Listen

Today's listening part was rather short and straight forward. Arrays are basically a collection of things that belong to one certain variable. It is a folder that contains 1000 people's information on the same thing, etc passport information. Instead of having 1000 separate folders with 1000 different names according to each passport, an array is one folder, with a collection of 1000 passports. So if we have a variable "x" that is included in many statements, but different version of "x" are required for different statements, instead of having `int x_1`, `int x_2`, `int x_3`, it can simply be `int [] x = {int,int,int};` Making things much easier and quicker and clearer. `Variable.length` is the amount of variables inside the array. We can also record data with arrays, with `"new int[]"` and then `"for (int i = variable.length -1; i > 0; i--)"` (example). , depending on what kind of data you want to save.

This version is created with arrays and void functions for the map itself. It is supposed to do the same thing, to move left, right, up, down and jump. I spent a lot of time again figuring how to jump, but failed miserably. This version actually allows you to go down a platform, that i managed to do by writing "if" statements. Although the game was not exactly completed, it is a big step forward to creating the game.

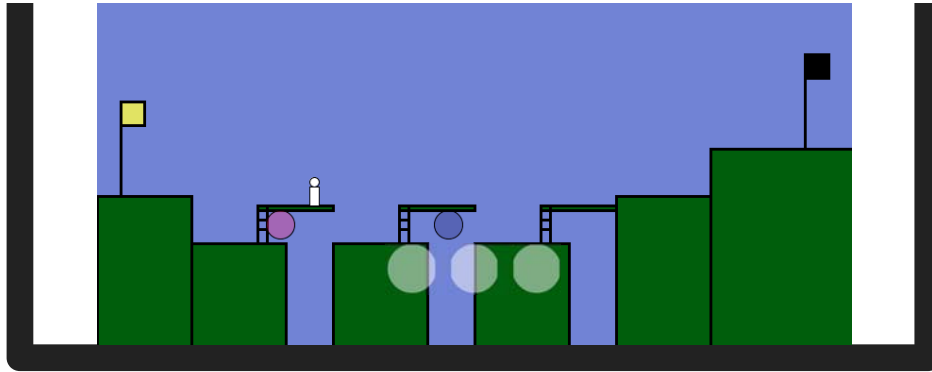


## Final Day – Free Assignment

Today is the final day, and also the day where we have to create something with everything we have learnt. We can also continue and finish the game we created on Day 4, and thus I continued working on the game from Day 4.

At the very end, I managed to finish the game, with some alterations made during the open exhibition. I originally had an ellipse that were supposed to collide with the avatar on both sides of the ellipse, but it only seem to collide on one side of the ellipse. Therefore i added 1-2 more ellipses to increase the difficulty. Overall I had many lines of code, and was satisfied with the outcome.

There were also some bugs and glitches whilst it was on exhibition as people tested the game. Bugs such as if you hold onto the arrow keys or press it enough, your character won't fall into the holes and actually continue moving the direction the key is pressed. I bugfixed it quickly and the glitches were gone.



## Final Reflection

I would like to say that the overall bootcamp was amazing. I learnt a lot during the bootcamp and I was actually able to learn programming. The basics are very fundamental in programming, and it has definitely been extremely beneficial to me. I would say that there are still a lot of things that I don't know or understand in these basic fundamental building blocks of programming. I realized that certain logics might not necessarily apply to programming, but most do. I definitely feel more comfortable and understand what the codes do, and visualizing in code. I think that being able to visualize faster and better in code is a very big step and important step. Overall, the bootcamp was amazing and inspirational and I will be inspired to program more in the near future.

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