**PROGRAMMING FOR DESIGN**

**Project 1**

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**1. Pseudocode**

Overall, this script creates a self portrait of myself and enables the user to draw my beard on with the mouse.

Setup function

* Creates 1000 x 700 pixel canvas and red background
* Runs each function for the self portrait in specified order for correct layering of objects. The co-ordinates are loaded for each function to identify where on the canvas it is to be created. Meaning each function has an x and y variable associated with it.
  + Runs head function
  + Runs eyes function
  + Runs eyebrows function
  + Runs eyebrow function
  + Runs nose function
  + Runs glasses function
  + Runs mouth function
  + Runs beanie function

Draw function

* Creates text to advise the user that they should draw my beard.
* Waits for user input with the mouse. When the mouse is pressed a stroke is drawn at the coordinates of the mouse cursor provided it is within the bounds of the canvas.

Head function

* Creates a flesh tone rectangle at the bottom of the canvas then creates a same coloured ellipse in the centre of the canvas which overlaps the rectangle to create a head and neck shape.

Eyes function

* Creates each eye as 3 different ellipses: the white, the iris and the pupil in this order for correct layering. First creates the left (screen left) eye
* Then offsets the co-ordinates by 200 pixels to the right.
* Then repeats the same process for the right eye.

Eyebrows function

* This function creates repeated angled lines to represent eyebrows.
* A loop runs 21 times to create each line for the left eyebrow with each run through the loop shifting the next line to the right by a small amount to create a very basic impression of hair.
* The coordinates are then shifted right for the right eyebrow the angle of each line is switched and the loop runs another 21 times to create the right eyebrow.

Nose Function

* This function creates two lines for the bridge of the nose, 2 ellipses for nostrils, one larger ellipse for the point of the nose. Finally, it creates a small ellipse on top of the nose point to give the impression of a light reflection.

Glasses function

* This function creates two light blue rectangles over the eyes. The rectangles are semi transparent to create the effect that they are glass and so that that everything underneath them can still be seen.
* It then uses several lines to form the frames of glasses over the eyes and lenses.

Mouth function

* This function just creates two ellipses in the lower centre of the face. One larger one smaller, the larger one is black to represent an open mouth then the smaller one is dark red and centred over the larger one to represent a tongue.

Beanie function

* This function creates a purple semi-circle over the top of the head to form a beanie.
* Then a white star is created at the peak of the beanie to represent a pom-pom.

Diagram

Description automatically generated

Diagram

Description automatically generated

**3. Final Reflection**

I started this off by drafting up a quick plan with some ideas to try out with the p5 libraries then got straight to coding. Some ideas worked better than others and some not at all. I changed course a bit and focused on getting the basics of the sketch down then toying around with different ‘flare’, finally, I settled on some basic interactivity enabling the user to draw my beard onto the representation of me. Layering was the biggest consideration when creating the sketch so that objects would be drawn correctly on top of one another.

Once my javascript code was all sorted I did the flowcharts and I am not sure if I went over the top doing flowcharts for each function but, here they are. The flowcharts were not too much struggle to make and I am now a master with Microsoft publisher. They are interpretations of how the code would run and interact with all of its parts so probably easier to make as the code was already written and to the point I wanted it at.

Finally, writing the pseudocode was the bit I struggled with the most. I am a 3rd year Software Engineering student, and this is the first time I have had to convert code I have written into basic English. I did exactly that and wrote out what each section does in plain English and for whatever reason I feel it is the weakest part of my assignment, maybe just because it is so foreign to me. Definitely a welcome challenge and learning experience. Maybe I should have done things in a different order?