Bachelor of IT (Computer Science)
Assignment 1 - Programming Sketchbook
DXB211 - Creative Coding

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1 Creative Process

1.1 Active Drawing

The initial inspiration for this sketch came from halfbrick studios' Fruit Ninja. I also played around with a number of other concepts such as a snake game, an airport manager game and a tower defense game. Ultimately I decided to go with a fruit ninja game because it was the simplest to implement and A lot of the elements of the other concepts were too far out of scope for this assignment.

Initially with the knife swipe mechanic I had a lot of trouble getting the swipe to work properly because the method I was using to limit the line length was not working as intended and the swipe would get cut off prematurely. I ended up changing the method to use cull lines after 25 draw cycles and this worked much better.

I also encountered trouble working out how to actually move the 'fruits' and how to detect collisions with the fruits. However, I was able to solve both of these issues by researching online.

1.2 Recombination Effect

For this second sketch I initially had the idea that I would have a pixilated image which I could draw over to reduce the pixilation

1.3 Moveable Types

2 Statement of Completeness

Assignment submission is complete. Application fulfils all required functionality. The fire alarm system attempts to follows NASA The power of 10, ISO 26262-6:2018 and MISRA C to a standard practical for the assessment.

3 Fire Alarm Safety Assessment

3.1 Safety-critical standards provided fire alarm fails

3.1.1 NASA the power of 10

1. **Avoid complex flow constructs, such as goto and recursion.**
   Fail – firealarm.c uses goto on line 159 and deletenodes() is a recursive function.

2. **All loops must have fixed bounds. This prevents runaway code.**
   Fail – firealarm.c uses unbound loops on lines 61, 134, 157 and 189.

3. **Avoid heap memory allocation.**
   Fail – firealarm.c uses malloc on lines 67, 82, 91, 152 and 176.

4. **Restrict functions to a single printed page.**
   Fail – functions tempmonitor() on line 56, and main() on line 147 go well over one page.

5.