Create — Applications from Ideas
Written Response Submission Template

Submission Requirements

2. Written Responses

Submit one PDF document in which you respond directly to each prompt. Clearly label your responses
**2a – 2d in order. Your response to all prompts combined must not exceed 750 words, exclusive of
the Program Code.**

Program Purpose and Development

2a. Identify the programming language and identify the purpose of your program. Explain your video
using one of the following:

- A written summary of what the video illustrates OR
- An audio narration in your video. If you choose this option, your response to the written summary should
  read, "The explanation is located in the video."

(Approximately 150 words)

> The program that I used to create my program is Snap!. The purpose of my program was to simulate the
> game Snake, in which you play a snake which needs to get the targets in order to grow in size. In the video, I
> am a snake which has 3 parts to me. I go after the red target, which increases my size by one part,
> increases the speed by an integer of .01, and moves the red target to a different location. Every time my
> score increases by 5 (1,6,11,16,etc.), the speed increases by .01. Once I reach the score of 10, another
> target appears which is blue. I keep getting the targets and keep on increasing in size. I lose once I touch
> any part of my body or once I touch the edge.

2b. Describe the incremental and iterative development process of your program, focusing on two distinct
points in that process. Describe the difficulties and/or opportunities you encountered and how they were
resolved or incorporated. In your description clearly indicate whether the development described was
collaborative or independent. At least one of these points must refer to independent program development; the
second could refer to either collaborative or independent program development.

(Approximately 200 words)

> The incremental development process of my program was to first acquire an idea. My first difficulty arose
> when I chose the game Tetris, but couldn't figure out how to implement an idea that I had in my mind. I
> decided to ask my partner for help, in which he suggested that I pick a different game, like the Snake game. I
> decided to go with the Snake game. My first process was to create a sprite that moved, and I did that. After
> that I had to make the sprite move in the direction that I wanted it to, and using the press key block and
> direction block, it worked. After brainstorming ideas and implementing them, such as creating a target and
> making the target move on impact, I ran into a problem. Whilst trying to use the clone block to make my
> snake grow in size, it kept on touching itself, causing it to go to the game over screen. After testing multiple
> times over, and revising the code, I finally fixed it independently by changing the structure of my code by
> using a previous code segment that I had. After this, my program worked perfectly and it was finally done.
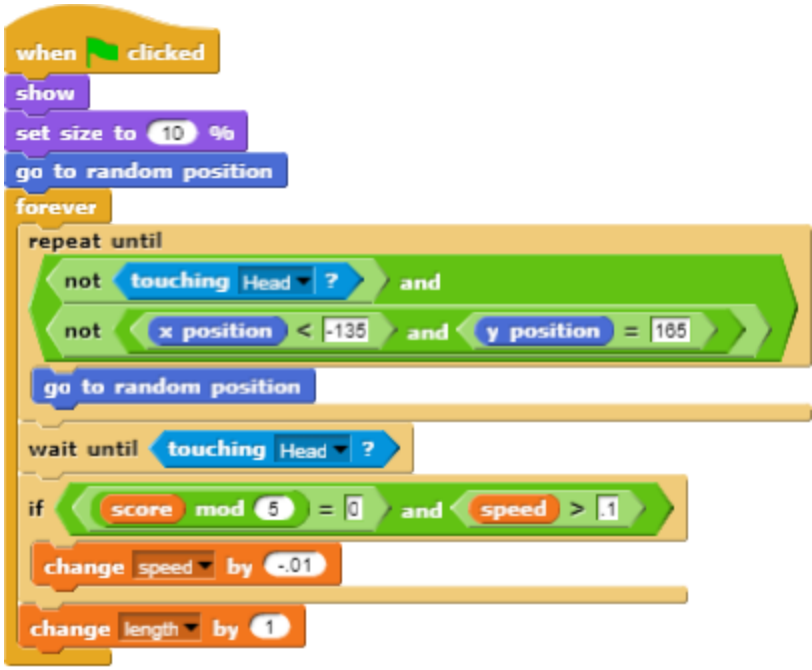
2c. Capture and paste an image or images of your program code segment that implements the most complex algorithm you wrote.

Your algorithm should integrate several mathematical and logical concepts. (Change variable/ If Statement)
Describe the mathematical and logical concepts used to develop the algorithm.
Explain the complexity of the algorithm and how it functions in the program.

(Approximately 200 words)

This code segment was used in order to make the target move after touching my sprite, increase the difficulty of the game by changing the speed, and increase the length of my snake. The mathematical concept was to change the speed by an increment of .01 and to change the length of my snake by 1. The logical concept was to use the if block statement in order to make the speed only change if a certain condition was met. The algorithm first needs to set the target to appear and set the target to a certain size. After that, the target needs to go to a random position through a custom block that I incorporated. Once it has gone to that position, a repeat statement starts to run, and keeps running until it either touches the sprite, or till it goes off the screen. If it does touch the spirit, then a wait until the statement is completed, and the if statement which changes the speed starts to process. If the score is not divisible by 5, and if the speed is not greater than .1, then the speed does not change. After all of that, the length increases by an integer of 1 and then the forever block loops the code segment back to the original repeat until block.

2d. Capture and paste an image or images of the program code segment that contains an abstraction you developed.

Your abstraction should integrate mathematical and logical concepts.
Explain how your abstraction helped manage the complexity of your program.

(Approximately 200 words)
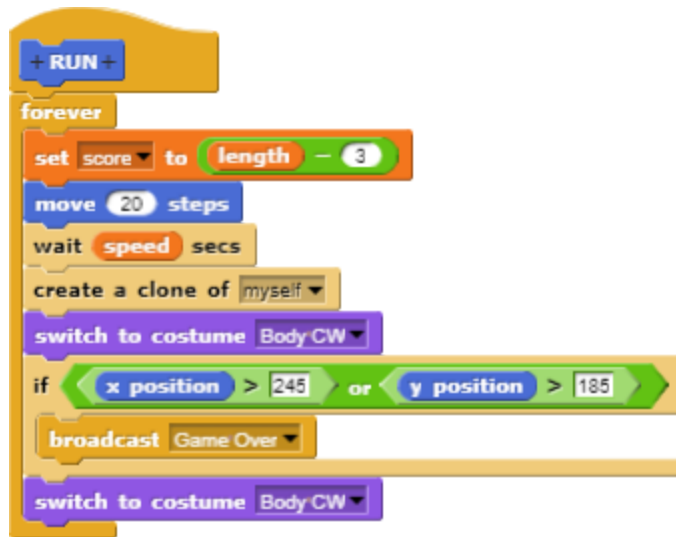
The mathematical concept of this program was the set score to length minus 3 blocks and the logical concept was the if statement which checked the x and y positions in order to run a broadcast block. The type of abstraction that is implemented in my script is procedural abstraction, in which a code segment is in a custom block. The procedural abstraction helped manage my program due to it allowing for an ease to understand and debug my script. This custom block is what allows for my snake sprite to do what it does, so with this script snippet in a custom block called RUN, it allows for anyone looking at my project to understand the purpose of the script. With this abstraction implemented, the process of debugging also becomes easier, as if something is wrong with how my snake sprite is working in the game, I could instantly know to look at the custom block first to see if everything inside of the block is in working order.