**Lab 8: Pre-Lab (pt. 1)**

Instructions: Print off this pre-lab form, complete and turn it in by the start of your lab section. If there is a demo associated with this lab, you can turn it when you do your demo.

**Part 1: A-Mazing DS4 Race Pt 1 Introduction**

Start by reading through the entire lab document prior to coming to lab so you know are able to have a better idea of what we are doing this week. In addition to that, feel free to start on the lab, or bring any questions that you may have so the TAs can go over them. Next, answer the questions below based on having read the lab document.

**Question 1:** One of the important functions that you will be writing for this lab is dealing with what is called a moving average and covers the concept of shifting around elements of an array. Visually show (i.e. with pictures/drawings) what the moving average function should do if you have a buffer size of 4, the starting values of the buffer as (4, 7, 2, 8), and the new value to be added being 5. Start with the initial state and show each successive step taken until you are able to show the final state.

Table

Description automatically generated

What it is doing is taking the last two numbers, adding them, then dividing them by two if the moving average n is 2.

**Question 2:** Write the pseudocode/logic for the moving average function.

Get inputs()

Add them to an array of n length (ex 5)

Every time a new input number, add it to end, remove first number

Then, take last two numbers, add them, then divide them by moving average num

Boom output

**Question 3:** How might you use the moving average function in your code to satisfy the character movement criteria?

You can use the moving average by the greater the number is the more it moves (to an extent) you can also use it by having it send negative or positive so then you can know to move left or right depending on how much the person is moving the controller. For example, if they moved it left a lot then right a tiny bit, it wouldn’t mess up the character. It also makes sure that you don’t move the character too much and too fast

**Part 2: Character Movement**

The first part of this lab is crucial in setting up the correct character movement to ensure that you are able to successfully continue onto the second part in which you implement the actual maze and game logic.

**Question 4:** Write the pseudocode for the character movement- that is moving it incrementally down the screen, moving it left/right and not leaving a trail of characters behind.

Have a 2d array that is the size of the screen (or roughly)

Move the character letter (probably C) around the array (use modulo to move up and down)

Print array new each time

**TA Check Off:**

**Pre-lab and Attendance TA Signature:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Question 1:** | **/5** |
| **Question 2:** | **/4** |
| **Question 3:** | **/1** |
| **Question 4:** | **/5** |
| **Total:** | **/15** |