**CSE 212 – Programming with Data Structures**

**W03 Prove – Response Document**

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**Question 1: From Part 1, describe what the Mystery Stack 1 code does and how the use of a stack helps in the implementation.**

The code first adds each letter of the text to an array, then used the pop method to remove the last item in the array and add it to the result. The use of a stack helps because it saves the order that the letters are added so that the last one added is the first one removed.

**Question 2: From Part 1, what are the three outputs from the Mystery Stack 1 code for the following three different inputs?**

* **Racecar**

**racecar**

* **Stressed**

**desserts**

* **a nut for a jar of tuna**

**anut fo raj a rof tun a**

**Question 3: From Part 2, describe what the Mystery Stack 2 code does and how the use of a stack helps in the implementation.**

It first loops through the input and checks to see if the element is a + - \* /. If it is not one of those it calls the is\_float function to try to convert it to a number. If is a number, it then appends the number to the stack list. If it is anything else, it returns and invalid case 3. If it is a + - \* / then it will set the op1 and op2 to the last item in the stack and remove them from the stack. Then it will do the math operations on the two variables and append the result to the stack list and return the result of what is left in the stack list.

The use of a stack helps by keeping track of what numbers have been added and then removed as the function moves through each step.

**Question 4: From Part 2, answer the following regarding what the Mystery Stack 2 code does:**

* **What will the result be if the input parameter is: 5 3 7 + \***

**50**

* **What will the result be if the input parameter is: 6 2 + 5 3 - /**

**4**

* **What input parameter would result in the display of “Invalid Case 1!”**

**Having a number then a math symbol like this: 4 \* 4**

* **What input parameter would result in the display of “Invalid Case 2!”**

**Having the last set of digits equal 0, like this: 8 3 + 2 2 - /**

* **What input parameter would result in the display of “Invalid Case 3!”**

**Having a letter or other symbol in the input: 8 9 \* a 5 + /**

* **What input parameter would result in the display of “Invalid Case 4!”**

**Having an empty input parameter “ “ or returning a stack that has more than one item like this: 8 8 + 5 9 \***