

## Answers to Questions from P1.2

Name: Luong Trac Duc Anh

Student ID: 103488117

How many Counter objects were created?

A total of 2 objects + 1 reference = 3 objects.

Variables declared in main() are different to the objects created when we call new. What is the relationship between the declared variables in main and the objects created?

Variables contain references to objects.

Resetting the counter in myCounters[2] also changes the value of the counter in myCounters[0]. Why does this happen?

myCounter[2] and myCounter[0] contain references to the same object.

The key difference between memory on the heap compared to the stack and the heap is that the heap holds dynamically allocated memory. What does this mean ?

Dynamic memory allocation means that when a new variable is created, the computer will create and allocate memory for the object on the heap at runtime, and then the computer will return the variable which holds the object's values, methods, and properties every time we called based on the memory address.

On which are objects allocated (heap or stack) ? On which are local variables allocated (heap or stack) ?

Objects are allocated on the heap, references to objects on the stack.

Local variables are allocated on the stack, contain of references to other dynamic objects.

What does the new() method do when called for a particular class What does it do and what does it return?

When new is called on a class it allocates the memory required on the disk and calls the constructor then it returns a reference to the object in the form of a memory address.

Draw a diagram showing the locations of the variables and objects in main.

