Answers to Questions from P3.1

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How many Counter objects were created?

A total of 3 Counter 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 point to the stored memory location (reference) of 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] both point to the same object location in the memory, because we declared myCounter[2] = myCounter[0]. So after resetting the counter in myCounter[2], the counter in myCounter[0] will also be reset.

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 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 to the variable which holds the object its value/methods/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.
Local variables are allocated on the stack.

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 run the constructor function first, formed the class's methods/values/properties, then it returns the pointer to that memory location

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