Answers to Questions from P2.1

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How many Counter objects were created?

A total of 2 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 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] are both pointing at the same object since myCounter[2] = myCounter[0], therefore, whatever happens to the object myCounter[2] is pointing at, the same will happen to myCounter[0].

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 the amount of storage allocated on heap is determined during runtime of the application by using the operator **new**. Using this method reduces overloading the memory.

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 *allocates memory for the new object*, *initialises the object by calling the constructor* and then it returns *memory address of the object created*

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