

## Answers to Questions from P1.2

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How many Counter objects were created?

A total of 2 were created and 1 was a reference to one of the existing 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, such as myCounter[0] 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] both contain references to the same counter 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 memory can be allocated and freed at any time without a set order.

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 the necessary memory to save the object's data and calls the constructor* then it returns *a reference to the object*.

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

