

## Answers to Questions from P1.2

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How many Counter objects were created?

A total of 2

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 store 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] store the same object. Thus whilst it may appear that myCounter[2] is being reset, it is actually the instance variable: 'count' for the object stored by both myCounter[0] and myCounter[2] that is 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 is the opposite of static memory allocation. Whilst static memory is allocated prior to compiling, dynamic memory is allocated at the time of compiling. Subsequently, this requires the memory to be manually deallocated.

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 creates an object then it returns *the instance variable*.

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

