

Task 3.1P Answer Sheet

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1. How many Counter objects were created?

A total of two counter objects were created

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 on the stack point to objects on the heap.

3. 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 the same. When we wrote myCounters[2] = myCounters[0], we are literally referencing it, not creating a copy, so changes to [2] will affect 0].

4. 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 assigning the memory space during the run time or execution of the program. Advantage of this is when we don't know how much memory will be needed beforehand.

5. 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

6. 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 *will create an allocation on the heap* then it returns *a reference to the object*.

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

