# Task 4.1P Answer Sheet

Name: Đào Khánh Nga Thi

Student ID: 104177393

1. How many Counter objects were created?

A total of 3 counter objects is created

## 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?

The created objects are contained by the declared variables

1. Resetting the counter in myCounters[2] also changes the value of the counter in myCounters[0]. Why causes this to happen?

Because they are containing the same references. For detail, myCounter[0] and myCounter[2] are containing the same references.

## 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 ?

It’s because:

1.Stack memory will never become fragmented whereas Heap memory can become fragmented as blocks of memory are first allocated and then freed.

2. Stack memory is allocated in a contiguous block whereas Heap memory is allocated in any random order.

## On which are objects allocated (heap or stack)? On which are local variables allocated (heap or stack)?

- Objects are allocated on Heap.

- Local variables are allocated on Stack.

1. What does the new() method do when called for a particular class What does it do and what does it return?

It will allocate the required memory on the disk and call for the constructor and return the references to the objects

## Draw a diagram showing the locations of the variables and objects in main and their relationships to one another.

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