# Answers to Questions from P1.2

Name: NGO CONG THANH

Student ID: 103433609

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 are reference to class counter the objects. Ex: local variable “myCounter” reference to counter

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] have the same reference to 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 access in any time and any circumstance. Besides, the stack is always freed in a LIFO manner, with the most recently reserved block always being the next to be released.

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

Objects are allocated on the heap, referenced to the variables on the stack.

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 accesses and initialize a local variable to the Stack in RAM then it returns a location address reference to the object at the Heap memory.

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

Main

myCounter[]

myCounter[1]

name

count

myCounter[0]

name

count

myCounter[]

myCounter[0]

myCounter[1]

myCounter[2]

Stack

Heap