

Imperial College London  
Department of Computing

**Computer Systems (113)**  
Exercises – *Classes*

1. Consider

```
class myclass {
    int[100] vec;

    int count (int value, int arraylen) {
        int k;
        int cnt;

        cnt = 0;

        for (k = 0; k < arraylen; k++) {
            if (this.vec[k] == value) {
                cnt++;
            }
        }
        return cnt;
    }
}

int num; // assume int's are 32-bit
int answer;
myclass myobj;
...
answer = myobj.count(num, 50);
```

Assume **ints** are 32-bit.

Using the calling convention given in the lectures:

- (a) Give the assembly language declarations for the *global* variables: `num`, `answer` and `myobj`
- (b) Provide the calling sequence for the assignment statement:  

```
answer = myobj.count(num, 50);
```
- (c) Provide an assembly language implementation for method `count` and show the stack frame (activation record) for the call in part b, i.e. show the state of the stack before the first statement in the method is executed.