CS140 Homework 6 [10 pts]

Due 11.10am Thursday February 7, 2019

Problem 1 [5]

See the code below. Write a template based implementation of function ex_count which counts the number of instances of the first element in a sequence. For example, if the input is "1 3 2 4 3 1 4 1", the output is "Found 3 instances of target 1". Hint: Seek inspiration from the STL_intro_handout.

```
#include <iostream>
#include <list>
using namespace std;

int main() {
  list<int> v;
  list<int>::iterator iv;
  int value;
  while (cin >> value)
    v.push_back(value);

  int target = *v.begin();
  int N = ex_count(v.begin(), v.end(), target);

  cout << "Found " << N << " instances of " << target << "\n";
}
```

Problem 2 [5]

Rewrite template based function ex_count( ) from Problem 1 to take an ex_eq function object as its third argument instead of the integer target. See the changed line of code below that must now be supported. Write a template based class implementation of function object ex_eq that compares data elements against the target provided when instantiated and returns true if the two are equal. The output is the same as above. Hint: Seek inspiration from the STL_intro_handout.

```
int N = ex_count(v.begin(), v.end(), ex_eq<int>(target));
```

Extra Challenge [0]

Declare the ex_eq target to be a const and work out how to initialize it. Hint: Look up the so-called colon operator as the value of a const cannot be changed using the assignment operator.