

CSCI 335
First assignment (100 points)
Due 2/13/2015

Follow the blackboard instructions on writing and submitting programming assignments

We will not debug your assignment. It should run correctly to receive credit.

The big five

Create and test a class called **Chain**. A chain is just a series of items, e.g. [2 7 -1 43] is a chain containing four integers.

The purpose of this assignment is to have you create a vector-like class from scratch, however, so you may not use vector, list or other classes from the STL here. Please note that chains are similar in many respects to vectors of items. Unless you get permission from me, don't include any libraries except iostream and cstdlib.

Pay special attention to Weiss's "big five," **the destructor, copy constructor, copy assignment operator, move constructor and move assignment operator**. Include cout statements at the beginning of the constructors and assignment operators in order to see when these functions are being called.

When your class is complete, the following code should work, with results as commented. Insert this piece of code as is in your testing function.

```
Chain a, b, c;           //Three empty chains are created

Chain d{10};             // A chain containing just one element: 10

cout << d;                // Output is [ 10 ]

cout << a.Length() << endl; // yields 0

cin >> a;                 // User types [2 3 7]

cout << a;                // Output is [2 3 7]

cin >> b;                 // User types [8 4 2 1]

c=a;                     // Copy assignment

cout << c;                // Output should be [2 3 7]

cout << a+b << endl;      // Output is [2 3 7 8 4 2 1]

cout << a + 5;            //Output is [2 3 7 5]
```

```
Chain e{c};          //Copy constructor
cout << e; //Output should be [2 3 7]

cout << a[1] << endl;      //Should printout 3

c[1]=100;            //Should change c

cout << c;            //Should print [2 100 7]

cout << e;            //Should print [2 3 7]

Chain f = GetChain(); // GetChain() should be a function that returns by
value a Chain of some elements. Write this simple function.

cout << f; // Should print whatever GetChain() returned.
```