

Emphasis on: **Hash Tables**

Create a **HashTable** class that uses chaining to resolve collisions and random hshing for the hash function. Your hash table class need only be designed to hold integer values. Implement the basic operations for a hash table including constructors, destructors, *insert* and *item* and *search* or retrieve an item.

Requirements

- 1) Your class must insert integer keys using random hashing. Use 9401 for the MULTIPLIER, 483 for the ADDEND and 2231 for the MODULUS
- 2) Separate chaining should be used to resolve collisions. You may want to use your LinkedList class from assignment 4 as the basis of the linked list / chain that you create to resolve collisions.
- 3) All basic operations given above should be supplied as public member functions of your **HashTable** template class.
- 4) Provide a test driver where you demonstrate the use of your **HashTable** class.

Extra Credit

Use a template to allow your hash table to hash not just integer keys, but a new class you define called HashItem. HashItem should include a function called getHashKey() that returns a hash key to be used by your class. Inherit from HashItem to create IntHashItem and FloatHashItem that hold an integer and float value and calculate an appropriate hash key to be used by your template hash table.