Daee Kang
Ass 7
Sec 1002

An associative array is basically an array, but It uses a key and a value. This key could be anything but is usually a string and can pull out data with that key. This is extremely useful as there will be cases where you need an array that you don't want to sort with numbers because you can't find it. Instead by using strings as a key, it is more user friendly.

A hash table is essentially an array which uses a hash function to get an index value. With that value, it sets the value of that index to the value of the key kind of like an encryption. This is useful because to retrieve data, it can be done in O(1).

When a load factor is reached, it will make a new hash table of bigger size and reinsert the old values back in. This does this to avoid collisions which with quadratic probing, it can make the program loop forever.

Could not change the hash function because I did not finish the code.

A cryptographic hash is just a type of hash to aims to give security properties and hard to find collisions and random output.

Big O:

- Insert : O(n)
- Delete : O(n)
- Hash: O(1)
- Rehash: O(n)

A way to improve the hash in this assignment would be not to have two arrays. I did not understand that and it made it tedious to code. A simple node with two values would have been fine. Another way is the operator overload, I did not find it necessary to have to include two different operations (search and insert) into an operation without separate functions.