**CS 311 Yoshii HW8 - Hashing (based on week 12)**

**DUE: Week 13 Sat (the last homework) ; Must use your own linked list class.**

**TOTAL 18 points Your score:**

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**PROGRAM: Hash Table [2+16=18pts] Your score:**

**Headers of lists:**

**Implementation:**

**Client:**

**Test results:**

**Total 16 points:**

**Q’s 2 points:**

**Q1) State of the program statement [2pts]**

* **Does your program compile without errors? Yes**
* **List any bugs you are aware of, or state “No bugs”: No bugs**

**Each element of a linked list node has to have the key (a 3 digit account number) and the name (a string).**

**We need to make this change quickly without changing llist and slist very much. Study elem.h and elem.cpp that the client has set up to define el\_t.**

**Update your linked list classes so that**

**-- elem.h is included (no more typedef)**

**-- copy search as search2 and then change it to return the found element itself instead of the position (an blank element is returned if not found)**

**Must use my htable.h (unchanged) to create htable.cpp.**

**Data Member**: an array containing slists**.** Table size is 37.

**Functions:**

**Int Hash(int key)** turns the key into a slot number using % table size. Private.

**Int Add(el\_t)** adds the element to the table and return the slot number.

Add will have to call your private hash function to convert the key into a slot number.

**El\_t Find(int key)** finds the element given the key. Need to call the hash function. Use search2. **Void DisplayTable()** displays the table in a readable format, including slots numbers.

**Client ( hw8client.cpp ) should: (see hw8 output.txt first and make sure your program can produce the same output for the same data)**

Loop: Interactively add about 20 names to the table, making sure some of them collide.

DisplayTable.

Loop: Interactively look up names based on keys. Display the key and name using cout. Test results è **Test.txt showing collided elements can be retrieved**

**SUBMIT ONLY THESE 5 FILES: Did you answer all the questions?**

1. **This assignment sheet**
2. **the implementation that has search2 (slist.cpp)**
3. **the implementation (htable.cpp),**
4. **the client (hw8client.cpp)**
5. **Test.txt**

**Now you have a linked list that is very easy to update!!!**