

Assignment 6

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In this assignment we're going to implement a hash table, which uses quadratic probing to handle collision.

```
public class myHashTable {  
    private String[] table;  
    private List<String> wordsForRehash;  
    private int collisionTimes;
```

In my implementation of this hash table, I add five functions to add elements or print the information. Here are these functions:

- private myHashTable(int size): this is the construct method of myHashTable class. The input "size" is to set the initial value of the size.
- private void addWord(String s): this is for adding the elements into the hash table. When the percentage of load has reached 50%, it will automatically increase its size, by doubling the size and increasing itself to the next prime number.
- private void printCollision(): this is for printing out the total number of the collisions.
- private void printTableSize(): this is for printing the size of the hash table.
- private void printHashTable(): this is for printing the whole hash table, including the elements and its index. The format will be "index → elements".

Now here are my inputs, in the first screenshot. The next screenshot is the result of running this program.

```

public static void main(String[] args){
    /**
     * myHashTable(int size): myHashTable test = new myHashTable(31);
     * addWord(String s): test.addWord(s);
     * printCollision(): test.printCollision();
     * printTableSize(): test.printTableSize();
     * printHashTable(): test.printHashTable();
     */
    myHashTable test = new myHashTable(31);
    String[] words = {
        "Hash", "table", "Pick", "word", "lengths",
        "maximum", "minimum", "Insert", "ASCII", "space",
        "probing", "size", "adequate", "Chen", "Yingue",
        "UTDallas", "ECSS", "Algo", "2018Fall", "Texas"
    };
    for (String s : words){
        test.addWord(s);
    }

    test.printTableSize();
    test.printCollision();
    test.printHashTable();
}
}

```

```

/usr/lib/jvm/java-1.11.0-openjdk-amd64/bin/java -javaagent:/snap/intellij-idea-community/101/lib/
Table extension needed. Extending the table...
The size of the table: 67
The total number of the collision: 1
16->probing
20->lengths
22->Yingue
25->UTDallas
26->Insert
27->minimum
29->maximum
30->ASCII
34->ECSS
38->adequate
41->size
42->word
47->Chen
48->Texas
50->2018Fall
51->table
52->Algo
53->Hash
55->space
56->Pick

Process finished with exit code 0

```