CS2023 - Data Structures and Algorithms

In-class Lab Exercise - Week 9

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Index No. : 200445V

Section 1

2.

```
Type command: 1
Enter user name: Anuki
Enter password to be saved: 200445V
Type command: 4
[0]-->200445V
[1]-->
[2]-->
[3]-->
Type command:
```

3.

```
Type command: 1
Enter user name: anuki123
Enter password to be saved: dksjahdaksjh123
Type command: 1
Enter user name: spaceships
Enter password to be saved: fkjdhfjksh098
Type command: 1
Enter user name: spacebar
Enter password to be saved: djshadqwe
Type command: 1
Enter user name: laptop
Enter password to be saved: asdfg1234
Slot is already taken
Type command: 4
[0]-->200445V
[1]-->djshadqwe
[2]-->dksjahdaksjh123
[3]-->fkjdhfjksh098
Type command:
```

4.

```
Type command: 2
Enter item to be deleted: Anuki
User deleted
Type command: 4
[0]-->
[1]-->djshadqwe
[2]-->dksjahdaksjh123
[3]-->fkjdhfjksh098
Type command: █
```

5. If two keys map to the same hash value, there is no method of storing both. We can change this by implementing a way to handle collisions.

- Chaining – values are stored in a linked list corresponding to each hash value
- Open addressing – A new hash is calculated and the value is stored in the location of the new hash in case of a collision.

Section 2

2.

```
Type command: 1
Enter user name: Anuki
Enter password to be saved: 200445V
Type command: 1
Enter user name: Anuki
Enter password to be saved: 200445V
Type command: 3
[0]-->[Anuki, Anuki, ]
[1]-->[]
[2]-->[]
[3]-->[]
Type command: []
```

3.

```
Type command: 1
Enter user name: anuki123
Enter password to be saved: dsakjdhakj
Type command: 1
Enter user name: qwerty
Enter password to be saved: qwerty1234
Linked List reached MAX CAP!
Type command: 1
Enter user name: donuts
Enter password to be saved: 2317861873
Type command: 1
Enter user name: watchman
Enter password to be saved: lalalala
Type command: 3
[0]-->[Anuki, Anuki, ]
[1]-->[donuts, ]
[2]-->[anuki123, ]
[3]-->[watchman, ]
Type command:
```

Complete GitHub repository for code: https://github.com/Anuki16/cs2023-data-structures-algorithms