Group Laboratory Exercise

Deadline: January 14, 2024

To be included in your group Portfolio.

For this exercise, you will implement an insertion and a deletion of 10-letter words in a hash table with the following parameters:

The size of the hash table is m = 32

The key k is equal to the sum of the ASCII values of each character in the given 10-character string Three different hash functions will be used:

* Hash function 1: f(k) = k mod m
* Hash function 2: f(k) = ((1731 \* k + 520123) mod 524287) mod m
* Hash function 3: default hash method of python

Deletion of a key from the hash table is preceded by the prefix "del " followed by the 10-letter word to be deleted.

# Input page Format

The input will contain the following:

* Dropdown box with option to select what hash function to used.
* An input textbox that will accept an integer indicates how many commands are be executed on the hash table.
* A text area that for the sequence of commands performed on the hash table separated by new line.
* (a "del " prefix before word means that 10-letter word will be deleted from the hash table, otherwise, the 10-letter word should be inserted to the hash table)

# Output page Format

The output should list the elements of the hash table. For all indices in the table from 0 to 31, output the list for each slot in the hash table. The list for each slot will be a stack. That is, whenever a collision occurs, new elements will be pushed at the head of the stack. An example is given below.

**Sample Input #1** hash function 2 (selected from the dropdown options)

10 -> inputted from the textbox

jtluftrwxs

kppyyilxmi qfvrtsowpg uorswghbrw rdvdndyrxy virgwincne qydbomsjlk

ljkvfuigvj

sbehfmevvb

dccfuphern

# Sample Output #1

0:

1:

2:

3:

4:

5: dccfuphern ljkvfuigvj 6: jtluftrwxs

7:

8: qfvrtsowpg

9:

10:

11:

12:

13: uorswghbrw 14:

15:

16:

17:

18:

19: virgwincne 20:

21:

22:

23: sbehfmevvb 24:

25: rdvdndyrxy 26:

27:

28:

29:

30:

31: qydbomsjlk kppyyilxmi

**Sample Input #2** hash function 2 10

qydbomsjlk

ljkvfuigvj kppyyilxmi qfvrtsowpg uorswghbrw rdvdndyrxy del qydbomsjlk del ljkvfuigvj sbehfmevvb dccfuphern

# Sample Output #2

0:

1:

2:

3:

4:

5: dccfuphern

6:

7:

8: qfvrtsowpg

9:

10:

11:

12:

13: uorswghbrw 14:

15:

16:

17:

18:

19:

20:

21:

22:

23: sbehfmevvb 24:

25: rdvdndyrxy 26:

27:

28:

29:

30:

31: kppyyilxmi

SAMPLE INPUT 1

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

SAMPLE INPUT 2

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated