

# Separate chaining in Hashing

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Difficulty: **Easy** Accuracy: **64.96%** Submissions: **15K+** Points: **2**

*Separate chaining technique in hashing allows to us to use a linked list at each hash slot to handle the problem of collisions. That is, every slot of the hash table is a linked list, so whenever a collision occurs, the element can be appened as a node to the linked list at the slot.*

In this question, we'll learn how to fill up the hash table using **Separate chaining technique**. Given an array (consisting of distinct integers) and a hashtable size, you have to fill the elements of the array into a hash table of given size.

**Example 1:**

**Input:**

```
hashSize = 10
sizeofArray = 6
arr[] = {92,4,14,24,44,91}
```

**Output:**

```
1->91
2->92
4->4->14->24->44
```

**Explanation:**  $92\%10=2$  so 92 goes to slot 2.  
 $4\%10=4$  so 4 goes to slot 4.  $14\%10=4$ . But 4 is already occupied so we make a linked list at this position and add 14 after 4 in slot 4 and so on.

**Example 2:****Input:**

```
hashSize = 10
sizeofArray = 5
arr[] = {12,45,36,87,11}
```

**Output:**

```
1->11
2->12
5->45
6->36
7->87
```

**Explanation:**  $12\%10=2$  so 12 goes to slot 2.  
 $45\%10=5$  goes to slot 5.  $36\%10=6$  goes to slot 6.  $87\%10=7$  goes to slot 7 and finally  $11\%10=1$  goes to slot 1.

**Your Task:**

This is a function problem. You need to complete the function **separateChaining** that takes **hashSize**, **arr**, and **sizeofArr** as parameters, inserts elements of arr in the hashTable at positions by using  **$\text{arr}[i]\% \text{hashSize}$**  and then returns the has table. The **printing** is done **automatically** by the **driver code**.

**Expected Time Complexity:**  $O(N)$ .

**Expected Auxiliary Space:**  $O(N)$ .

**Constraints:**

$2 \leq \text{hashSize} \leq 10^3$

$1 \leq \text{sizeofArray} \leq 10^3$

$0 \leq \text{arr}_i \leq 10^7$

Seen this question in a real interview before ?

YesNo

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