

# Design HashMap

Try to solve the Design HashMap problem.

## We'll cover the following ^

- Statement
- Examples
- Understand the problem
- Figure it out!
- Try it yourself

## Statement

Design a hash map without using the built-in libraries. We only need to cater integer keys and integer values in the hash map. Return NULL if the key doesn't exist.

It should support the following three primary functions of a hash map:

- **Put(key, value):** This function inserts a key and value pair into the hash map. If the key is already present in the map, then the value is updated. Otherwise, it is added to the bucket.
- **Get(key):** This function returns the value to which the key is mapped. It returns  $-1$ , if no mapping for the key exists.
- **Remove(key):** This function removes the key and its mapped value.

### Constraints:

- $0 \leq \text{key} \leq 10^6$
- $0 \leq \text{value} \leq 10^6$
- At most  $10^4$  calls can be made to **Put()**, **Get()**, and **Remove()** functions.

## Examples

### Sample example 1

#### Input

```
Put(1, 1)
```

```
Get(1)
```

#### Output

```
Result of Get(1) = 1
```

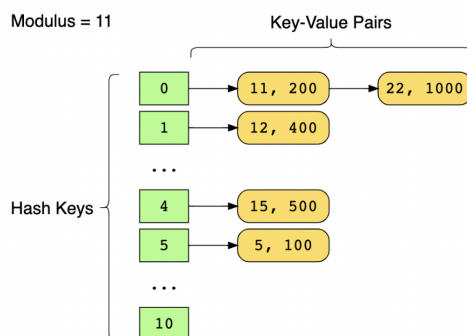


## Understand the problem

Let's take a moment to make sure you've correctly understood the problem. The quiz below helps you check if you're solving the correct problem:

### Design HashMap

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Consider the above hash map where the key-value pairs are mapped according to their respective hash keys, and the modulus base is 11. What will the value mapped to the key 12 be when the function below is called?

```
Put(12, 500)
Get(12)
```

A) 500

B) 400

Submit Answer



Question 1 of 2  
0 attempted



Reset Quiz ↺

## Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.



Drag and drop the cards to rearrange them in the correct sequence.



Select a prime number (preferably a large one) as the key space.

Initialize an array with empty buckets (empty arrays). The number of buckets in the array should be equal to the specified value of the key space variable.

Generate a hash key by taking the modulus of the input key with the key space variable.

Perform the appropriate function (Put(), Get(), Remove()).

Reset

Show Solution

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Try it yourself

Implement your solution in `MyHashMap.java` and `Bucket.java` in the following coding playground:

Java

MyHashMap.java

Bucket.java

```
1 import java.util. * ;
2 class MyHashMap {
3     // Initialize hash map here
4     public MyHashMap(int keySpace) {
5         // Write your code here
```

```
9     public void put(int key, int value) {
10         // Write your code here
11     }
12     // Function to fetch corresponding value of a given key
13     public int get(int key) {
14         // Write your code here
15         return -1;
16     }
17     public void remove(int key) {
18         // Write your code here
19     }
20 }
```

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Test Cases

Results

Case 1

Case 2

Case 3

Tt

Input #1

```
["DesignHashMap","Put","Get"]
```

Input #2

```
[[],[15,250],[15]]
```

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Hash Maps: Introducti...

Solution: Design Hash...

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