

Multiset Container

Multisets are a type of associative containers similar to set, with an exception that multiple elements can have same values.

→ Map Container ?

Maps are associative containers that store elements in a mapped fashion. Each element has a key and a mapped value. No two mapped values can have same key values.

Key → Value

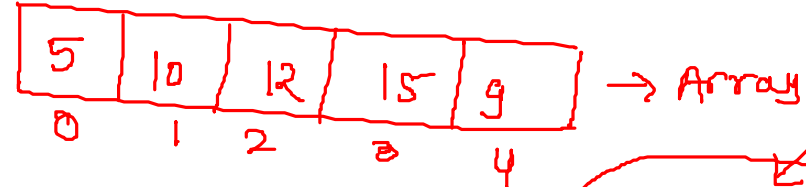
0 → 5

1 → 10

2 → 12

3 → 15

4 → 9



Key → Value

"Prateek" → "22"

"Jatin" → "25"

key will be unique

Multimap Container

Multimap is similar to map with an addition that multiple elements can have same keys. Also, it is NOT required that the key value and mapped value pair has to be unique in this case. One important thing to note about multimap is that multimap keeps all the keys in sorted order always.

Unordered Set Container

An **unordered_set** is implemented using a hash table where keys are hashed into indices of a hash table so that the insertion is always randomized. All operations on the **unordered_set** takes constant time **$O(1)$** on an average which can go up to linear time **$O(n)$** in worst case which depends on the internally used hash function.

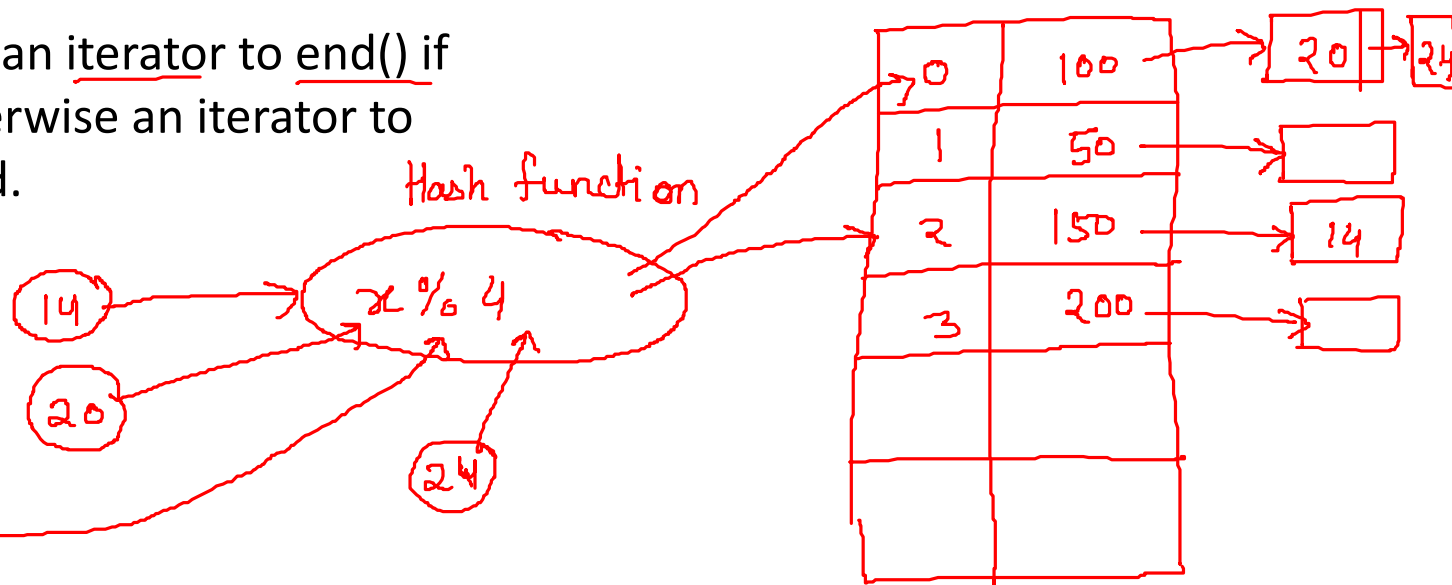
The find() function returns an iterator to end() if key is not there in set, otherwise an iterator to the key position is returned.

$$24 \% 4 = 0$$

$$14 \% 4 = 2$$

$$20 \% 4 = 0$$

search (20)



Unordered Map Container

an ***unordered_map*** is like a data structure of dictionary type that stores elements in itself. It contains successive pairs (key, value), which allows fast retrieval of an individual element based on its unique key.

Unordered MultiMap Container

we can not store duplicates in `unordered_map`, that is if we have a key-value pair already in our `unordered_multimap` and another pair is inserted, then both will be there whereas in case of `unordered_map` the previous value corresponding to the key is updated by the new value that is only would be there. Even can exist in `unordered_multimap` twice.