

# Hashing STL

Standard template library has two containers for hashing.

## 1. Map

Maps are containers which store elements by mapping their value against a particular key. Key values are used to uniquely identify the elements mapped to it.

- a. The data type of key value and mapped value can be different.
- b. Elements in the map are always in sorted order by their corresponding key.

## 2. Unordered\_map

Unordered\_maps are containers which store elements by mapping their value against a particular key. Key values are used to uniquely identify the elements mapped to it.

- a. The data type of key value and mapped value can be different.
- b. Elements in the unordered\_map are not sorted by their corresponding key.

Difference between map and unordered\_map:

Operation	Map	Unordered_map
Insertion	$O(\log(n))$	$O(1)$
Accessing	$O(\log(n))$	$O(1)$
Implementation	Red-black trees	Hash tables (array of buckets)

Declaration of

- Maps

*map<int,int> mp;*

- Unordered\_map

*unordered\_map<int,int> mp;*

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