Map

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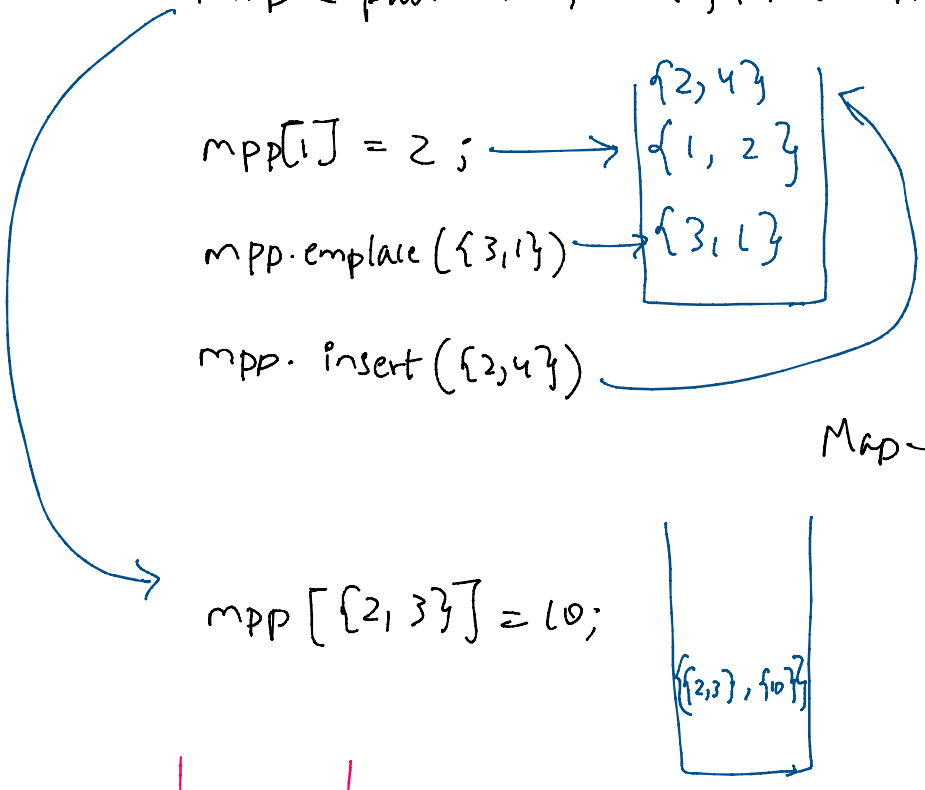
* Map is key, value pairs. { key, value >
* The key are unique.
* The value can have duplicates.

```
void explainMap() {

    map<int, int> mpp;
    map<int, pair<int,int>> mpp;   // key is one int, value is two int
    map<pair<int, int>, int> mpp;  // key is two int, value is one int

    mpp[1] = 2;
    mpp.emplace({3,1});
    mpp.insert({2,4});

    mpp[{2,3}] = 10;
```



Map → Store Unique key in stored order of key.

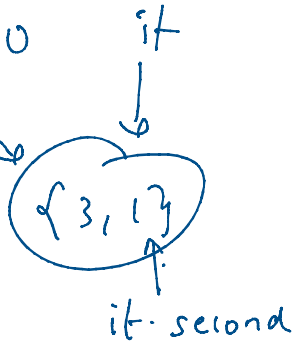
{ {1, 2}, {2, 4}, {3, 1} }

```
    for (auto it : mpp) {
        cout << it.first << "  " << it.second << endl; // 1 2
```

```
    cout << it.first << "  " it.second << endl; // 1 2
}                                               // 2 4
                                                // 3 1
cout << mpp[1]; // 2

cout << mpp[5]; // null or 0

auto it = mpp.find(3);
cout << *(it).second // 1
```




```
auto it = mpp.find(5); //mp.end()

// This is syntax
auto it = mpp.lower_bound(2);

auto it = mpp.upper_bound(3);
}
```