**STL-Standard Template Library**

**Link:** http://www.cplusplus.com/reference/stl/

**Link:** https://www.geeksforgeeks.org/the-c-standard-template-library-stl/

**Link:** <https://www.tutorialspoint.com/cplusplus/cpp_stl_tutorial.htm>

**Header File : <vector>**

Declaration of **Vector** :

vector <int> vec;

vector <int> vec(3,0); By this syntax The size of vector will be 3 and value of all element will be 0;

**Vector Input Code:**

#include<iostream>

#include<vector>

using namespace std;

int main()

{

vector <long long int> a;

long long int in;

cin>>in;

a.push\_back(in);

cout<<a[0];

return 0;

}

Function :

1. vec.push\_back()

2. vec.size()

3. vec.reverse()

4. sort(vec.begin(),vec.end())

5. vec.clear()

**Header File : <iterator>**

**Declaration of iterator: vector <datatype>::iterator variablename;**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 |  |  |

Vec.end()

Vec.begin()

Vec.begin() point on vector first index but vec.end() point on after last index .

**Header File : <algorithm>**

**Sorting in ascending order: Sort(vec.begin() , vec.end());**

#include<iostream>

#include<vector>

#include<iterator>

#include<algorithm>

using namespace std;

int main(){

vector <int> vec;

vector<int>::iterator it;

vec.push\_back(10);

vec.push\_back(123);

vec.push\_back(3);

vec.push\_back(15);

vec.push\_back(44);

vec.push\_back(96);

sort(vec.begin(),vec.end());

for(it=vec.begin();it!=vec.end();it++)cout<<\*it<<' ';

cout<<'\n';

return 0;

}

**Sorting In Descending order:**

//Descending Order

#include<iostream>

#include<vector>

#include<iterator>

#include<algorithm>

using namespace std;

bool myfunc(int a,int b){

return (a>b);

}

int main(){

vector <int> vec;

vector<int>::iterator it;

vec.push\_back(10);

vec.push\_back(123);

vec.push\_back(3);

vec.push\_back(15);

vec.push\_back(44);

vec.push\_back(96);

sort(vec.begin(),vec.end(),myfunc);

for(it=vec.begin();it!=vec.end();it++)cout<<\*it<<' ';

cout<<'\n';

return 0;

}

**Header File : <list>**

Declaration Of list: list<datatype> variablename;

Function:

list<float> mylist;

mylist.push\_back(10);

mylist.push\_front(5); we only can use push\_front() in list .For this the value will be assign on first index in list.

Output : 5 10

List<int>mylist(5,0)

Output: 0 0 0 0 0

**Sort() Function :**

#include<iostream>

#include<list>

#include<iterator>

#include<algorithm>

using namespace std;

int main()

{

list<int> mylist;

list<int>::iterator it;

mylist.push\_back(2);

mylist.push\_back(5);

mylist.push\_back(3);

mylist.push\_back(7);

mylist.push\_back(1);

//For Ascending Order

mylist.sort();

for(it=mylist.begin();it!=mylist.end();it++)cout<<\*it<<' ';

cout<<endl;

mylist.reverse(); We also can use this function in vector

//For Descending order

for(it=mylist.begin();it!=mylist.end();it++)cout<<\*it<<' ';

cout<<endl;

return 0;

}

By Using mylist.reverse() the list will be assign on reverse order.

Function :

1. mylist.push\_back()

2. mylist.size()

3. mylist.reverse()

4. mylist.sort()

5. mylist.clear()

6.mylist.insert(iterator,value)

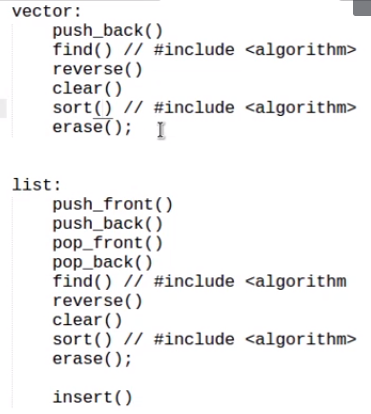
7. bool= mylist.empty()

8.pop\_back()

9.pop\_front()

int ar[5]={2,3,6,5,1};

list<int> mylist(ar,ar+5);



**Header File : <map>**

**Declaration :**

**map<datatype,datatype>variablename;**

**Function:**

1. **Variablename.insert(make\_pair(value,value))**
2. **Variablename[value]=value**
3. **Iterator=Variablename.find(value)**
4. **Cout<<iterator->first<<iterator->second<<endl;**

**Example 1: #include<iostream>**

**#include<iterator>**

**#include<map>**

**using namespace std;**

**int main()**

**{**

**map<string,int> m;**

**map<string,int>::iterator it;**

**m["arnob"]=23;**

**m.insert(make\_pair("bappi",45));**

**for(it=m.begin();it!=m.end();it++)cout<<it->first<<' '<<it->second<<endl;**

**return 0;**

**}**

**Example 2:** #include<iostream>

#include<map>

#include<iterator>

#include<algorithm>

using namespace std;

int main()

{

map<int,bool>m;

map<int ,bool>::iterator it;

for(int i=0;i<100;i++)m[i+1]=1;

int s;

cin>>s;

it=m.find(s);

cout<<it->first<<endl;

return 0;

}

**Header File : <pair>**