

Stack

Stack

```
#include<stack>
#include<iostream>
using namespace std;

int main()
{   stack <int> s;
    for(int i=0;i<5;i++)
    {
        s.push(i);
    }
    cout<<"\nStack Size:"<<s.size()<<endl;
    cout<<"Stack Elements are : ";
    while(!s.empty())
    {   cout<<s.top()<<"  ";
        s.pop();
    }
    cout<<endl;
}
```

Queue

Queue

```
#include <bits/stdc++.h>
using namespace std;

void display(queue <int> q)
{
    queue <int> c = q;
    while (!c.empty())
    {
        cout<< " "<< c.front();
        c.pop();
    }
    cout << "\n";
}

int main()
{
    queue <int> a;
    a.push(10);
    a.push(20);
    a.push(30);
```

```
    cout << "The queue a is :";
    display(a);

    cout << "a.empty() :" << a.empty() << "\n";
    cout << "a.size() : " << a.size() << "\n";
    cout << "a.front() : " << a.front() << "\n";
    cout << "a.back() : " << a.back() << "\n";

    cout << "a.pop() : ";
    a.pop();
    display(a);

    a.push(40);
    cout << "The queue a is :";
    display(a);
    return 0;
}
```

List

List

```
#include <bits/stdc++.h>

using namespace std;

int main()
{
    list<int> mylist = {1, 1, 2, 3, 5};
    cout<<"List elements are: ";
    list<int>::iterator it;
    for(it=mylist.begin();it!=mylist.end();++it)
        cout<<*it<<" ";

    return 0;
}
```

Insertion into List

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    list<int> mylist = {1,1,2};
    list<int>::iterator it = mylist.begin();
    // iterator to point to 4th position
    advance(it,3);
    // inserts 5 at 4th position
    mylist.insert(it, 5);
    cout << "The list after inserting"
    << " 1 element using insert() is : ";
    for (list<int>::iterator i = mylist.begin(); i != mylist.end(); i++)
        cout << *i << " ";
    cout << endl;
    return 0;
}
```

Push_back() and push_front into List

```
#include <bits/stdc++.h>
using namespace std;
void printlist(list <int> mylist)
{ list <int> :: iterator it;
  for(it = mylist.begin(); it != mylist.end(); ++it)
    cout <<*it<<'\t';
  cout << '\n';
}
int main()
{ std::list<int> mylist = {1, 1, 2, 3};
  cout<<"List elements are: ";
  printlist(mylist);
  mylist.push_front(0);
  mylist.push_back(5);
  cout<<"\nList contents after push_front and push_back: ";
  printlist(mylist);
  return 0;
}
```


pop_back() and pop_front into List

```
#include <bits/stdc++.h>
using namespace std;
void printlist(list <int> mylist)
{ list <int> :: iterator it;
  for(it = mylist.begin(); it != mylist.end(); ++it)
    cout <<*it<<'\t';
    cout << '\n';
}
int main()
{ std::list<int> mylist = {1, 1, 2, 3, 5};
  cout<<"List elements are: ";
  printlist(mylist);
  mylist.pop_front();
  mylist.pop_back();
  cout<<"\nList contents after push_front and push_back: ";
  printlist(mylist);
  return 0;
}
```