```cpp
/*
Write a C++ program using STL for Dequeue(Double endend Queue).
*/
#include<iostream>
#include<deque>
using namespace std;
void displayf(deque<int> w);
void displaye(deque<int> w);
int main()
{
  deque<int>dq;
 int op;
 int val;
  do
   {
     cout<<"\nEnter";
     cout<<"\n1 :Insert element from front"
         <<"\n2 :Insert element from end"
         <<"\n3 :Display deque from front"
         <<"\n4 :Display deque from end"
         <<"\n5 :Remove element from front"
         <<"\n6 :Remove element from end"
         <<"\n7 :Exit";
     cin>>op;
       switch(op)
         {
           case 1:{
                    if(dq.size()==10)
                      cout<<"\nList is Full";
                    else
                      {
                        cout<<"\nEnter the value: ";
                        cin>>val;
                        dq.push_front(val);
                      }
                  }break;

           case 2:{
                    if(dq.size()==10)
                      cout<<"\nList is Full";
                    else
                      {
                        cout<<"\nEnter the value: ";
                        cin>>val;
                        dq.push_back(val);
                      }
                  }break;

           case 3:{
                    if(dq.size()==0)
                      cout<<"\nList is empty";
                     else
                       displayf(dq);
                  }break;

           case 4:{
                    if(dq.size()==0)
                      cout<<"\nList is empty";
                    else
                        displaye(dq);
                  }break;

           case 5:{
                    if(dq.size()==0)
                      cout<<"\nList is empty";
                    else
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                                {
                                        int v;
                                        v=dq.front();
                                        cout<<"Element removed: "<<v;
                                        dq.pop_front();
                                }
                        }break;

                case 6:{
                        if(dq.size()==0)
                          cout<<"\nList is empty";
                        else
                          {
                                        int v;
                                        v=dq.back();
                                        cout<<"Element removed: "<<v;
                                        dq.pop_back();
                          }
                        }break;

                case 7:break;
                }
        }while(op!=7);
 return 0;
}
void displayf(deque<int> w)
{
    while(!w.empty())
     {
       cout<<"|"<<w.front();
       w.pop_front();
     }
    cout<<"|"<<endl;
}
void displaye(deque<int> w)
{
    while(!w.empty())
     {
       cout<<"|"<<w.back();
       w.pop_back();
     }
    cout<<"|"<<endl;
}
/*
OUTPUT
ell@ghe1de-saurabh16-12-99:~$ g++ deque.cpp
dell@ghe1de-saurabh16-12-99:~$ ./a.out

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit1

Enter the value: 10

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
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7 :Exit1

Enter the value: 20

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit1

Enter the value: 30

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit3
|30|20|10|

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit2

Enter the value: 40

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit2

Enter the value: 50

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit2

Enter the value: 60

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit3
```

```
|30|20|10|40|50|60|

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit4
|60|50|40|10|20|30|

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit1

Enter the value: 100

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit2

Enter the value: 200

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit3
|100|30|20|10|40|50|60|200|

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit4
|200|60|50|40|10|20|30|100|

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit5
Element removed: 100
Enter
1 :Insert element from front
2 :Insert element from end
```

```
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit5
Element removed: 30
Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit6
Element removed: 200
Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit6
Element removed: 60
Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit2

Enter the value: 20

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit3
|20|10|40|50|20|

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit4
|20|50|40|10|20|

Enter
1 :Insert element from front
2 :Insert element from end
3 :Display deque from front
4 :Display deque from end
5 :Remove element from front
6 :Remove element from end
7 :Exit7
*/
```