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/*
Write a C++ program using STL for implementation of stack & queue using STL.
*/

#include<iostream>
#include<stack>
#include<queue>
using namespace std;
void displays(stack<int> q);
void displays(queue<int> w);
int main()
{
  stack<int>s1;
  queue<int>q1;
  int op,z;
  int val;
 do
 {
  cout<<"\nEnter "
      <<"\n1 :Stack Operation"
      <<"\n2 :Queue Operation"
      <<"\n3 :Exit"
      <<"\nChoice  ";
  cin>>z;
   switch(z)
   {
   case 1:
   {
     cout<<"\n*****************\nSTACK OPERATION\n*****************";
         do
           {
              cout<<"\nEnter"
                  <<"\n1 :Enter element in the stack"
                  <<"\n2 :Display element in the stack"
                  <<"\n3 :Remove element from stack"
                  <<"\n4 :Exit  ";
              cin>>op;
                       switch(op)
                        {
                          case 1:
                                {
                                   if(s1.size()==10)
                                      cout<<"Stack is Full !!";
                                   else
                                     {
                                       cout<<"\nEnter the value: ";
                                       cin>>val;
                                       s1.push(val);
                                     }
                                }break;
                           case 2:
                                  {
                                    if(s1.size()==0)
                                       cout<<"\nStack is empty !!";
                                    else
                                    {
                                       displays(s1);
                                    }

                                  }break;
                          case 3:if(s1.size()==0)
                                    cout<<"\nStack is empty !!";
                                 else
                                 {
                                     cout<<"\nPoped element: "<<s1.top();
                                     s1.pop();
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                                    cout<<endl;
                                  }break;
                            case 4:break;
                          }
              }while(op!=4);
    }break;
     case 2:
     {
          cout<<"\n*****************\nQUEUE OPERATION\n*****************";
              do
               {
                 cout<<"\n1 : Enter the element in the queue"
                  <<"\n2 : Display queue"
                  <<"\n3 : Remove element from the queue"
                  <<"\n4 :Exit  ";
               cin>>op;
                     switch(op)
                         {
                         case 1:
                                {
                                    if(q1.size()==10)
                                       cout<<"\nQueue is Full !!";
                                    else
                                      {
                                         cout<<"\nEnter the value: ";
                                         cin>>val;
                                         q1.push(val);
                                      }
                                }break;
                         case 2:
                                {
                                    if(q1.size()==0)
                                       cout<<"\nQueue is empty !!";
                                     else
                                       displays(q1);
                                }break;
                        case 3:  if(q1.size()==0)
                                   cout<<"\nQueue is empty";
                                else
                                {
                                   int v;
                                   v=q1.front();
                                   cout<<"\nPoped element: "<<v;
                                   q1.pop();
                                }break;
                        case 4:break;
                        }
    }while(op!=4);
}break;
}
}while(z!=3);
}
void displays(stack<int> q)
{
  int s;
  while(!q.empty())
      {
                s=q.top();
               cout<<"|"<<s;
                q.pop();

       }cout<<"|"<<endl;
}
void displays(queue<int> w)
{
  int s;
```

```
  while(!w.empty())
      {
              cout<<"|"<<w.front();
                  w.pop();
       }
       cout<<"|"<<endl;
 }
 /*
 OUTPUT

 dell@ghe1de-saurabh16-12-99:~/Desktop$ g++ stl.cpp
dell@ghe1de-saurabh16-12-99:~/Desktop$ ./a.out
_
Enter
1 :Stack Operation
2 :Queue Operation
3 :Exit
Choice  1

*****************
STACK OPERATION
*****************
Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 10

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 20

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 30

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 40

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 50

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
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```
4 :Exit  1

Enter the value: 60

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 70

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 80

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 90

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1

Enter the value: 100

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  1
Stack is Full !!
Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  2
|100|90|80|70|60|50|40|30|20|10|

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 100

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 90

Enter
```

```
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 80

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 70

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 60

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  2
|50|40|30|20|10|

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 50

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 40

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 30

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 20

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
```

```
4 :Exit  2
|10|

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Poped element: 10

Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  3

Stack is empty !!
Enter
1 :Enter element in the stack
2 :Display element in the stack
3 :Remove element from stack
4 :Exit  4

Enter
1 :Stack Operation
2 :Queue Operation
3 :Exit
Choice  2

*****************
QUEUE OPERATION
*****************
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 111

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 222

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 333

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 444

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1
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```
Enter the value: 555

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 666

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 777

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 888

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 999

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Enter the value: 11111

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  1

Queue is Full !!
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  2
|111|222|333|444|555|666|777|888|999|11111|

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 111
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 222
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3
```

```
Poped element: 333
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 444
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 555
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 666
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 777
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 888
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  2
|999|11111|

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 999
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  2
|11111|

1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  3

Poped element: 11111
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  2

Queue is empty !!
1 : Enter the element in the queue
2 : Display queue
3 : Remove element from the queue
4 :Exit  4
```

```
Enter
1 :Stack Operation
2 :Queue Operation
3 :Exit
Choice  3

 */
```