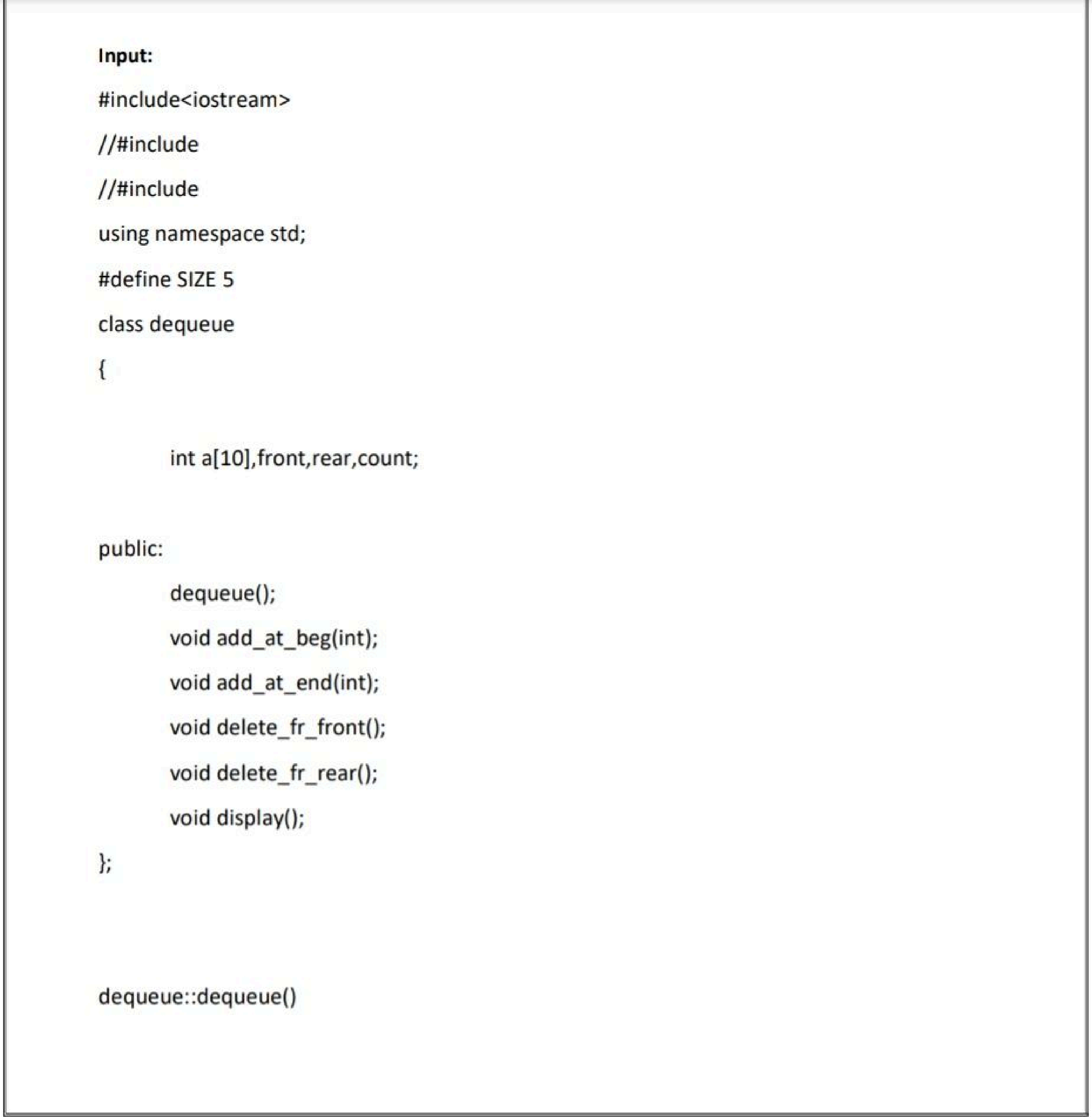


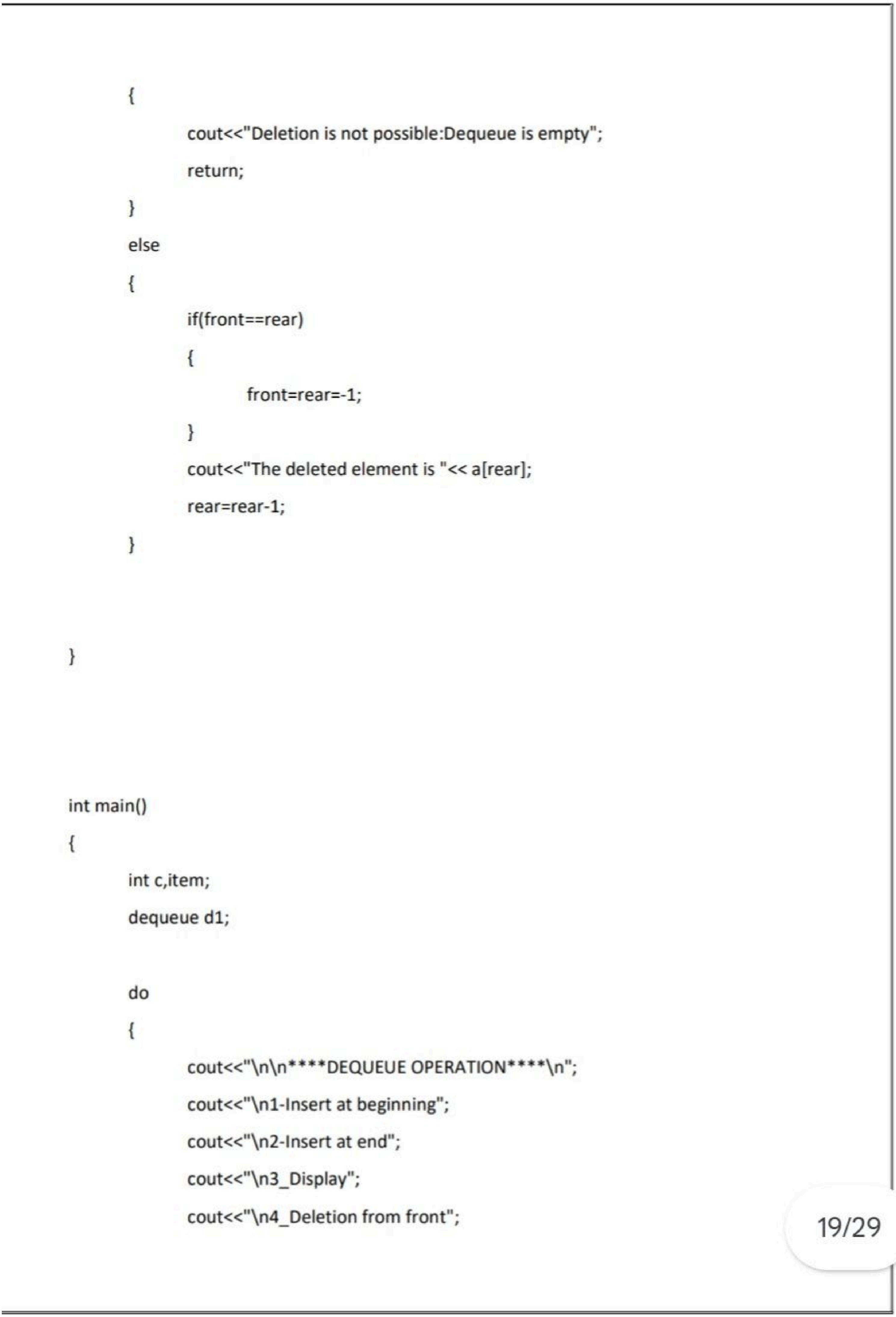
Input:

```
#include<iostream>

//#include

//#include

using namespace std;

#define SIZE 5

class dequeue

{


        int a[10],front,rear,count;


public:

        dequeue();

        void add_at_beg(int);

        void add_at_end(int);

        void delete_fr_front();

        void delete_fr_rear();

        void display();

};



dequeue::dequeue()
```

```
{
    front=-1;
    rear=-1;
    count=0;
}


void dequeue::add_at_beg(int item)
{
    int  i;
    if(front==-1)
    {
        front++;
        rear++;
        a[rear]=item;
        count++;
    }
    else if(rear>=SIZE-1)
    {
        cout<<"\nInsertion is not possible,overflow!!!!";
    }
    else
    {
        for(i=count;i>=0;i--)
        {
            a[i]=a[i-1];
        }
        a[i]=item;
        count++;
        rear++;
    }
```

```
}



void dequeue::add_at_end(int item)
{

          if(front==-1)
          {
                    front++;
                    rear++;
                    a[rear]=item;
                    count++;
          }
          else if(rear>=SIZE-1)
          {
                    cout<<"\nInsertion is not possible,overflow!!!";
                    return;
          }
          else
          {
                    a[++rear]=item;
          }


}



void dequeue::display()
{
    for(int i=front;i<=rear;i++)
    {
        cout<<a[i]<<" ";        }
}


void dequeue::delete_fr_front()
{
    if(front==-1)
    {
        cout<<"Deletion is not possible:: Dequeue is empty";
        return;
    }
    else
    {
        if(front==rear)
        {
            front=rear=-1;
            return;
        }
        cout<<"The deleted element is "<<a[front];
        front=front+1;
    }


}

void dequeue::delete_fr_rear()
{
    if(front==-1)
```

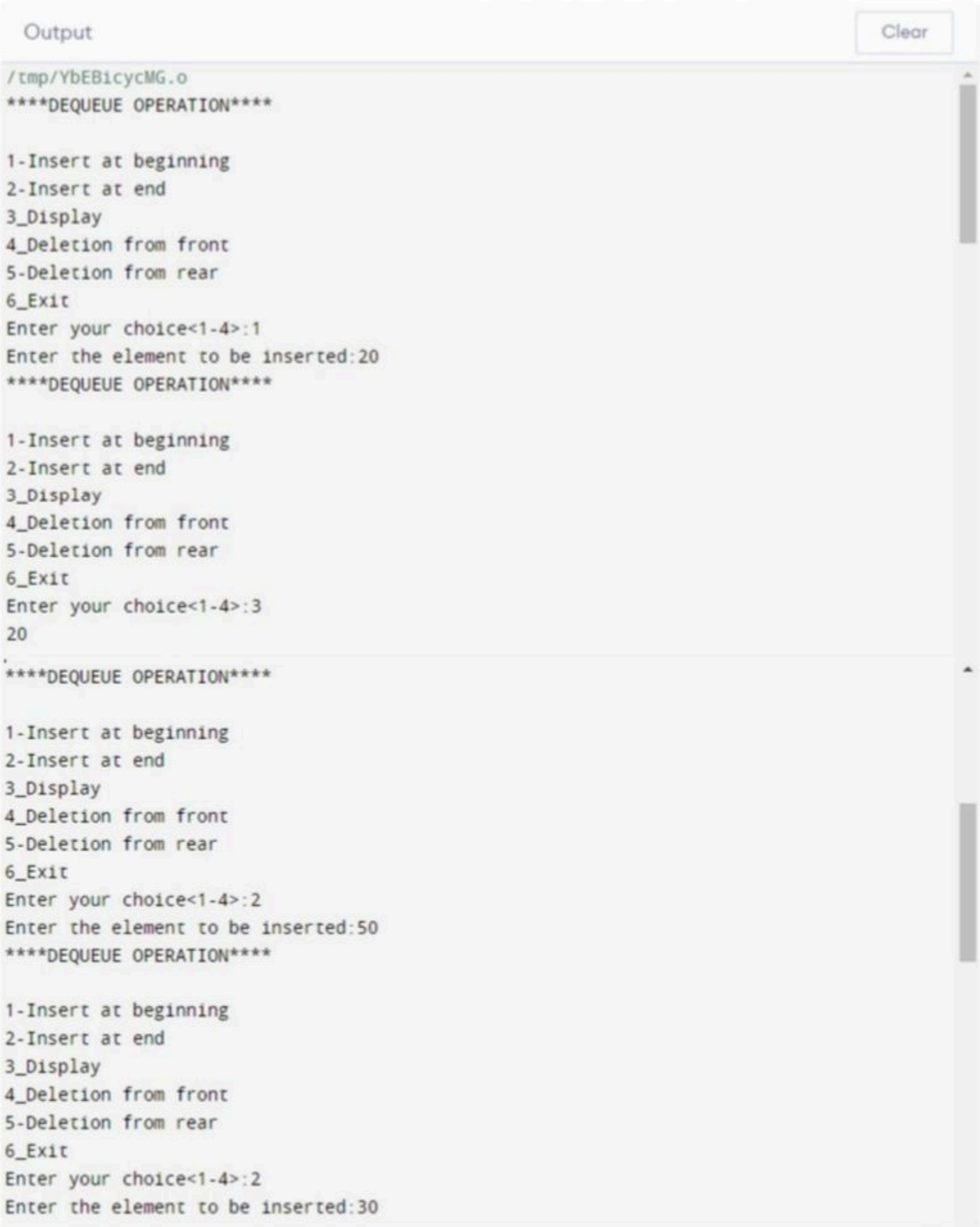
```
cout<<"\n5-Deletion from rear";
cout<<"\n6_Exit";
cout<<"\nEnter your choice<1-4>:";
cin>>c;

switch(c)
{
case 1:
        cout<<"Enter the element to be inserted:";
        cin>>item;
        d1.add_at_beg(item);
        break;

case 2:
        cout<<"Enter the element to be inserted:";
        cin>>item;
        d1.add_at_end(item);
        break;

case 3:
        d1.display();
        break;

case 4:
        d1.delete_fr_front();
        break;
case 5:
        d1.delete_fr_rear();
        break;

case 6:
```



```
    {
        cout<<"Deletion is not possible:Dequeue is empty";
        return;
    }
    else
    {
        if(front==rear)
        {
            front=rear=-1;
        }
        cout<<"The deleted element is "<< a[rear];
        rear=rear-1;
    }


}



int main()
{
    int c,item;
    dequeue d1;

    do
    {
        cout<<"\n\n****DEQUEUE OPERATION****\n";
        cout<<"\n1-Insert at beginning";
        cout<<"\n2-Insert at end";
        cout<<"\n3_Display";
        cout<<"\n4_Deletion from front";
```

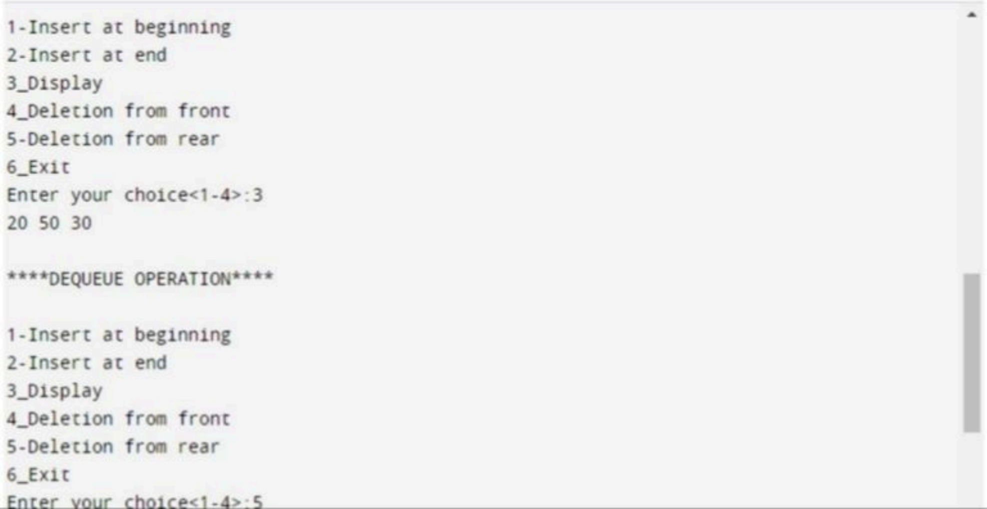
```
            exit(1);

            break;


        default:

            cout<<"Invalid choice";

            break;

        }


    }while(c!=7);

    return 0;


}
```

Output



```
/tmp/YbEBicycMG.o
****DEQUEUE OPERATION****

1-Insert at beginning
2-Insert at end
3_Display
4_Deletion from front
5-Deletion from rear
6_Exit
Enter your choice<1-4>:1
Enter the element to be inserted:20
****DEQUEUE OPERATION****

1-Insert at beginning
2-Insert at end
3_Display
4_Deletion from front
5-Deletion from rear
6_Exit
Enter your choice<1-4>:3
20
```

```
****DEQUEUE OPERATION****

1-Insert at beginning
2-Insert at end
3_Display
4_Deletion from front
5-Deletion from rear
6_Exit
Enter your choice<1-4>:2
Enter the element to be inserted:50
****DEQUEUE OPERATION****

1-Insert at beginning
2-Insert at end
3_Display
4_Deletion from front
5-Deletion from rear
6_Exit
Enter your choice<1-4>:2
Enter the element to be inserted:30
```



```
1-Insert at beginning
2-Insert at end
3_Display
4_Deletion from front
5-Deletion from rear
6_Exit
Enter your choice<1-4>:3
20 50 30

****DEQUEUE OPERATION****

1-Insert at beginning
2-Insert at end
3_Display
4_Deletion from front
5-Deletion from rear
6_Exit
Enter your choice<1-4>:5
```