

/*Implement Circular Queue using Array. Perform following operations on it.

a) Insertion (Enqueue)

b) Deletion (Dequeue)

c) Display

*/

```
#include <iostream>
```

```
using namespace std;
```

```
int cqueue[5];
```

```
int front = -1, rear = -1, n = 5;
```

```
void insert(int val){
```

```
if((front == 0 && rear == n-1) || (front == rear+1)){
```

```
cout<<"\nQueue is filled "<<endl;
```

```
return;
```

```
}
```

```
if(front == -1){
```

```
front = 0;
```

```
rear = 0;
```

```
}
```

```
else{
```

```
if(rear == n-1){
```

```
rear = 0;
```

```
}
```

```
else{
```

```
rear = rear+1;
```

```
}
```

```
}
```

```
cqueue[rear] = val;
```

```
}
```

```
void deletion(){
```

```

if(front == -1){
cout<<"\nQueue is already empty "<<endl;
return;
} cout<<"Element deleted from queue is --> "<<cqueue[front]<<endl;
if(front == rear){
front = -1;
rear = -1;
}
else{
if(front == n-1){
front = 0;
}
else{
front = front +1;
}
}
}
void display_front(){
int f= front ,r = rear;
if(front == -1){
cout<<"\nQueue is already empty "<<endl;
return ;
}
cout<<"Queue elements in forward order -->"<<endl;
if(f<=r){
while(f<=r){
cout<<cqueue[f]<<" ";
f++;
}
}
else{

```

```

while(f<=n-1){ cout<<cqueue[f]<<" ";
f++;
}
f=0;
while(f<=r){
cout<<cqueue[f]<<" ";
f++;
}
}
cout<<endl;
}
void display_reverse(){
int f= front ,r = rear;
if(front == -1){
cout<<"\nQueue is already empty "<<endl;
return ;
}
cout<<"Queue elements in reverse order -->"<<endl;
if(f<=r){
while(f<=r){
cout<<cqueue[r]<<" ";
r--;
}
}
else{
while(r>=0){
cout<<cqueue[r]<<" ";
r--;
}
r=n-1;
while(r>=f){
cout<<cqueue[r]<<" ";

```

```
r--;  
}  
}  
cout<<endl;  
}  
int main()  
{  
int ch,val;  
cout<<"1]Insert"<<endl;  
cout<<"2)Delete"<<endl;  
cout<<"3)Display Forward"<<endl;  
cout<<"4)Display Reverse"<<endl;  
cout<<"5)Exit"<<endl;  
do {  
cout<<"Enter choice --> ";  
cin>>ch;  
switch(ch) {  
case 1:  
cout<<"Input for insertion--> ";  
cin>>val;  
cout<<endl;  
insert(val);  
break;  
case 2:  
deletion(); cout<<endl;  
break;  
case 3:  
display_front();  
cout<<endl;  
break;  
case 4:
```

```
display_reverse();  
cout<<endl;  
break;  
case 5:  
cout<<"Exit\n";  
break;  
default: cout<<"\nEnter correct choice !"<<endl;  
}  
} while(ch != 5);  
return 0;  
}
```