```
/* Array Implementation of Doubly ended Circular Queue */
#include <stdio.h>

# define MAX 10
int arr[MAX] ;
int front, rear ;

void addend ( int item )
{
if ( ( rear == MAX - 1 && front == 0 ) || ( rear + 1 == front ) )
{
        printf ( "\nQueue is full" ) ;
        return ;
}
if ( rear == MAX - 1 )
        rear = 0 ;
else
        rear++ ;

arr[rear] = item ;
if ( front == -1 )
        front = 0 ;
}


void addfront ( int item )
{
if ( ( rear == MAX - 1 && front == 0 ) || ( rear + 1 == front ) )
{
        printf ( "\nQueue is full" ) ;
        return ;
}
if ( front == -1 )
        front = rear = 0 ;
else if ( front == 0 )
        front = MAX-1 ;
else
        front-- ;

arr[front] = item ;
}
```

```
void delfront( )
{
int data ;
if ( front == -1 )
{
        printf ( "\nQueue is Empty" ) ;
}
else{
        data = arr[front] ;
        if ( front == rear ) front = rear = -1 ;
        else
        {               if ( front == MAX - 1 )     front = 0 ;
                else    front++ ;
        }

printf("Data pop'ed=%d\n",data);
}
}
```

```
void delend( )
{
int data ;
if ( front == -1 )
{
        printf ( "\nQueue is Empty" ) ;
}
else{
        data = arr[rear] ;
        if ( front == rear ) front = rear = -1 ;
        else
        {               if ( rear == 0 )        rear = MAX-1 ;
                else    rear-- ;
        }

printf("Data pop'ed=%d\n",data);
}
}
```

```
void printq()
{
        int i;
        if(front<=rear)
        {
                for (i=front;i<=rear;i++)
                printf("%d\t",arr[i]);
        }
        else
        {
                for(i=front;i<=MAX-1;i++)
                printf("%d\t",arr[i]);

                for(i=0;i<=rear;i++)
                printf("%d\t",arr[i]);
        }
}
```

```
void main( )
{
int data,choice;

rear = front = -1 ;
do{
        printf("\n1. ADD rear\n");
        printf("2. Delete front\n");
        printf("3. ADD front\n");
        printf("4. Delete rear\n");
        printf("5. Print queue\n");
        printf("6. Exit\n");
        printf("Feed in your choice; ");
        scanf("%d",&choice);

        if (choice==1)
        {
                printf("Feed in data to enqueue: ");
                scanf("%d",&data);
                addend(data);
        }

        if (choice==2)
        {
                delfront( ) ;
        }
        if (choice==3)
        {
                printf("Feed in data to enqueue: ");
                scanf("%d",&data);
                addfront(data);
        }

        if (choice==4)
        {
                delend( ) ;
        }
        if(choice==5)
        printq();
}while(choice!=6);
}
```