DEQUE Practice program:28/10/2020

For input restricted insert_front is to be commented out and for output restricted delete_rear is to be commented out

```c
#include<stdio.h>
#define qsize 5
int f=0,r=-1,ch;
int item,q[10];

int isfull()
 {
  return(r==qsize-1)?1:0;
 }
int isempty()
 {
  return(f>r)?1:0;
 }
void insert_rear()
 {
  if(isfull())
    {
     printf("queue overflow\n");
     return;
    }
  r=r+1;
  q[r]=item;
 }
void delete_front()
 {
  if(isempty())
    {
     printf("queue empty\n");
     return;
    }
  printf("item deleted is %d\n",q[(f)++]);
  if(f>r)
    {
     f=0;
     r=-1;
    }
 }
void insert_front()
 {
  if(f!=0)
    {
     f=f-1;
     q[f]=item;
     return;
    }
   else if((f==0)&&(r==-1))
    {
     q[++(r)]=item;
     return;
    }
```

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```
        printf("insertion not possible\n");
    }
  void delete_rear()
    {
     if(isempty())
       {
        printf("queue is empty\n");
        return;
       }
     printf("item deleted is %d\n",q[(r)--]);
     if(f>r)
       {
        f=0;
        r=-1;
       }
    }
  void display()
    {
     int i;
     if(isempty())
       {
        printf("queue empty\n");
        return;
       }
     for(i=f;i<=r;i++)
      printf("%d\n",q[i]);
   for(i=f;i<=r;i++)
    printf("%d\n",q[i]);
  }
void main()
 {
  for(;;)
   {
    printf("1.insert_rear\n2.insert_front\n3.delete_rear\n4.delete_front\n5.display\n6.exit\n");
    printf("enter choice\n");
    scanf("%d",&ch);
    switch(ch)
      {
       case 1:printf("enter the item\n");
              scanf("%d",&item);
              insert_rear();
              break;
       case 2:printf("enter the item\n");
              scanf("%d",&item);
              insert_front();
              break;
       case 3:delete_rear();
              break;
       case 4:delete_front();
              break;
       case 5:display();
              break;
                    break;
         case 5:display();
                break;
         default:exit(0);
        }
     }


  }
```

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```
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
60
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
50
queue overflow
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
3
```

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```
6.exit
enter choice
3
item deleted is 60
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
5
10
30
40
50
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
```