Data structures

Lab 5

#1

- Implement queue using circular array.

The program should have a menu with:

1. enqueue(enq)
2. Dequeue(deq)
3. Is full(ful)
4. Is empty(emp)
5. Show front(frt)
6. Show rear(rer)
7. Print(prt)
8. Clear(clr)
9. Terminate(x)

Note: first line will tell you the array size.

#1

Input:
5
enq 1
enq 2
enq 3
enq 4
enq 5
enq 6
prt
frt
rer
ful
deq
prt
clr
p
emp
x

Output:

1 2 3 4 5

1

5

1

2 3 4 5

empty

1

#2

- Implement queue using linked list.

The program should have a menu with:

1. enqueue(enq)
2. Dequeue(deq)
3. Is empty(emp)
4. Show front(frt)
5. Show rear(rer)
6. Print(prt)
7. Clear(clr)
8. Terminate(x)

#2

Input:
enq 1
enq 2
enq 3
enq 4
enq 5
enq 6
prt
frt
rer
emp
deq
prt
clr
p
emp
x

Output:
1 2 3 4 5 6
1
6
0
2 3 4 5 6
empty
1

#3

Implement double ended queue.
The program should have a menu with:

1. Enqueue front(ef)
2. Dequeue font(df)
3. Enqueue rear(er)
4. Dequeue rear(dr)
5. Is empty(emp)
6. Show front(frt)
7. Show rear(rer)
8. Print(prt)
9. Clear(clr)
10. Terminate(x)

#3

Input:
ef 1
ef 2
ef 3
ef 4
ef 5
ef 6
prt
frt
er 7
prt
emp
df
prt
clr
p
emp
df
x

Output:
6 5 4 3 2 1
6
6 5 4 3 2 1 7
0
5 4 3 2 1 7
empty
1
empty