



NEW ERA UNIVERSITY COLLEGE OF COMPUTER STUDIES

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Marasigan_CircularQueues

Source Code

```
package queues;

import java.util.Scanner;

public class Marasigan_CircularQueues
{
    static Scanner in = new Scanner(System.in);
    //variables
    static int [] queue;
    static int rear=-1;
    static int front=-1;
    static int choice = 0;

    public static void main(String[] args)
    {
        System.out.print("Enter the size of the Queue:\t");
        queue = new int[in.nextInt()];
        do
        {
            System.out.println();
            System.out.print("Menu\n\t1. Enqueue\n\t2. Dequeue\n"
                + "\t3. Display Queue\n\t4. Exit\nEnter Choice [1..4]: ");
            choice = in.nextInt();
            switch (choice)
            {
                case 1: Enqueue(); break;
                case 2: Dequeue(); break;
                case 3: //Display_Queue.CircleBeta();
                    Display_Queue.ArrayPrint();
                    Display_Queue.Status();
                    break;
                case 4: Exit(); break;
                default: choice = 5; break;
            }
        } while (choice < 6 );
    }

    static void Enqueue()
    {
        System.out.println();
        System.out.print("\t=ENQUEUE=");
        do
        {
            System.out.print("Enter a number: ");
            int data = in.nextInt();
            int backup = rear;
            rear = (rear+1)% queue.length;

            if (front == rear)
            {
                System.out.println("Queue is full");
                rear = backup;
                choice = 0;
            }
            else
            {
                queue[rear] = data;
                System.out.print("Want to add more? Yes[1] No[0]: ");
                choice = in.nextInt();
            }
        } if (front == -1)
        {
            front = 0; rear = 0;
        }
    }
}
```



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```
}
while (choice == 1);
Display_Queue.ArrayPrint();
Display_Queue.Status();
}

static void Dequeue()
{
    System.out.println();
    System.out.println("\t=DEQUEUE=-");
    do
    {
        if (front == -1)
        {
            System.out.println("Queue is empty");
        }
        else
        {
            System.out.print(queue[front] + " is removed");
            queue[front] = 0;
        }
        if (rear == front)
        {
            front = -1;
            rear = -1;
        }
        else
        {
            front = (front + 1) % queue.length;
        }

        System.out.print("\nDo you want to Dequeue again? Yes[1] No[0]: ");
        choice = in.nextInt();

    } while (choice == 1);

    Display_Queue.ArrayPrint();
    Display_Queue.Status();
}

class Display_Queue
{
    //Array printing
    static void ArrayPrint()
    {
        System.out.println();
        System.out.print("\t+");
        for (int i = 0; i < queue.length; i++)
        {
            System.out.print("-----+");
        }
        System.out.println();

        System.out.print("QUEUE:\t");
        System.out.print("|");
        for (int i = 0; i < queue.length; i++)
        {
            if (queue[i] == 0)
                System.out.print(" " + "\t|");
            else
                System.out.print(queue[i] + "\t|");
        }
        System.out.println();

        System.out.print("\t+");
        for (int i = 0; i < queue.length; i++)
        {
            System.out.print("-----+");
        }
        System.out.println();

        System.out.print("INDEX:\t");
```



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```
System.out.print("|");
for (int i = 0; i < queue.length; i++)
{
    System.out.print(i + "\t");
}
System.out.println();

System.out.print("\t+");
for (int i = 0; i < queue.length; i++)
{
    System.out.print("-----+");
}
System.out.println();
}

//Linear printing
static void LinearPrint()
{
    int i = front;
    if (i == -1)
    {
        System.out.println("Queue is Empty");
    }
    else
    {
        do
        {
            System.out.print(queue[i]);
            i = (i+1)%queue.length;

            if (i != (rear+1)%queue.length)
                System.out.print("-"); //prints dashes only in between

        }while (i != (rear+1)%queue.length);
        System.out.println();
    }
}

static void Status()
{
    System.out.println();
    System.out.print("[Status]\nQueue: ");
    Display_Queue.LinearPrint();

    System.out.print("Front index: " + front + "\t\t");
    if (Marasigan_CircularQueues.front == -1)
    {
        System.out.print("Data: No Data");
    }
    else
    {
        System.out.print("Data: " + queue[front]);
    }

    System.out.print("\nRear index: " + rear + "\t\t");
    if (Marasigan_CircularQueues.rear == -1)
    {
        System.out.print("Data: No Data");
    }
    else
    {
        System.out.print("Data: " + queue[rear]);
    }
    System.out.println();
}

static void CircleBeta()
{
    System.out.println();
    System.out.print(" 7  0");
    System.out.print("6  " + queue[0] + " " + queue[1] + "  1");
}
```



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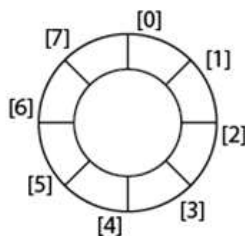
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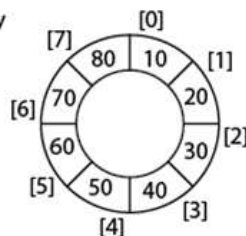
```
System.out.println(" " + queue[2] + " " + queue[3]);
System.out.println(" " + queue[4] + " " + queue[5]);
System.out.println("5 " + queue[6] + " " + queue[7] + " 2");
System.out.println(" 4 3");
    }
}

static void Exit()
{
    System.out.println();
    System.out.println("\tThank you po ^ _^ \n"
        + " By: Marasigan, Vem Aiensi");
    System.exit(1);
}
}
```

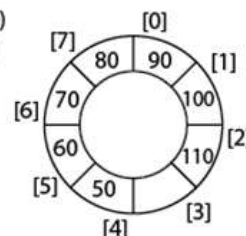
size: 8 (from index 0 to 7)



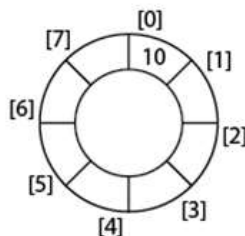
queue is empty
front: -1
rear: -1



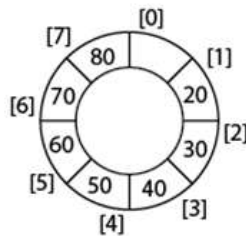
enqueue(90)
queue is full
front: 0
rear: 7



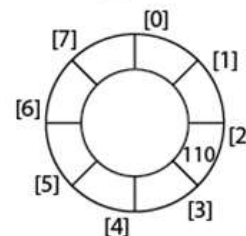
enqueue(100)
enqueue(110)
front: 4
rear: 2



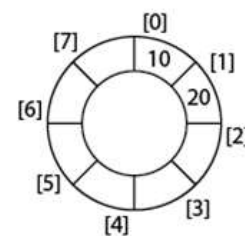
enqueue(10)
front: 0
rear: 0



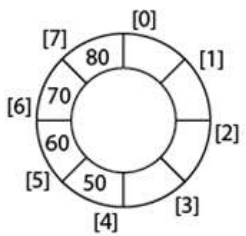
dequeue()
front: 1
rear: 7



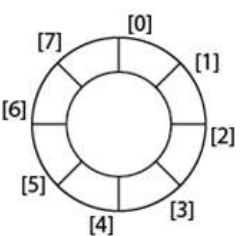
dequeue()
dequeue()
dequeue()
dequeue()
dequeue()
front: 2
rear: 2



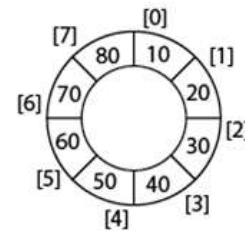
enqueue(20)
front: 0
rear: 1



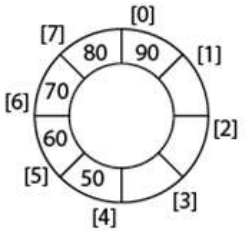
dequeue()
dequeue()
dequeue()
front: 4
rear: 7



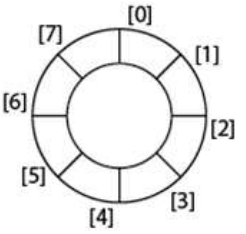
dequeue()
front: -1
rear: -1



enqueue(30)
enqueue(40)
enqueue(50)
enqueue(60)
enqueue(70)
enqueue(80)
front: 0
rear: 7



enqueue(90)
front: 4
rear: 0



dequeue()
queue is empty
front: -1
rear: -1



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Screenshot

1.

Enter the size of the Queue: 8

Menu

- 1. Enqueue
- 2. Dequeue
- 3. Display Queue
- 4. Exit

Enter Choice [1..4]: 3

QUEUE:									
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: Queue is Empty
Front index: -1 Data: No Data
Rear index: -1 Data: No Data

2.

Menu

- 1. Enqueue
- 2. Dequeue
- 3. Display Queue
- 4. Exit

Enter Choice [1..4]: 1

--ENQUEUE--

Enter a number: 10
Want to add more? Yes[1] No[0]: 0

QUEUE:	10								
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: 10
Front index: 0 Data: 10
Rear index: 0 Data: 10

3.

--ENQUEUE--

Enter a number: 20
Want to add more? Yes[1] No[0]: 0

QUEUE:	10	20							
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: 10-20
Front index: 0 Data: 10
Rear index: 1 Data: 20



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4.

Menu

1. Enqueue
2. Dequeue
3. Display Queue
4. Exit

Enter Choice [1..4]: 1

--ENQUEUE--

Enter a number: 30

Want to add more? Yes[1] No[0]: 1

Enter a number: 40

Want to add more? Yes[1] No[0]: 1

Enter a number: 50

Want to add more? Yes[1] No[0]: 1

Enter a number: 60

Want to add more? Yes[1] No[0]: 1

Enter a number: 70

Want to add more? Yes[1] No[0]: 1

Enter a number: 80

Want to add more? Yes[1] No[0]: 0

QUEUE:	10	20	30	40	50	60	70	80	
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: 10-20-30-40-50-60-70-80

Front index: 0 Data: 10

Rear index: 7 Data: 80

5.

Menu

1. Enqueue
2. Dequeue
3. Display Queue
4. Exit

Enter Choice [1..4]: 1

--ENQUEUE--

Enter a number: 90

Queue is full

QUEUE:	10	20	30	40	50	60	70	80	
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: 10-20-30-40-50-60-70-80

Front index: 0 Data: 10

Rear index: 7 Data: 80



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6.

Menu

1. Enqueue
2. Dequeue
3. Display Queue
4. Exit

Enter Choice [1..4]: 2

--DEQUEUE--

10 is removed

Do you want to Dequeue again? Yes[1] No[0]: 0

QUEUE:									
		20	30	40	50	60	70	80	
INDEX:									
	0	1	2	3	4	5	6	7	

[Status]

Queue: 20-30-40-50-60-70-80

Front index: 1 Data: 20

Rear index: 7 Data: 80

7.

Menu

1. Enqueue
2. Dequeue
3. Display Queue
4. Exit

Enter Choice [1..4]: 2

--DEQUEUE--

20 is removed

Do you want to Dequeue again? Yes[1] No[0]: 1

30 is removed

Do you want to Dequeue again? Yes[1] No[0]: 1

40 is removed

Do you want to Dequeue again? Yes[1] No[0]: 0

QUEUE:									
					50	60	70	80	
INDEX:									
	0	1	2	3	4	5	6	7	

[Status]

Queue: 50-60-70-80

Front index: 4 Data: 50

Rear index: 7 Data: 80



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8.

Menu

1. Enqueue
2. Dequeue
3. Display Queue
4. Exit

Enter Choice [1..4]: 1

--ENQUEUE--

Enter a number: 90

Want to add more? Yes[1] No[0]: 0

QUEUE:	90				50	60	70	80	
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: 50-60-70-80-90

Front index: 4 Data: 50

Rear index: 0 Data: 90

9.

Menu

1. Enqueue
2. Dequeue
3. Display Queue
4. Exit

Enter Choice [1..4]: 1

--ENQUEUE--

Enter a number: 100

Want to add more? Yes[1] No[0]: 1

Enter a number: 110

Want to add more? Yes[1] No[0]: 0

QUEUE:	90	100	110		50	60	70	80	
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: 50-60-70-80-90-100-110

Front index: 4 Data: 50

Rear index: 2 Data: 110



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10.

Menu

- 1. Enqueue
- 2. Dequeue
- 3. Display Queue
- 4. Exit

Enter Choice [1..4]: 2

--DEQUEUE--

50 is removed

Do you want to Dequeue again? Yes[1] No[0]: 1

60 is removed

Do you want to Dequeue again? Yes[1] No[0]: 1

70 is removed

Do you want to Dequeue again? Yes[1] No[0]: 1

80 is removed

Do you want to Dequeue again? Yes[1] No[0]: 1

90 is removed

Do you want to Dequeue again? Yes[1] No[0]: 1

100 is removed

Do you want to Dequeue again? Yes[1] No[0]: 0

QUEUE:			110						
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: 110

Front index: 2 Data: 110

Rear index: 2 Data: 110

11.

Menu

- 1. Enqueue
- 2. Dequeue
- 3. Display Queue
- 4. Exit

Enter Choice [1..4]: 2

--DEQUEUE--

110 is removed

Do you want to Dequeue again? Yes[1] No[0]: 0

QUEUE:									
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: Queue is Empty

Front index: -1 Data: No Data

Rear index: -1 Data: No Data



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12.

```
--DEQUEUE--  
Queue is empty
```

Do you want to Dequeue again? Yes[1] No[0]: 0

QUEUE:									
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: Queue is Empty

Front index: -1 Data: No Data

Rear index: -1 Data: No Data

Menu

1. Enqueue
2. Dequeue
3. Display Queue
4. Exit

Enter Choice [1..4]: 3

QUEUE:									
INDEX:	0	1	2	3	4	5	6	7	

[Status]

Queue: Queue is Empty

Front index: -1 Data: No Data

Rear index: -1 Data: No Data

Menu

1. Enqueue
2. Dequeue
3. Display Queue
4. Exit

Enter Choice [1..4]: 4

Thank you po ^_^
By: Marasigan, Vem Aiensi