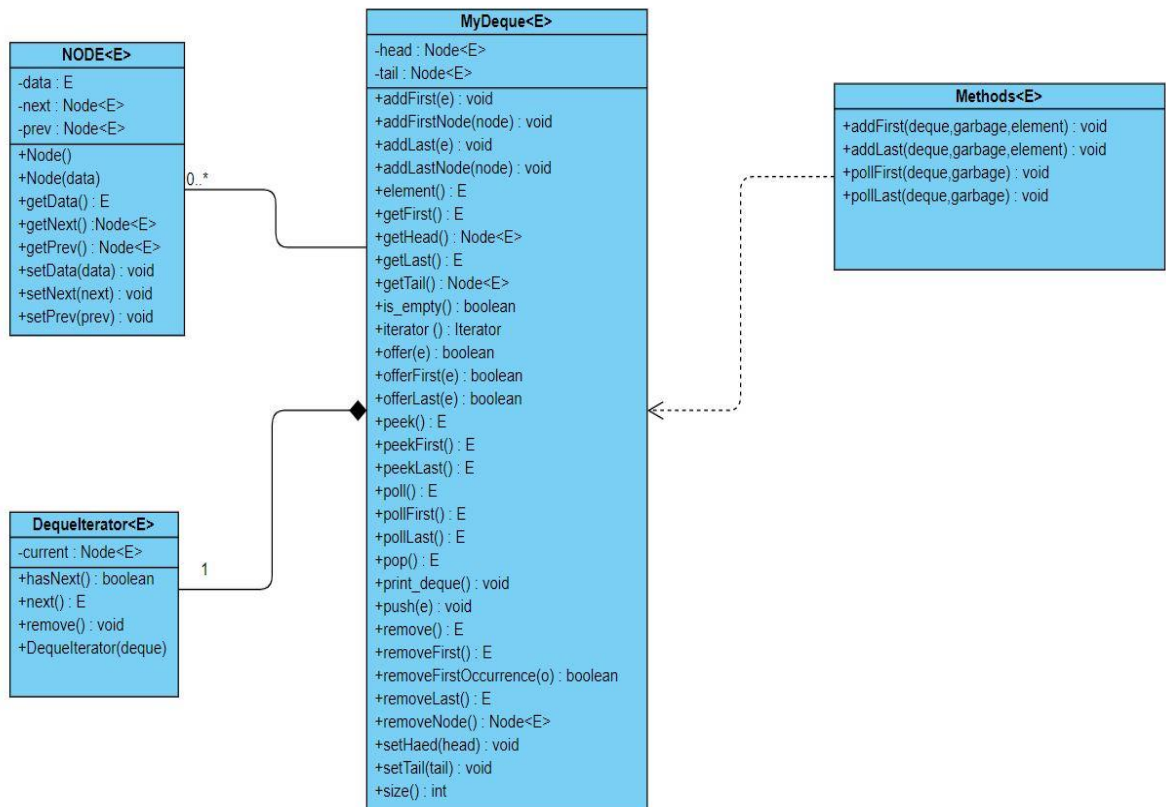


**GIT Department of Computer Engineering**  
**CSE 222/505 - Spring 2020**  
**Homework 4 Report**

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# Q2

## CLASS DIAGRAM



## PROBLEM SOLUTION APPROACH

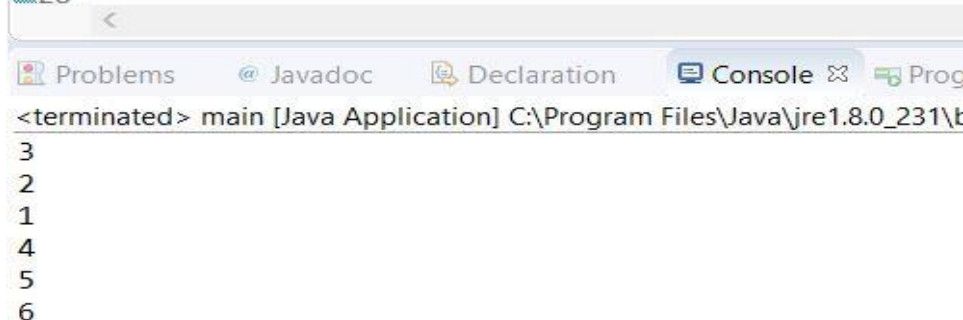
If user want to add a null element program will throw exception and program end , or do nothing and add command will not succesfull. .It depend on method.(add function throw exception)

If user want to remove an element when deque is empty , program will warn user and do nothing.

## TEST CASES

User want to add some element to head of deque and tail of deque.If garbage deque not empty , program discard node from garbage deque and add normal deque.If garbage empty , program create new node and add it to deque.

```
20
21      method.addFirst(deque, garbage, "1");
22      method.addFirst(deque, garbage, "2");
23      method.addFirst(deque, garbage, "3");
24      method.addLast(deque, garbage, "4");
25      method.addLast(deque, garbage, "5");
26      method.addLast(deque, garbage, "6");
27      deque.print_deque();
28
```



<terminated> main [Java Application] C:\Program Files\Java\jre1.8.0\_231\t  
3  
2  
1  
4  
5  
6

User want to add null element program throws exception and program end.

```
22     try {
23         method.addFirst(deque, garbage, "1");
24         method.addFirst(deque, garbage, "2");
25         method.addFirst(deque, garbage, "3");
26         method.addLast(deque, garbage, "4");
27         method.addLast(deque, garbage, "5");
28         method.addLast(deque, garbage, "6");
29         method.addLast(deque, garbage, null);
30     }
```

Problems @ Javadoc Declaration Console Progress

<terminated> main [Java Application] C:\Program Files\Java\jre1.8.0\_231\bin\javaw.  
java.lang.NullPointerException: The argument cannot be null  
at q2.MyDeque.addLast(MyDeque.java:101)  
at q2.Methods.addLast(Methods.java:24)  
at q2.Main.main(Main.java:29)

User want to remove some elements to head of deque and tail of deque. Program remove this elements and discard this then add garbage deque.

```
28
29     method.pollLast(deque, garbage);
30     method.pollLast(deque, garbage);
31     method.pollLast(deque, garbage);
32     method.pollFirst(deque, garbage);
33     deque.print_deque();
34     System.out.println("garbage size : " + garbage.size());
```

Problems @ Javadoc Declaration Console Progress Termin

<terminated> main [Java Application] C:\Program Files\Java\jre1.8.0\_231\bin\javaw.exe (9 Ni  
2  
1  
garbage size : 4

If user want to remove element when deque is empty , program will warn user.

```
23 method.addFirst(deque, garbage, "1");|
24 method.pollLast(deque, garbage);
25 method.pollLast(deque, garbage);
26 deque.print_deque();
27 System.out.println("garbage size : " +garbage.size());
28
```

<

Problems @ Javadoc Declaration Console Progress Terminal Cc

<terminated> main [Java Application] C:\Program Files\Java\jre1.8.0\_231\bin\javaw.exe (9 Nis 2020 17:0

MyDeque is empty !!!  
garbage size : 1

There are all add methods testing below.

```
38
39 method.addNodeFirst(deque);
40 deque.addFirst("1");
41 method.addNodeFirst(deque);
42 deque.addFirst("2");
43 method.addNodeLast(deque);
44 deque.addLast("3");
45 method.addNodeFirst(deque);
46 deque.offerFirst("4");
47 method.addNodeLast(deque);
48 deque.offerLast("5");
49 method.addNodeFirst(deque);
50 deque.push("6");
51 deque.print_deque();
52
```

<

Problems @ Javadoc Declaration Cor

<terminated> main [Java Application] C:\Program Files\Ja

6  
4  
2  
1  
3  
5

There are all peek and get methods testing below.

```
51
52     System.out.println("peekFirst :"+deque.peekFirst());
53     System.out.println("peekLast :"+deque.peekLast());
54     System.out.println("getFirst :"+deque.getFirst());
55     System.out.println("peekLast :"+deque.getLast());
56     System.out.println("is empty :"+deque.is_empty());
57     System.out.println("size : "+deque.size());
```

<terminated> main [Java Application] C:\Program Files\Java\jre1.8.0\_231\bin\javaw.exe (9 Nis  
peekFirst :6  
peekLast :5  
getFirst :6  
peekLast :5  
is empty :false  
size : 6

There are all remove methods testing below.

```
52
53     deque.pollFirst();
54     deque.removeNode();
55     deque.pollLast();
56     deque.removeNode();
57     deque.removeFirst();
58     deque.removeNode();
59     deque.removeLast();
60     deque.removeNode();
61     deque.print_deque();
62
```

<terminated> main [Java Application] C:\Program Files\Java\jre1.8.0.  
2  
1