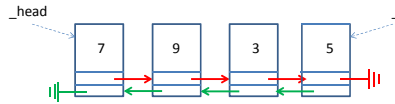


רשימה מקושרת דו-סטריק



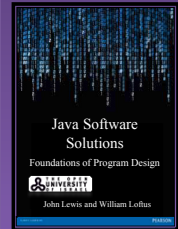
```
class IntNodeTwo {
    int _num;
    IntNodeTwo _next, _prev;
}
```

רשימות 2

מבוא למדעי המחשב ושפת Java

11.3: רשימה דו-סטריק מעגלית מרצה: תמר וילנר

האוניברסיטה הפתוחה



צומת ברשימה מקושרת דו-סטריק - המשך

```
public int getNum() { return _num; }
public IntNodeTwo getNext() { return _next; }
public IntNodeTwo getPrev() { return _prev; }

public void setNum (int num) { _num = num; }
public void setNext (IntNodeTwo n) { _next = n; }
public void setPrev (IntNodeTwo n) { _prev = n; }
```

רשימות 4

צומת ברשימה דו-סטריק

```
public class IntNodeTwo
{
    private int _num;
    private IntNodeTwo _next, _prev;

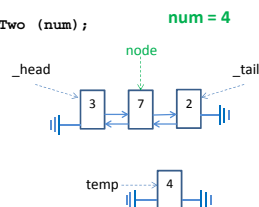
    public IntNodeTwo(int n) {
        _num = n;
        _next = null;
        _prev = null;
    }

    public IntNodeTwo(int num, IntNodeTwo n, IntNodeTwo p) {
        _num = num;
        _next = n;
        _prev = p;
    }
}
```

רשימות 3

הוספת צומת אחרי צומת נתון

```
public void insertAfter (int num, IntNodeTwo node)
{
    IntNodeTwo temp = new IntNodeTwo (num);
    if (_head == null)
    {
        _head = temp;
        _tail = _head;
    }
    else // to be continued...
```



רשימות 6

IntListTwo המחלקה

```
public class IntListTwo
{
    private IntNodeTwo _head, _tail;

    public IntListTwo()
    {
        _head = null;
        _tail = null;
    }
}
```

רשימות 5

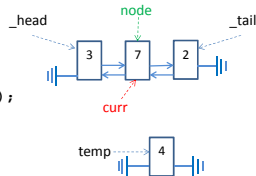
הוספת צומת ברשימה דו-סטטית - המשך

```

else {
    IntNodeTwo curr = _head;
    while (curr != node)
        curr = curr.getNext();

    temp.setNext(curr.getNext());
    temp.setPrev(curr);
    curr.setNext(temp);
    if (temp.getNext() == null)
        _tail = temp;
    else
        temp.getNext().setPrev(temp);
}
}

```



רשימות 8

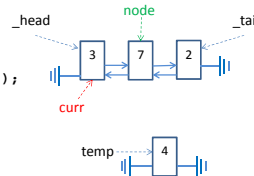
הוספת צומת ברשימה דו-סטטית - המשך

```

else {
    IntNodeTwo curr = _head;
    while (curr != node)
        curr = curr.getNext();

    temp.setNext(curr.getNext());
    temp.setPrev(curr);
    curr.setNext(temp);
    if (temp.getNext() == null)
        _tail = temp;
    else
        temp.getNext().setPrev(temp);
}
}

```



רשימות 7

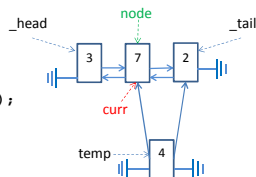
הוספת צומת ברשימה דו-סטטית - המשך

```

else {
    IntNodeTwo curr = _head;
    while (curr != node)
        curr = curr.getNext();

    temp.setNext(curr.getNext());
    temp.setPrev(curr);
    curr.setNext(temp);
    if (temp.getNext() == null)
        _tail = temp;
    else
        temp.getNext().setPrev(temp);
}
}

```



רשימות 10

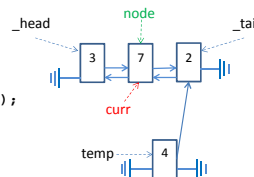
הוספת צומת ברשימה דו-סטטית - המשך

```

else {
    IntNodeTwo curr = _head;
    while (curr != node)
        curr = curr.getNext();

    temp.setNext(curr.getNext());
    temp.setPrev(curr);
    curr.setNext(temp);
    if (temp.getNext() == null)
        _tail = temp;
    else
        temp.getNext().setPrev(temp);
}
}

```



רשימות 9

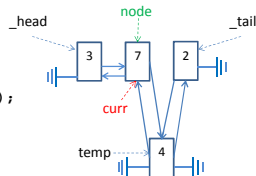
הוספת צומת ברשימה דו-סטטית - המשך

```

else {
    IntNodeTwo curr = _head;
    while (curr != node)
        curr = curr.getNext();

    temp.setNext(curr.getNext());
    temp.setPrev(curr);
    curr.setNext(temp);
    if (temp.getNext() == null)
        _tail = temp;
    else
        temp.getNext().setPrev(temp);
}
}

```



רשימות 12

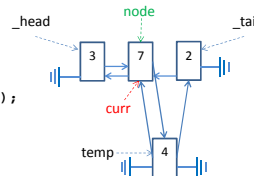
הוספת צומת ברשימה דו-סטטית - המשך

```

else {
    IntNodeTwo curr = _head;
    while (curr != node)
        curr = curr.getNext();

    temp.setNext(curr.getNext());
    temp.setPrev(curr);
    curr.setNext(temp);
    if (temp.getNext() == null)
        _tail = temp;
    else
        temp.getNext().setPrev(temp);
}
}

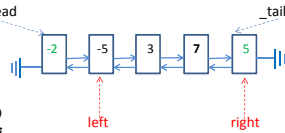
```



רשימות 11

דוגמא – סידור רשימה מחדש

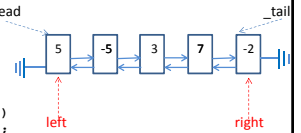
```
public void rearrange()
{
    IntNodeTwo left = _head;
    IntNodeTwo right = _tail;
    while (left != right) {
        if (left.getNum() < 0)
            left = left.getNext();
        else if (right.getNum() > 0)
            right = right.getPrev();
        else {
            int temp = left.getNum();
            left.setNum(right.getNum());
            right.setNum(temp);
        }
    }
}
```



רשימות 14

דוגמא – סידור רשימה מחדש

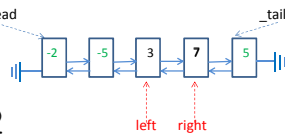
```
public void rearrange()
{
    IntNodeTwo left = _head;
    IntNodeTwo right = _tail;
    while (left != right) {
        if (left.getNum() < 0)
            left = left.getNext();
        else if (right.getNum() > 0)
            right = right.getPrev();
        else {
            int temp = left.getNum();
            left.setNum(right.getNum());
            right.setNum(temp);
        }
    }
}
```



רשימות 13

דוגמא – סידור רשימה מחדש

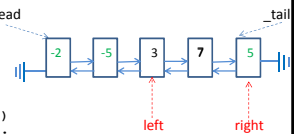
```
public void rearrange()
{
    IntNodeTwo left = _head;
    IntNodeTwo right = _tail;
    while (left != right) {
        if (left.getNum() < 0)
            left = left.getNext();
        else if (right.getNum() > 0)
            right = right.getPrev();
        else {
            int temp = left.getNum();
            left.setNum(right.getNum());
            right.setNum(temp);
        }
    }
}
```



רשימות 16

דוגמא – סידור רשימה מחדש

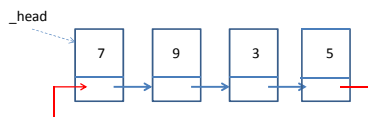
```
public void rearrange()
{
    IntNodeTwo left = _head;
    IntNodeTwo right = _tail;
    while (left != right) {
        if (left.getNum() < 0)
            left = left.getNext();
        else if (right.getNum() > 0)
            right = right.getPrev();
        else {
            int temp = left.getNum();
            left.setNum(right.getNum());
            right.setNum(temp);
        }
    }
}
```



רשימות 15

רשימה מקושרת מעגלית

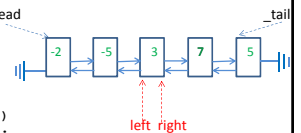
האיבר האחרון ברשימה מצביע על האיבר הראשון.



רשימות 18

דוגמא – סידור רשימה מחדש

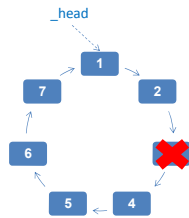
```
public void rearrange()
{
    IntNodeTwo left = _head;
    IntNodeTwo right = _tail;
    while (left != right) {
        if (left.getNum() < 0)
            left = left.getNext();
        else if (right.getNum() > 0)
            right = right.getPrev();
        else {
            int temp = left.getNum();
            left.setNum(right.getNum());
            right.setNum(temp);
        }
    }
}
```



רשימות 17

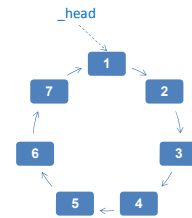
Flavius Josephus - דוגמא

3 was killed



רשימות 20

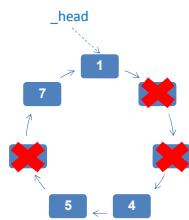
Flavius Josephus - דוגמא



רשימות 19

Flavius Josephus - דוגמא

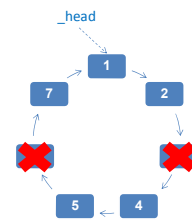
3 was killed
6 was killed
2 was killed



רשימות 22

Flavius Josephus - דוגמא

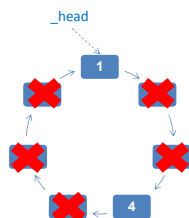
3 was killed
6 was killed



רשימות 21

Flavius Josephus - דוגמא

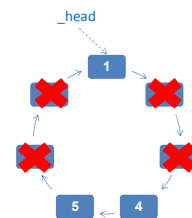
3 was killed
6 was killed
2 was killed
7 was killed
5 was killed



רשימות 24

Flavius Josephus - דוגמא

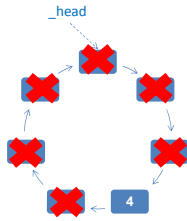
3 was killed
6 was killed
2 was killed
7 was killed



רשימות 23

דוגמא - Flavius Josephus

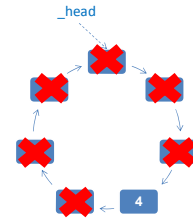
3 was killed
6 was killed
2 was killed
7 was killed
5 was killed
1 was killed
4 left



רשימות 26

דוגמא - Flavius Josephus

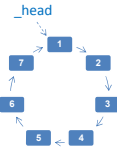
3 was killed
6 was killed
2 was killed
7 was killed
5 was killed
1 was killed



רשימות 25

הקוד - Flavius Josephus

```
public int enDenDino (int k)
{
    IntNode p = _head, pred = _head;
    while (! ((p== _head) && (p.getNext() == _head))) {
        for (int i=1; i<k; i++) {
            pred = p;
            p = p.getNext();
        }
        pred.setNext(p.getNext());
        System.out.println (p.getValue() + "left");
        if (p == _head)
            _head = p.getNext();
        p = p.getNext();
    }
    return p.getValue();
}
```



רשימות 27