

University of Cape Town ~ Department of Computer Science

Computer Science 1016S ~ 2009

Practical Test 2A

Time: 45 minutes

Linked List Manipulation

Write a method to print out every second element in a singly linked list containing Strings.

Your method must be contained in the derived class `TestListA`, stored in `TestListA.java`, and must use the list/node framework provided. `Test2A.java` will indicate the name and parameters for your method.

Note that new nodes are always added at the head, so the list is reversed once read in.

All class files you need are provided on Vula under Assignments.

Sample Input

```
1
2
3
4
5
```

Sample Output

```
4
2
```

You may consult your paper notes and textbook, but no electronic resources. You may NOT use a search engine or consult any Web resources or files on your flash disk, hard drive, etc.

Submit the **TestListA.java** source file contained within a .ZIP file to the Automatic Marker. Marks will be awarded for correctness only – in addition, the use of any array construct in your code will result in a penalty of 60%!

Practical Test 2B

Time: 45 minutes

Linked List Manipulation

Write a method to print out every second element in a singly linked list containing Strings, beginning with the first element.

Your method must be contained in the derived class `TestListB`, stored in `TestListB.java`, and must use the list/node framework provided. `Test2B.java` will indicate the name and parameters for your method.

Note that new nodes are always added at the head, so the list is reversed once read in.

All class files you need are provided on Vula under Assignments.

Sample Input

1
2
3
4
5

Sample Output

5
3
1

You may consult your paper notes and textbook, but no electronic resources. You may NOT use a search engine or consult any Web resources or files on your flash disk, hard drive, etc.

Submit the **TestListB.java** source file contained within a .ZIP file to the Automatic Marker. Marks will be awarded for correctness only – in addition, the use of any array construct in your code will result in a penalty of 60%!

Practical Test 2C

Time: 45 minutes

Linked List Manipulation

Write a method to swap the first 2 elements in a singly linked list containing Strings.

Your method must be contained in the derived class `TestListC`, stored in `TestListC.java`, and must use the list/node framework provided. `Test2C.java` will indicate the name and parameters for your method.

Note that new nodes are always added at the head, so the list is reversed once read in.

All class files you need are provided on Vula under Assignments.

Sample Input

```
1
2
3
4
5
```

Sample Output

```
4
5
3
2
1
```

You may consult your paper notes and textbook, but no electronic resources. You may NOT use a search engine or consult any Web resources or files on your flash disk, hard drive, etc.

Submit the **TestListC.java** source file contained within a .ZIP file to the Automatic Marker. Marks will be awarded for correctness only – in addition, the use of any array construct in your code will result in a penalty of 60%!

Practical Test 2D

Time: 45 minutes

Linked List Manipulation

Write a method to load a list of lines of text from a file into a singly linked list containing Strings.

Your method must be contained in the derived class `TestListD`, stored in `TestListD.java`, and must use the list/node framework provided. `Test2D.java` will indicate the name and parameters for your method. The name of the file is provided as a command-line parameter.

Note that new nodes are always added at the head, so the list is reversed once read in.

All class files you need are provided on Vula under Assignments.

Sample File

```
1
2
3
4
5
```

Sample Output

```
5
4
3
2
1
```

You may consult your paper notes and textbook, but no electronic resources. You may NOT use a search engine or consult any Web resources or files on your flash disk, hard drive, etc.

Submit the **TestListD.java** source file contained within a .ZIP file to the Automatic Marker. Marks will be awarded for correctness only – in addition, the use of any array construct in your code will result in a penalty of 60%!

Practical Test 2E

Time: 45 minutes

Linked List Manipulation

Write a method to save the contents of a singly linked list containing Strings to a file.

Your method must be contained in the derived class `TestListE`, stored in `TestListE.java`, and must use the list/node framework provided. `Test2E.java` will indicate the name and parameters for your method. The name of the file is provided as a command-line parameter.

Note that new nodes are always added at the head, so the list is reversed once read in.

All class files you need are provided on Vula under Assignments.

Sample Input

```
1
2
3
4
5
```

Sample File

```
5
4
3
2
1
```

You may consult your paper notes and textbook, but no electronic resources. You may NOT use a search engine or consult any Web resources or files on your flash disk, hard drive, etc.

Submit the **TestListE.java** source file contained within a .ZIP file to the Automatic Marker. Marks will be awarded for correctness only – in addition, the use of any array construct in your code will result in a penalty of 60%!

Practical Test 2F

Time: 45 minutes

Linked List Manipulation

Write a method to insert a new element in the second position in a singly linked list containing Strings.

Your method must be contained in the derived class `TestListF`, stored in `TestListF.java`, and must use the list/node framework provided. `Test2F.java` will indicate the name and parameters for your method.

Note that new nodes are always added at the head, so the list is reversed once read in. If the list is empty, your method must not add the element.

All class files you need are provided on Vula under Assignments.

Sample Input

```
1
2
3
4
5
```

Sample Output

```
5
new value
4
3
2
1
```

You may consult your paper notes and textbook, but no electronic resources. You may NOT use a search engine or consult any Web resources or files on your flash disk, hard drive, etc.

Submit the **TestListF.java** source file contained within a .ZIP file to the Automatic Marker. Marks will be awarded for correctness only – in addition, the use of any array construct in your code will result in a penalty of 60%!

Practical Test 2G

Time: 45 minutes

Linked List Manipulation

Write a method to delete the second element of a singly linked list containing Strings.

Your method must be contained in the derived class `TestListG`, stored in `TestListG.java`, and must use the list/node framework provided. `Test2G.java` will indicate the name and parameters for your method.

Note that new nodes are always added at the head, so the list is reversed once read in.

All class files you need are provided on Vula under Assignments.

Sample Input

```
1
2
3
4
5
```

Sample Output

```
5
3
2
1
```

You may consult your paper notes and textbook, but no electronic resources. You may NOT use a search engine or consult any Web resources or files on your flash disk, hard drive, etc.

Submit the **TestListG.java** source file contained within a .ZIP file to the Automatic Marker. Marks will be awarded for correctness only – in addition, the use of any array construct in your code will result in a penalty of 60%!