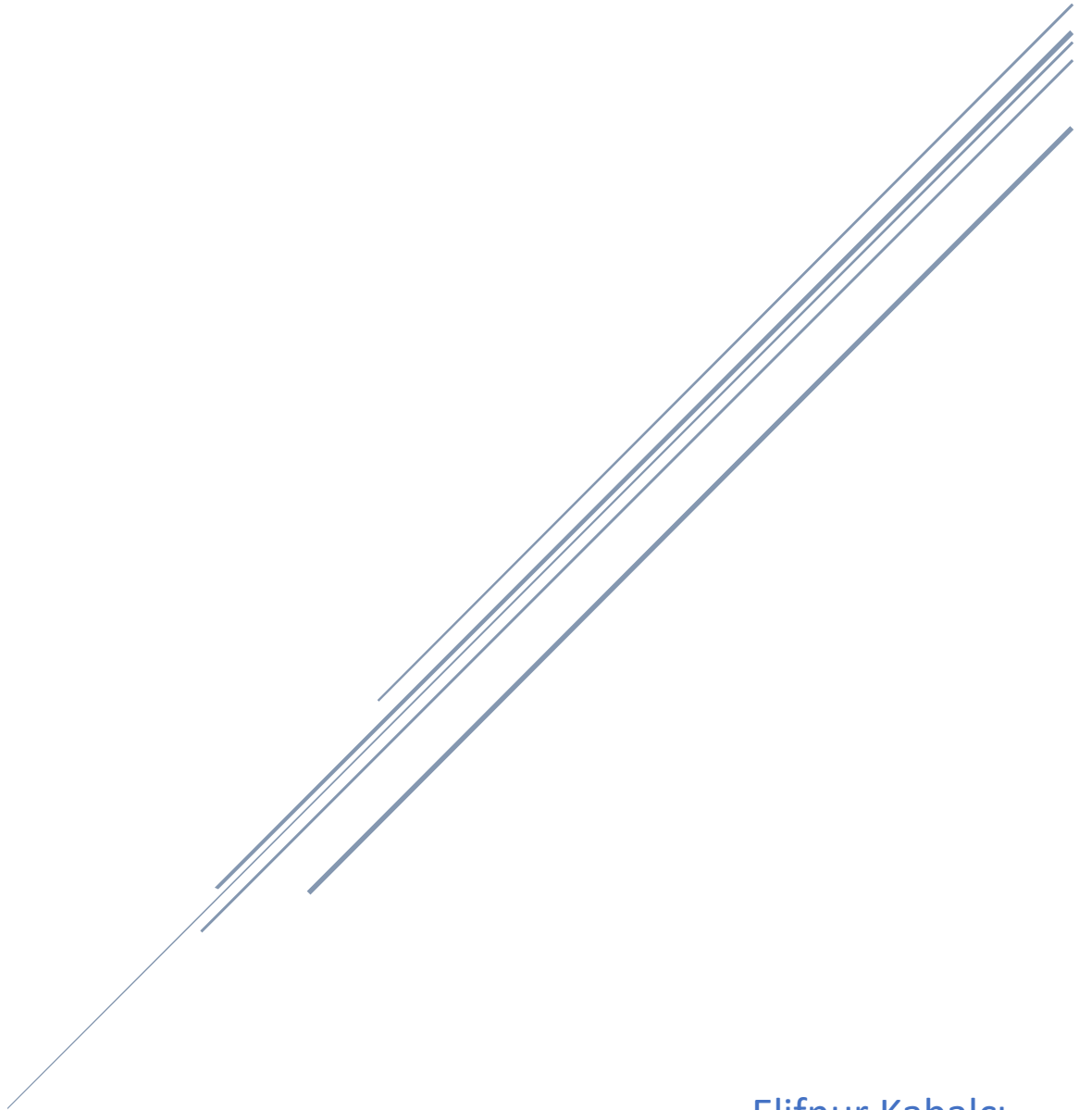


# CSE222 HW3 REPORT



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Array:

TestCase1: Total execution time: 24 millisecond  
TestCase2: Total execution time: 41 millisecond  
TestCase3: Total execution time: 25 millisecond.

ArrayList:

TestCase1: Total execution time: 28 millisecond.  
TestCase2: Total execution time: 40 millisecond.  
TestCase3: Total execution time: 29 millisecond.  
TestCase4: Total execution time: 69 millisecond.

LinkedList:

TestCase1: Total execution time: 25 millisecond.  
TestCase2: Total execution time: 37 millisecond.  
TestCase3: Total execution time: 23 millisecond.  
TestCase4: Total execution time: 52 millisecond.

LDLinkedList:

TestCase1: Total execution time: 23 millisecond.  
TestCase2: Total execution time: 45 millisecond.  
TestCase3: Total execution time: 32 millisecond.  
TestCase4: Total execution time: 53 millisecond.

**Array:** Arrays are the most basic data structure in Java and are implemented as a fixed-size sequence of elements of the same type. The time complexity for accessing an element in an array is  $O(1)$ , which means that it takes the same amount of time to access any element in the array regardless of its position. However, the time complexity for inserting or deleting an element in an array is  $O(n)$ , where  $n$  is the size of the array. This is because when an element is inserted or deleted, all the elements after it have to be shifted to make space or fill the gap, which takes a linear amount of time.

**ArrayList:** ArrayLists are implemented as resizable arrays that can dynamically grow or shrink as elements are added or removed. The time complexity for accessing an element in an ArrayList is also  $O(1)$ , which is the same as for arrays. However, the time complexity for inserting or deleting an element in an ArrayList is  $O(n)$  on average, where  $n$  is the number of elements in the ArrayList. This is because when an element is inserted or deleted, all the elements after it have to be shifted to make space or fill the gap, which takes a linear amount of time. However, the worst-case time complexity for inserting or deleting an element in an ArrayList is  $O(n)$ , which occurs when the ArrayList has to be resized.

**LinkedList:** LinkedLists are implemented as a sequence of nodes, where each node contains a reference to the next node in the sequence. The time complexity for accessing an element in a LinkedList is  $O(n)$ , where  $n$  is the position of the element in the list. This is because to access an element, we have to traverse the list from the beginning until we reach the desired element. The time complexity for inserting or deleting an element in a LinkedList is  $O(1)$  on average, which means that it takes constant time to insert or delete an element at any position in the list.

**Lazy Deletion (LD) Linked List:** Lazy Deletion Linked List are a variation of Linked Lists where nodes are marked as deleted instead of being physically removed. The marked nodes are later cleaned up during a traversal of the list. The time complexity of accessing an element in a LD LinkedList is still  $O(n)$ , the same as a regular LinkedList, but the time complexity for deleting an element is improved to  $O(1)$  on average, since it only requires marking the node as deleted instead of removing it.

Therefore, in terms of time complexity, LD LinkedLists have similar characteristics as regular LinkedLists, but with improved performance for deletions. However, LD LinkedLists may require more memory compared to regular LinkedLists due to the marking of deleted nodes. As with any data structure, the choice of which to use depends on the specific requirements of the problem being solved.

In summary, when it comes to time complexity, Arrays and ArrayLists have faster access times than LinkedLists and LDLinkedLists. However, LinkedLists and LDLinkedLists have faster insertion and deletion times than Arrays and ArrayLists. The choice of which data structure to use depends on the specific needs of the application and the operations that will be performed on the data.

## ArrayList Outputs:

TestCase1:

```
PS C:\Users\k.kabalcı2018\Desktop\data-2\socialmedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\k.kabalcı2018\Desktop\data-2\socialmedia\bin' 'arraylist.TestClass1'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

Viewing sibelgulmez's posts...
PostID: post1 sibelgulmez: I like Java
PostID: post2 sibelgulmez: Java the coffee..

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya
```

Logging into an account: gizemsungu  
Checking outbox..  
There is/are 0 message(s) in the outbox.  
Checking inbox..  
There is/are 1 message(s) in the inbox.

Viewing Inbox:  
Message ID: message1  
From: 3-gokhankaya  
To: 1-gizemsungu  
Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...

-----  
User ID: 2-sibelgulmez  
Username: sibelgulmez  
Location: Ankara  
Birthday: 02/02/2001  
sibelgulmez is following 2 account(s) and has 1 follower(s).  
The followers of sibelgulmez are: gokhankaya,  
sibelgulmez is following: gizemsungu, gokhankaya,  
sibelgulmez has 2 posts.

Viewing sibelgulmez's posts...  
PostID: post1 sibelgulmez: I like Java  
PostID: post2 sibelgulmez: Java the coffee..

Interactions:

-----  
PostID: post1: I like Java  
The post has no likes.  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:

-----  
PostID: post1: I like Java  
The post was liked by the following accounts:  
1-gizemsungu  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Logging out from account: gizemsungu

## TestCase2:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'arraylist.TestClass2'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

Viewing sibelgulmez's posts...
PostID: post1 sibelgulmez: I like Java
PostID: post2 sibelgulmez: Java the coffee..

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...
```

Logging out from account: gokhankaya

Logging into an account: gizemsungu

Checking outbox..

There is/are 0 message(s) in the outbox.

Checking inbox..

There is/are 1 message(s) in the inbox.

Viewing Inbox:

Message ID: message1

From: 3-gokhankaya

To: 1-gizemsungu

Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...

-----

User ID: 2-sibelgulmez

Username: sibelgulmez

Location: Ankara

Birthday: 02/02/2001

sibelgulmez is following 2 account(s) and has 1 follower(s).

The followers of sibelgulmez are: gokhankaya,

sibelgulmez is follloving: gizemsungu, gokhankaya,

sibelgulmez has 2 posts.

Viewing sibelgulmez's posts...

PostID: post1 sibelgulmez: I like Java

PostID: post2 sibelgulmez: Java the coffee..

Interactions:

-----

PostID: post1: I like Java

The post has no likes.

The post has no comments.

-----

PostID: post2: Java the coffee..

The post was liked by the following accounts:

3-gokhankaya

The post has 1 comment(s)...

Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:

-----

PostID: post1: I like Java

The post was liked by the following accounts:

1-gizemsungu

The post has no comments.

-----

PostID: post2: Java the coffee..

The post was liked by the following accounts:

3-gokhankaya

PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..  
  
Sharing post..  
  
Sharing post..  
  
Logging out from account: gizemsungu  
  
Logging into an account: sibelgulmez  
  
Viewing gizemsungu's profile...  
-----  
User ID: 1-gizemsungu  
Username: gizemsungu  
Location: Istanbul  
Birthday: 01/01/2000  
gizemsungu is following 0 account(s) and has 2 follower(s).  
The followers of gizemsungu are: sibelgulmez, gokhankaya,  
  
gizemsungu has 2 posts.  
  
Liking a post of gizemsungu..  
  
Logging out from account: sibelgulmez  
  
Logging into an account: gokhankaya  
  
Viewing gizemsungu's profile...  
-----  
User ID: 1-gizemsungu  
Username: gizemsungu  
Location: Istanbul  
Birthday: 01/01/2000  
gizemsungu is following 0 account(s) and has 2 follower(s).  
The followers of gizemsungu are: sibelgulmez, gokhankaya,  
  
gizemsungu has 2 posts.  
  
Commenting a post of gizemsungu..  
  
Sending a message to gizemsungu..  
  
Logging out from account: gokhankaya  
  
Logging into an account: gizemsungu



Logging into an account: gizemsungu

User ID: 1-gizemsungu

Username: gizemsungu

Location: Istanbul

Birthday: 01/01/2000

gizemsungu is following 0 account(s) and has 2 follower(s).

The followers of gizemsungu are: sibelgulmez, gokhankaya,

gizemsungu has 2 posts.

Message 1: Hi gizem, I am following to you..

Message 2: Hiii

Logging out from account: gizemsungu

### TestCase3:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> c;; cd 'c:\Users\e.kabalci2018\Desktop\data-2\socia
lmedia'; & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp'
'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'arraylist.TestClass3'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

Viewing sibelgulmez's posts...
PostID: post1 sibelgulmez: I like Java
PostID: post2 sibelgulmez: Java the coffee..

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu

Checking outbox..
```

Checking outbox..  
There is/are 0 message(s) in the outbox.

Checking inbox..  
There is/are 1 message(s) in the inbox.

Viewing Inbox:  
Message ID: message1  
From: 3-gokhankaya  
To: 1-gizemsungu  
Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...

-----  
User ID: 2-sibelgulmez  
Username: sibelgulmez  
Location: Ankara  
Birthday: 02/02/2001  
sibelgulmez is following 2 account(s) and has 1 follower(s).  
The followers of sibelgulmez are: gokhankaya,  
sibelgulmez is following: gizemsungu, gokhankaya,  
sibelgulmez has 2 posts.

Viewing sibelgulmez's posts...  
PostID: post1 sibelgulmez: I like Java  
PostID: post2 sibelgulmez: Java the coffee..

Interactions:

-----  
PostID: post1: I like Java  
The post has no likes.  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:

-----

PostID: post1: I like Java

The post was liked by the following accounts:

1-gizemsungu

The post has no comments.

-----

PostID: post2: Java the coffee..

The post was liked by the following accounts:

3-gokhankaya

The post has 1 comment(s)...

Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Logging out from account: gizemsungu

Logging into an account: sibelgulmez

This user cannot found: gizemsungu

This user cannot found: gizemsungu

Logging out from account: sibelgulmez

#### TestCase4:

```
P5 C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'arraylist.TestClass4'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
An account with username account1 has been created.
An account with username account2 has been created.
An account with username account3 has been created.
An account with username account4 has been created.
An account with username account5 has been created.
An account with username account6 has been created.
An account with username account7 has been created.

Logging into an account: sibelgulmez

Sharing post..
Sharing post..

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

Viewing sibelgulmez's posts...
PostID: post1 sibelgulmez: I like Java
PostID: post2 sibelgulmez: Java the coffee..

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya
```

Logging into an account: gizemsungu

Checking outbox..

There is/are 0 message(s) in the outbox.

Checking inbox..

There is/are 1 message(s) in the inbox.

Viewing Inbox:

Message ID: message1

From: 3-gokhankaya

To: 1-gizemsungu

Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...

-----

User ID: 2-sibelgulmez

Username: sibelgulmez

Location: Ankara

Birthday: 02/02/2001

sibelgulmez is following 2 account(s) and has 1 follower(s).

The followers of sibelgulmez are: gokhankaya,

sibelgulmez is following: gizemsungu, gokhankaya,

sibelgulmez has 2 posts.

Viewing sibelgulmez's posts...

PostID: post1 sibelgulmez: I like Java

PostID: post2 sibelgulmez: Java the coffee..

Interactions:

-----

PostID: post1: I like Java

The post has no likes.

The post has no comments.

-----

PostID: post2: Java the coffee..

The post was liked by the following accounts:

3-gokhankaya

The post has 1 comment(s)...

Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:

-----

PostID: post1: I like Java

The post was liked by the following accounts:

1-gizemsungu

The post has no comments.

PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..  
  
Logging out from account: gizemsungu  
  
Logging into an account: sibelgulmez  
  
This user cannot found: gizemsungu  
  
This user cannot found: gizemsungu  
  
Logging out from account: sibelgulmez  
  
Logging into an account: account1  
  
Following account7  
  
Viewing sibelgulmez's profile...  
-----  
User ID: 2-sibelgulmez  
Username: sibelgulmez  
Location: Ankara  
Birthday: 02/02/2001  
sibelgulmez is following 2 account(s) and has 1 follower(s).  
The followers of sibelgulmez are: gokhankaya,  
sibelgulmez is following: gizemsungu, gokhankaya,  
sibelgulmez has 2 posts.  
  
Commenting a post of sibelgulmez..  
  
Sharing post..  
  
You followed account7  
You commented sibelgulmez's post. Post id: post2  
You shared post, id: post3  
  
Logging into an account: account2  
  
Following gokhankaya  
  
Following gizemsungu  
  
Sharing post..  
  
Liking a post of account1..  
  
Sending a message to account5...

Logging into an account: account3

Sharing post..

PostID: post5 account3: This is test message.

Logging into an account: account4

Sharing post..

Sharing post..

Liking a post of account1..

Viewing gizemsungu's profile...

-----

User ID: 1-gizemsungu

Username: gizemsungu

Location: Istanbul

Birthday: 01/01/2000

gizemsungu is following 0 account(s) and has 3 follower(s).

The followers of gizemsungu are: sibelgulmez, gokhankaya, account2,

gizemsungu has 0 posts.

This user cannot found: account3

You shared post, id: post6

You shared post, id: post7

You liked account1's post. Post id: post3

You unliked the account1's post. Post id: post3

Logging into an account: account5

Commenting a post of account4..

Sending a message to account1...

Viewing Inbox:

Message ID: message2

From: 5-account2

To: 8-account5

Message: The ring that will rule of them.

Commenting a post of account4..



You commented account4's post. Post id: post7  
You commented account4's post. Post id: post6  
You uncomment the account4's post. Post id: post6

Logging into an account: account6

Following account5

Liking a post of account4..

Viewing account2's posts...  
PostID: post4 account2: three.js is very good.

You followed account5  
You liked account4's post. Post id: post7  
You followed account5

Logging into an account: account7

Viewing account1's profile...  
-----  
User ID: 4-account1  
Username: account1  
Location: Istanbul  
Birthday: 01/01/2001  
account1 is following 1 account(s) and has 0 follower(s).

account1 is following: account7,  
account1 has 1 posts.

Viewing account1's profile...  
-----  
User ID: 4-account1  
Username: account1  
Location: Istanbul  
Birthday: 01/01/2001  
account1 is following 1 account(s) and has 0 follower(s).

account1 is following: account7,  
account1 has 1 posts.

You blocked account1  
You unblocked account1

# LinkedList Outputs:

TestCase1:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'linkedlist.TestClass1'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu
Checking outbox..
```

```
Checking outbox..
There is/are 0 message(s) in the outbox.
Checking inbox..
There is/are 1 message(s) in the inbox.

Viewing Inbox:
Message ID: message1
From: 3-gokhankaya
To: 1-gizemsungu
Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 1 follower(s).
The followers of sibelgulmez are: gokhankaya,
sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

Interactions:
-----
PostID: post1: I like Java
The post has no likes.
The post has no comments.
-----
PostID: post2: Java the coffee..
The post was liked by the following accounts:
3-gokhankaya
The post has 1 comment(s)...
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:
-----
PostID: post1: I like Java
The post was liked by the following accounts:
1-gizemsungu
The post has no comments.
-----
PostID: post2: Java the coffee..
The post was liked by the following accounts:
3-gokhankaya
The post has 1 comment(s)...
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Logging out from account: gizemsungu
```

## TestCase2:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'linkedin.TestClass2'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu
Checking outbox..
There is/are 0 message(s) in the outbox.
Checking inbox..
There is/are 1 message(s) in the inbox.
```

Viewing Inbox:  
Message ID: message1  
From: 3-gokhankaya  
To: 1-gizemsungu  
Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...

-----  
User ID: 2-sibelgulmez  
Username: sibelgulmez  
Location: Ankara  
Birthday: 02/02/2001  
sibelgulmez is following 2 account(s) and has 1 follower(s).  
The followers of sibelgulmez are: gokhankaya,  
sibelgulmez is following: gizemsungu, gokhankaya,  
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

Interactions:

-----  
PostID: post1: I like Java  
The post has no likes.  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:

-----  
PostID: post1: I like Java  
The post was liked by the following accounts:  
1-gizemsungu  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Sharing post..

Sharing post..

Logging out from account: gizemsungu

Logging into an account: sibelgulmez

Viewing gizemsungu's profile...

-----

User ID: 1-gizemsungu

Username: gizemsungu

Location: Istanbul

Birthday: 01/01/2000

gizemsungu is following 0 account(s) and has 2 follower(s).

The followers of gizemsungu are: sibelgulmez, gokhankaya,

gizemsungu has 2 posts.

Liking a post of gizemsungu..

Logging out from account: sibelgulmez

Logging into an account: gokhankaya

Viewing gizemsungu's profile...

-----

User ID: 1-gizemsungu

Username: gizemsungu

Location: Istanbul

Birthday: 01/01/2000

gizemsungu is following 0 account(s) and has 2 follower(s).

The followers of gizemsungu are: sibelgulmez, gokhankaya,

```
gizemsungu has 2 posts.

Liking a post of gizemsungu..

Logging out from account: sibelgulmez

Logging into an account: gokhankaya

Viewing gizemsungu's profile...
-----
User ID: 1-gizemsungu
Username: gizemsungu
Location: Istanbul
Birthday: 01/01/2000
gizemsungu is following 0 account(s) and has 2 follower(s).
The followers of gizemsungu are: sibelgulmez, gokhankaya,

gizemsungu has 2 posts.

Commenting a post of gizemsungu..

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu

User ID: 1-gizemsungu
Username: gizemsungu
Location: Istanbul
Birthday: 01/01/2000
gizemsungu is following 0 account(s) and has 2 follower(s).
The followers of gizemsungu are: sibelgulmez, gokhankaya,

gizemsungu has 2 posts.

Message 1: Hi gizem, I am following to you..
Message 2: Hiii

Logging out from account: gizemsungu
```

TestCase3:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\sociaimedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+Sh
owCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\sociaimedia\bin' 'linkedin.TestC
lass3'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is follloing: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu

Checking outbox..
There is/are 0 message(s) in the outbox.
```



Checking inbox..  
There is/are 1 message(s) in the inbox.

Viewing Inbox:  
Message ID: message1  
From: 3-gokhankaya  
To: 1-gizemsungu  
Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...  
-----  
User ID: 2-sibelgulmez  
Username: sibelgulmez  
Location: Ankara  
Birthday: 02/02/2001  
sibelgulmez is following 2 account(s) and has 1 follower(s).  
The followers of sibelgulmez are: gokhankaya,  
sibelgulmez is following: gizemsungu, gokhankaya,  
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

Interactions:  
-----  
PostID: post1: I like Java  
The post has no likes.  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..  
  
Liking a post of sibelgulmez..

Interactions:  
-----  
PostID: post1: I like Java  
The post was liked by the following accounts:  
1-gizemsungu  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Logging out from account: gizemsungu  
  
Logging into an account: sibelgulmez  
  
This user cannot found: gizemsungu  
  
This user cannot found: gizemsungu  
  
Logging out from account: sibelgulmez

#### TestCase4:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'linkedin.TestClass4'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
An account with username account1 has been created.
An account with username account2 has been created.
An account with username account3 has been created.
An account with username account4 has been created.
An account with username account5 has been created.
An account with username account6 has been created.
An account with username account7 has been created.

Logging into an account: sibelgulmez

Sharing post..
Sharing post..

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu
```

Checking outbox..  
There is/are 0 message(s) in the outbox.

Checking inbox..  
There is/are 1 message(s) in the inbox.

Viewing Inbox:  
Message ID: message1  
From: 3-gokhankaya  
To: 1-gizemsungu  
Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...

-----  
User ID: 2-sibelgulmez  
Username: sibelgulmez  
Location: Ankara  
Birthday: 02/02/2001  
sibelgulmez is following 2 account(s) and has 1 follower(s).  
The followers of sibelgulmez are: gokhankaya,  
sibelgulmez is following: gizemsungu, gokhankaya,  
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

Interactions:

-----  
PostID: post1: I like Java  
The post has no likes.  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:

-----  
PostID: post1: I like Java  
The post was liked by the following accounts:  
1-gizemsungu  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

```
Logging out from account: gizemsungu

Logging into an account: sibelgulmez

This user cannot found: gizemsungu

This user cannot found: gizemsungu

Logging out from account: sibelgulmez

Logging into an account: account1

Following account7
Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 1 follower(s).
The followers of sibelgulmez are: gokhankaya,
sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.
Commenting a post of sibelgulmez..
Sharing post..
You followed account7
You commented sibelgulmez's post. Post id: post2
You shared post, id: post3

Logging into an account: account2

Following gokhankaya
Following gizemsungu
Sharing post..
Liking a post of account1..
Sending a message to account5...

Logging into an account: account3

Sharing post..
PostID: post5  account3: This is test message.

Logging into an account: account4
```

Sharing post..  
Sharing post..  
Liking a post of account1..  
Viewing gizemsungu's profile...  
-----  
User ID: 1-gizemsungu  
Username: gizemsungu  
Location: Istanbul  
Birthday: 01/01/2000  
gizemsungu is following 0 account(s) and has 3 follower(s).  
The followers of gizemsungu are: sibelgulmez, gokhankaya, account2,  
  
gizemsungu has 0 posts.  
This user cannot found: account3  
You shared post, id: post6  
You shared post, id: post7  
You liked account1's post. Post id: post3  
You unliked the account1's post. Post id: post3  
  
Logging into an account: account5  
  
Commenting a post of account4..  
Sending a message to account1...  
Viewing Inbox:  
Message ID: message2  
From: 5-account2  
To: 8-account5  
Message: The ring that will rule of them.  
  
Commenting a post of account4..  
You commented account4's post. Post id: post7  
You commented account4's post. Post id: post6  
You uncommment the account4's post. Post id: post6  
  
Logging into an account: account6  
  
Following account5  
Liking a post of account4..  
This user doesnt have any post: account2  
You followed account5  
You liked account4's post. Post id: post7  
You unfollowed account5  
  
Logging into an account: account7

Viewing account1's profile...

-----  
User ID: 4-account1

Username: account1

Location: Istanbul

Birthday: 01/01/2001

account1 is following 1 account(s) and has 0 follower(s).

account1 is following: account7,

account1 has 1 posts.

Viewing account1's profile...

-----  
User ID: 4-account1

Username: account1

Location: Istanbul

Birthday: 01/01/2001

account1 is following 1 account(s) and has 0 follower(s).

account1 is following: account7,

account1 has 1 posts.

You blocked account1

You unblocked account1

## LDLinkedList Outputs:

TestCase1:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'ld linkedlist.TestClass1'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu
Checking outbox..
There is/are 0 message(s) in the outbox.
Checking inbox..
There is/are 1 message(s) in the inbox.
```

```
Message ID: message1
From: 3-gokhankaya
To: 1-gizemsungu
Message: Hi gizem, I am following to you..
```

```
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 1 follower(s).
The followers of sibelgulmez are: gokhankaya,
sibelgulmez is follloing: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.
```

Interactions:

```
The post has no likes.  
The post has no comments.
```

The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...

Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Interactions:

```
The post was liked by the following accounts:
1-gizemsungu
The post has no comments.
```

The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

[illegible]



## TestCase2:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\sociaimedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\sociaimedia\bin' 'ld linkedlist.TestClass2'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu
Checking outbox..
There is/are 0 message(s) in the outbox.
Checking inbox..
There is/are 1 message(s) in the inbox.
```

Viewing Inbox:

Message ID: message1

From: 3-gokhankaya

To: 1-gizemsungu

Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...

-----

User ID: 2-sibelgulmez

Username: sibelgulmez

Location: Ankara

Birthday: 02/02/2001

sibelgulmez is following 2 account(s) and has 1 follower(s).

The followers of sibelgulmez are: gokhankaya,

sibelgulmez is following: gizemsungu, gokhankaya,

sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

Interactions:

-----

PostID: post1: I like Java

The post has no likes.

The post has no comments.

-----

PostID: post2: Java the coffee..

The post was liked by the following accounts:

3-gokhankaya

The post has 1 comment(s)...

Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:

-----

PostID: post1: I like Java

The post was liked by the following accounts:

1-gizemsungu

The post has no comments.

-----

PostID: post2: Java the coffee..

The post was liked by the following accounts:

3-gokhankaya

The post has 1 comment(s)...

Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Sharing post..

Sharing post..

Logging out from account: gizemsungu

Logging into an account: sibelgulmez

```
Viewing gizemsungu's profile...
-----
User ID: 1-gizemsungu
Username: gizemsungu
Location: Istanbul
Birthday: 01/01/2000
gizemsungu is following 0 account(s) and has 2 follower(s).
The followers of gizemsungu are: sibelgulmez, gokhankaya,

gizemsungu has 2 posts.

Liking a post of gizemsungu..

Logging out from account: sibelgulmez

Logging into an account: gokhankaya

Viewing gizemsungu's profile...
-----
User ID: 1-gizemsungu
Username: gizemsungu
Location: Istanbul
Birthday: 01/01/2000
gizemsungu is following 0 account(s) and has 2 follower(s).
The followers of gizemsungu are: sibelgulmez, gokhankaya,

gizemsungu has 2 posts.

Commenting a post of gizemsungu..

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu

User ID: 1-gizemsungu
Username: gizemsungu
Location: Istanbul
Birthday: 01/01/2000
gizemsungu is following 0 account(s) and has 2 follower(s).
The followers of gizemsungu are: sibelgulmez, gokhankaya,

gizemsungu has 2 posts.

Message 1: Hi gizem, I am following to you..
Message 2: Hiii

Logging out from account: gizemsungu
```

### TestCase3:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'ld linkedlist.TestClass3'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
Logging into an account: sibelgulmez

Sharing post..
Sharing post..

This account is not logged account: gokhankaya

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

This account is not logged account: gizemsungu

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

This user doesnt have any post: gizemsungu

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu

Checking outbox..
There is/are 0 message(s) in the outbox.
```

```
Checking inbox..  
There is/are 1 message(s) in the inbox.  
  
Viewing Inbox:  
Message ID: message1  
From: 3-gokhankaya  
To: 1-gizemsungu  
Message: Hi gizem, I am following to you..
```

```
Viewing sibelgulmez's profile...  
-----  
User ID: 2-sibelgulmez  
Username: sibelgulmez  
Location: Ankara  
Birthday: 02/02/2001  
sibelgulmez is following 2 account(s) and has 1 follower(s).  
The followers of sibelgulmez are: gokhankaya,  
sibelgulmez is following: gizemsungu, gokhankaya,  
sibelgulmez has 2 posts.
```

```
This user doesnt have any post: sibelgulmez
```

```
Interactions:  
-----  
PostID: post1: I like Java  
The post has no likes.  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..
```

```
Liking a post of sibelgulmez..
```

```
Interactions:  
-----  
PostID: post1: I like Java  
The post was liked by the following accounts:  
1-gizemsungu  
The post has no comments.  
-----  
PostID: post2: Java the coffee..  
The post was liked by the following accounts:  
3-gokhankaya  
The post has 1 comment(s)...  
Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..
```

```
Logging out from account: gizemsungu  
  
Logging into an account: sibelgulmez  
  
This user cannot found: gizemsungu  
  
This user cannot found: gizemsungu  
  
Logging out from account: sibelgulmez
```

#### TestCase4:

```
PS C:\Users\e.kabalci2018\Desktop\data-2\socialmedia> c::; cd 'c:\Users\e.kabalci2018\Desktop\data-2\socialmedia'; & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Desktop\data-2\socialmedia\bin' 'ldlinkedlist.TestClass4'
Creating accounts...
An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.
An account with username account1 has been created.
An account with username account2 has been created.
An account with username account3 has been created.
An account with username account4 has been created.
An account with username account5 has been created.
An account with username account6 has been created.
An account with username account7 has been created.

Logging into an account: sibelgulmez

Sharing post..
Sharing post..

Following gizemsungu
Following gokhankaya

Logging out from account: sibelgulmez

Logging into an account: gokhankaya

Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 0 follower(s).

sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

Liking a post of sibelgulmez..

Commenting a post of sibelgulmez..

Following sibelgulmez
Following gizemsungu

Sending a message to gizemsungu...

Logging out from account: gokhankaya

Logging into an account: gizemsungu
```

Checking outbox..

There is/are 0 message(s) in the outbox.

Checking inbox..

There is/are 1 message(s) in the inbox.

Viewing Inbox:

Message ID: message1

From: 3-gokhankaya

To: 1-gizemsungu

Message: Hi gizem, I am following to you..

Viewing sibelgulmez's profile...

-----

User ID: 2-sibelgulmez

Username: sibelgulmez

Location: Ankara

Birthday: 02/02/2001

sibelgulmez is following 2 account(s) and has 1 follower(s).

The followers of sibelgulmez are: gokhankaya,

sibelgulmez is following: gizemsungu, gokhankaya,

sibelgulmez has 2 posts.

This user doesnt have any post: sibelgulmez

Interactions:

-----

PostID: post1: I like Java

The post has no likes.

The post has no comments.

-----

PostID: post2: Java the coffee..

The post was liked by the following accounts:

3-gokhankaya

The post has 1 comment(s)...

Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

Liking a post of sibelgulmez..

Interactions:

-----

PostID: post1: I like Java

The post was liked by the following accounts:

1-gizemsungu

The post has no comments.

-----

PostID: post2: Java the coffee..

The post was liked by the following accounts:

3-gokhankaya

The post has 1 comment(s)...

Comment 1 : (3-gokhankaya) said Hi Sibel, I am gokhan..

```
Logging out from account: gizemsungu

Logging into an account: sibelgulmez

This user cannot found: gizemsungu

This user cannot found: gizemsungu

Logging out from account: sibelgulmez

Logging into an account: account1

Following account7
Viewing sibelgulmez's profile...
-----
User ID: 2-sibelgulmez
Username: sibelgulmez
Location: Ankara
Birthday: 02/02/2001
sibelgulmez is following 2 account(s) and has 1 follower(s).
The followers of sibelgulmez are: gokhankaya,
sibelgulmez is follllowing: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.
Commenting a post of sibelgulmez..
Sharing post..
You followed account7
You commented sibelgulmez's post. Post id: post2
You shared post, id: post3

Logging into an account: account2

Following gokhankaya
Following gizemsungu
Sharing post..
Liking a post of account1..
Sending a message to account5...

Logging into an account: account3

Sharing post..
PostID: post5  account3: This is test message.

Logging into an account: account4

Sharing post..
Sharing post..
Liking a post of account1..
Viewing gizemsungu's profile...
-----
User ID: 1-gizemsungu
Username: gizemsungu
Location: Istanbul
Birthday: 01/01/2000
```



Location: Istanbul  
Birthday: 01/01/2000  
gizemsungu is following 0 account(s) and has 3 follower(s).  
The followers of gizemsungu are: sibelgulmez, gokhankaya, account2,

gizemsungu has 0 posts.  
This user cannot found: account3  
You shared post, id: post6  
You shared post, id: post7  
You liked account1's post. Post id: post3  
You unliked the account1's post. Post id: post3

Logging into an account: account5

Commenting a post of account4..  
Sending a message to account1...  
Viewing Inbox:  
Message ID: message2  
From: 5-account2  
To: 8-account5  
Message: The ring that will rule of them.

Commenting a post of account4..  
You commented account4's post. Post id: post7  
You commented account4's post. Post id: post6  
You uncoment the account4's post. Post id: post6

Logging into an account: account6

Following account5  
Liking a post of account4..  
This user doesnt have any post: account2  
You followed account5  
You liked account4's post. Post id: post7  
You unfollowed account5

Logging into an account: account7

Viewing account1's profile...

-----  
User ID: 4-account1  
Username: account1  
Location: Istanbul  
Birthday: 01/01/2001  
account1 is following 1 account(s) and has 0 follower(s).

account1 is follllowing: account7,  
account1 has 1 posts.

Viewing account1's profile...

-----  
User ID: 4-account1  
Username: account1  
Location: Istanbul  
Birthday: 01/01/2001  
account1 is following 1 account(s) and has 0 follower(s).

```
account1 is following: account7,  
account1 has 1 posts.  
Viewing account1's profile...  
-----  
User ID: 4-account1  
Username: account1  
Location: Istanbul  
Birthday: 01/01/2001  
account1 is following 1 account(s) and has 0 follower(s).  
  
account1 is following: account7,  
account1 has 1 posts.  
You blocked account1  
You unblocked account1
```

### Lazy Deletion Problem Solving Approach:

Create a new LinkedList instance: Start by creating a new instance of the LinkedList class provided by the Java framework.

Implement a lazy deletion mechanism: To implement lazy deletion, we can add a flag to each node in the linked list indicating whether the node has been marked for deletion. We can define a constant value, say `DELETED_NODE`, that will be used to represent a deleted node in the list. When a node is marked for deletion, we simply update its flag value to `DELETED_NODE`.

Implement a cleanup mechanism: To perform a cleanup of deleted nodes, we can iterate over the linked list and remove all nodes that are marked with the `DELETED_NODE` flag. To avoid performance issues, we can perform the cleanup only when a certain threshold of deleted nodes has been reached. For example, we can set the threshold to 10% of the total number of nodes in the list. During the cleanup, we can simply iterate over the list, and for each node that is marked as deleted, we remove it from the list.

Implement insertion, deletion, and traversal operations: Implement the usual LinkedList operations such as inserting a new node, deleting a node, and traversing the list. For the deletion operation, we need to mark the node as deleted by setting its flag to `DELETED_NODE` instead of removing it physically. The cleanup mechanism will remove the marked nodes during its next iteration.

Optimize the performance: To optimize the performance, we can adjust the threshold value for when the cleanup mechanism should run. We can also consider implementing a lazy cleanup mechanism where only a certain percentage of the marked nodes are removed during each cleanup iteration, rather than all of them at once. This approach can help to spread the cost of cleanup over multiple iterations and avoid performance issues during a single cleanup run.