

## HW1-A-) ArrayList

### TestClass1

```
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-A> javac TestClass3.java TestClass2.java TestClass1.java TestClass4.java
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-A> java TestClass1
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,
This post has no comments.
-----
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
```

```
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.
```

```
(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
```

```
-----
Total timex is : 37 seconds
```

```
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-A> █
```

## TestClass2

```
Total timex is : 37 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-A> java TestClass2
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Adana
Birthday: 01.01.2001
gizemsungu is following 0 account(s) and has 2 follower(s)
gizemsungu is being followed by sibelgulmez , gokhankaya
gizemsungu has 2 post(s)
Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Adana
Birthday: 01.01.2001
gizemsungu is following 0 account(s) and has 2 follower(s)
gizemsungu is being followed by sibelgulmez , gokhankaya
gizemsungu has 2 post(s)
Viewing gokhankaya's profile...
User ID: 3
Username: gokhankaya
Location: Zonguldak
Birthday: 05.05.2005
gokhankaya is following 2 account(s) and has 1 follower(s)
gokhankaya is being followed by sibelgulmez
gokhankaya is following sibelgulmez , gizemsungu
gokhankaya has 0 post(s)
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

2:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello!

Total timex is : 42 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-A> █
```

### TestClass3

```
Total timex is : 42 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-A> java TestClass3
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
You cant view this targets profile
You cant view this targets posts
You cant send message to this target
Total timex is : 39 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-A> █
```

### TestClass4

```

Total timex is : 39 seconds
PS C:\Users\lenovo\Desktop\Data222\H2\H2-A> java TestClass4
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
asdasd
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
Scenario 4
You liked sibelgulmez's post id : 1
You liked sibelgulmez's post id : 2
You followed sibelgulmez
You followed gokhankaya
You unfollowed sibelgulmez
You followed sibelgulmez
Scenario 4+10acc
You cant unfollow an account you are not following
You shared a post with postID 3
You followed acc10
You followed acc7
You followed acc9
You followed gokhankaya
You blocked acc10
You unfollowed acc7
You liked sibelgulmez's post id : 2
acc10 is being followed by acc4 , acc9
acc4 details

Accessing the posts of acc4
(PostID : 3):Dont know dont care
Viewing acc4's post interactions:
-----
(PostID : 3) : Dont know dont care
This post is liked by following accounts : acc5,acc6,acc7,
This post is commented by following accounts : acc7,acc7,acc8,
Comment 01 :(acc7) ==> Seems cool
Comment 11 :(acc7) ==> Hit me
Comment 21 :(acc8) ==> Good job

-----
Total timex is : 42 seconds
PS C:\Users\lenovo\Desktop\Data222\H2\H2-A>

```

## HW2-B-)LinkedList

### TestClass1

```
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-B> javac TestClass3.java TestClass2.java TestClass1.java TestClass4.java
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-B> java TestClass1
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Moone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
asdasd
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
Total time is : 48 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-B> |
```

### TestClass2

```
Total time is : 48 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-B> java TestClass2
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Moone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
```

```
comment of (gizemsungu) : 7 likes 12 replies
(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,
This post has no comments.
-----
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post has no comments.
-----
Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Adana
Birthday: 01.01.2001
gizemsungu is following 0 account(s) and has 2 follower(s)
gizemsungu is being followed by sibelgulmez , gokhankaya
gizemsungu has 2 post(s)
Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Adana
Birthday: 01.01.2001
gizemsungu is following 0 account(s) and has 2 follower(s)
gizemsungu is being followed by sibelgulmez , gokhankaya
gizemsungu has 2 post(s)
Viewing gokhankaya's profile...
User ID: 3
Username: gokhankaya
Location: Zonguldak
Birthday: 05.05.2005
gokhankaya is following 2 account(s) and has 1 follower(s)
gokhankaya is being followed by sibelgulmez
gokhankaya is following sibelgulmez , gizemsungu
gokhankaya has 0 post(s)
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.
-----
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.
-----
2:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello!

Total timex is : 43 seconds
PS C:\Users\lenovo\Desktop\Data222\FHM2\FHM2-B> []
```

## TestClass3

```
PS C:\Users\lenovo\Desktop\Data222\HM2\HM2-B> java TestClass3
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,
This post has no comments.
-----
Viewing sibelgulmez's post interactions:
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
You cant view this targets profile
You cant view this targets posts
You cant send message to this target
Total time is : 36 seconds
PS C:\Users\lenovo\Desktop\Data222\HM2\HM2-B>
```

## TestClass4

```
PS C:\Users\Ienovo\Desktop\Data222\Hk2\Hk2-B> java TestClass4
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
asdasd
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,
This post has no comments.

Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
Scenario 4
You liked sibelgulmez's post id : 1
You liked sibelgulmez's post id : 2
You followed sibelgulmez
You followed gokhankaya
You unfollowed sibelgulmez
You followed sibelgulmez
Scenario 4+10acc
You cant unfollow an account you are not following
You shared a post with postID 3
You followed acc10
You followed acc7
You followed acc9
You followed gokhankaya
You blocked acc10
You unfollowed acc7
You liked sibelgulmez's post id : 2
acc10 is being followed by acc4 , acc9
acc4 details

Accessing the posts of acc4
(PostID : 3):Dont know dont care
Viewing acc4's post interactions:
-----
(PostID : 3) : Dont know dont care
This post is liked by following accounts : acc5,acc6,acc7,
This post is commented by following accounts : acc7,acc7,acc8,
Comment 01 :(acc7) ==> Seems cool
Comment 11 :(acc7) ==> Hit me
Comment 21 :(acc8) ==> Good job
-----
Total time is : 38 seconds
```



## HW3-B-)LDLinkedList

### TestClass1

```
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-C> javac TestClass3.java TestClass2.java TestClass1.java TestClass4.java
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-C> java TestClass1
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
asdasd
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,
This post has no comments.
-----
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
Total time is : 40 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-C> []
```

## TestClass2

```
PS C:\Users\lenovo\Desktop\Data222\Hm2\Hm2-C> java TestClass2
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungu1
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,
This post has no comments.
-----
Viewing sibelgulmez's post interactions:
-----
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post has no comments.
-----
Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Adana
Birthday: 01.01.2001
gizemsungu is following 0 account(s) and has 2 follower(s)
gizemsungu is being followed by sibelgulmez , gokhankaya
gizemsungu has 2 post(s)
Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Adana
Birthday: 01.01.2001
gizemsungu is following 0 account(s) and has 2 follower(s)
gizemsungu is being followed by sibelgulmez , gokhankaya
gizemsungu has 2 post(s)
Viewing gokhankaya's profile...
User ID: 3
Username: gokhankaya
Location: Zonguldak
Birthday: 05.05.2005
gokhankaya is following 2 account(s) and has 1 follower(s)
gokhankaya is being followed by sibelgulmez
gokhankaya is following sibelgulmez , gizemsungu
gokhankaya has 0 post(s)
Accessing the inbox of gizemsungu2
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

2:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello!

Total timex is : 39 seconds
PS C:\Users\lenovo\Desktop\Data222\Hm2\Hm2-C> |
```

## TestClass3

```
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-C> java TestClass3
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungui
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,
This post has no comments.
-----
Viewing sibelgulmez's post interactions:
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
You cant view this targets profile
You cant view this targets posts
You cant send message to this target
Total time is : 36 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-C> |
```

## TestClass4

```
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-C> java TestClass4
Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 0 follower(s)
Noone is following sibelgulmez
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
asdasd
There is/are 1message(s) in the inbox.
There is/are 0message(s) in the outbox.
Accessing the inbox of gizemsungui
1:
Sender : gokhankaya
Receiver : gizemsungu
Message :Hello there.

Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: Kayseri
Birthday: 03.03.2003
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is being followed by gokhankaya
sibelgulmez is following gokhankaya , gizemsungu
sibelgulmez has 2 post(s)
Accessing the posts of sibelgulmez
(PostID : 2):Homework is annoying
(PostID : 1):Weather is great
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,
This post has no comments.
Viewing sibelgulmez's post interactions:
-----
(PostID : 2) : Homework is annoying
This post has no likes.
This post is commented by following accounts : gokhankaya,
Comment 01 :(gokhankaya) ==> This is sparta.

(PostID : 1) : Weather is great
This post is liked by following accounts : gokhankaya,gizemsungu,
This post has no comments.
-----
Scenario 4
You liked sibelgulmez's post id : 1
You liked sibelgulmez's post id : 2
You followed sibelgulmez
You followed gokhankaya
You unfollowed sibelgulmez
You followed sibelgulmez
Scenario 4+10acc
You cant unfollow an account you are not following
You shared a post with postID 3
You followed acc10
You followed acc7
You followed acc9
You followed gokhankaya
You blocked acc10
You unfollowed acc7
You liked sibelgulmez's post id : 2
acc10 is being followed by acc4
acc4 details

Accessing the posts of acc4
(PostID : 3):Dont know dont care
Viewing acc4's post interactions:
-----
(PostID : 3) : Dont know dont care
This post is liked by following accounts : acc5,acc6,acc7,
This post is commented by following accounts : acc7,acc7,acc8,
Comment 01 :(acc7) ==> Seems cool
Comment 11 :(acc7) ==> Hit me
Comment 21 :(acc8) ==> Good job

-----
Total time is : 41 seconds
PS C:\Users\lenovo\Desktop\Data222\HW2\HW2-C> █
```

## 2-Analytical time complexity

LD:

```
public boolean add(E element) {
    Node<E> node = new Node<E>(element);
    if (head == null) {
        head = node;
        tail = node;
    } else {
        tail.next = node;
        tail = node;
    }
    size++;
    return true;
}
```

O(1)

```
public E get(int index) {
    if (index < 0 || index >= size) {
        System.out.println(x:"Out of bounds error");
    }
    Node<E> current = head;
    for (int i = 0; i < index; i++) {
        current = current.next;
    }
    return current.item;
}
```

O(n)

```
public E remove(int index) {
    if (index < 0 || index >= size) {
        System.out.println(x:"Out of bounds error");
    }
    Node<E> current = head;

    for (int i = 0; i < index; i++) {
        current = current.next;
    }
    current.isDeleted = true;
    lazyDeletes++;
    if (lazyDeletes == 2) {
        removeLazyDeletedNodes();
    }
    size--;
    return current.item;
}
```

O(n)

```
public boolean removeLD(E element) {  
    Node<E> current = head;  
  
    while (current != null) {  
        if (current.item.equals(element)) {  
            current.isDeleted = true;  
            lazyDeletes++;  
            if (lazyDeletes == 2) {  
                removeLazyDeletedNodes();  
            }  
            size--;  
            return true;  
        }  
  
        current = current.next;  
    }  
    return false;  
}
```

$O(n)$

```

public E set(int index, E element) {
    if (index < 0 || index >= size) {
        System.out.println(x:"Out of bounds error");
    }
    Node<E> current = head;
    for (int i = 0; i < index; i++) {
        current = current.next;
    }
    E previousValue = current.item;
    current.item = element;
    return previousValue; //It gives error for incompatibility
}

```

$O(n)$

```

private void removeLazyDeletedNodes() {
    Node<E> current = head;
    Node<E> previous = null;
    int deletedCount = 0;
    while (current != null) {
        if (current.isDeleted) {
            if (previous == null) {
                head = current.next;
            } else {
                previous.next = current.next;
            }
            deletedCount++;
            if (deletedCount == 2) {
                break;
            }
        } else {
            previous = current;
        }
        current = current.next;
    }
    lazyDeletes -= deletedCount;
}

```

$O(n)$

**ArrayList && LinkedList && LDLinkedList add,remove.... methods:**

```
public void unlike(Post p)
{
    if(!getLoginStatus())
    {
        System.out.println(x:"You did not login");
        return;
    }
    boolean init = false;
    int index = 0;
    for(int i=0;i<p.getlikearray().size();i++)
    {
        if(p.getlikearray().get(i).getInteractionID() == this.accountid)
        {
            init=true;
            index=i;
            break;
        }
    }
    if(init==false)
    {
        System.out.println(x:"You can not unlike a post you didnt like earlier");
        return;
    }
    p.getlikearray().remove(index);
    actionHistory.add(new Action (type:"unlike",p));
}
```

**O(n)**

```
public void uncoment(Post p,int comment_number)
{
    if(!getLoginStatus())
    {
        System.out.println(x:"You did not login");
        return;
    }
    boolean init = false;
    int index = 0;
    int count = 0;
    for(int i=0;i<p.getCommentarray().size();i++)
    {
        if(p.getCommentarray().get(i).getInteractionID() == this.accountid)
        {
            count++;
            if(count==comment_number)
            {
                init=true;
                index = i;
            }
        }
    }
    if(init==false)
    {
        System.out.println(x:"Error on uncoment ....! ");
    }
}
```

**O(n)**



```

public void unfollow(Account target)
{
    if(!getLoginStatus())
    {
        System.out.println(x:"You did not login");
        return;
    }
    if(!isFollowing(target))
    {
        System.out.println(x:"You cant unfollow an account you are not following");
        return;
    }
    target.followers.remove(this);
    this.following.remove(target);
    actionHistory.add(new Action (type:"unfollow",target));
    /* for(int i=0;i<following.size();i++)
    {
        following.get(i).followers.remove(this);
    }
}

```

O(1)

```

public void unblock(Account target)
{
    if(!getLoginStatus())
    {
        System.out.println(x:"You did not login");
        return;
    }
    if(!isBlocked(target))
    {
        System.out.println(x:"You cant unblock an account you didnt block earlier");
        return;
    }
    blockedid.remove(target);
    target.blockedid.remove(this);
    actionHistory.add(new Action (type:"unblock",target));
}

```

O(1)

```

public void block(Account target) {
    if(!getLoginStatus())
    {
        System.out.println(x:"You did not login");
        return;
    }
    blockedid.add(target);
    followers.remove(target); // If this isnt following target,nothing will happen
    following.remove(target);
    target.followers.remove(this);
    target.following.remove(this);
    target.blockedid.add(this);
    actionHistory.add(new Action (type:"block",target));
}

```

O(1)

```

public void follow(Account account) {
    if (!getLoginStatus()) {
        System.out.println(x:"You did not login");
        return;
    }
    // Check if the account is already being followed
    for (int i = 0; i < following.size(); i++) {
        if (following.get(i) != null && following.get(i).equals(account)) {
            System.out.println("You are already following " + account.getUsername());
            return;
        }
    }
    this.following.add(account);
    account.followers.add(this);
    actionHistory.add(new Action (type:"follow",account));
}

```

$O(n)$

```

public void addPost(Post p) {
    if (!getLoginStatus()) {
        System.out.println(x:"You did not login");
        return;
    }
    post.add(p);
    p.SetOwner(this);
    actionHistory.add(new Action (type:"post",p));
}

```

$O(1)$

```

public Like(Post p, Account acc) {

    for (int i = 0; i < p.getLikeCount(); i++) {
        if (p.getlikearray().get(i).getInteractionID() == acc.getUserID()) {
            System.out.println(x:"You cant like the same post twice");
            return;
        }
    }
    if (!acc.getLoginStatus()) {
        System.out.println(x:"You can not like a post since you have not logged in.");
        return;
    }
    username = acc.getUsername();
    accountID = acc.getUserID();
    p.addtolikeArray(this);
    acc.getActionHistory().add(new Action (type:"like",p));
}

```

$O(n)$

```

public Comment(Post p, Account acc, String cont) {
    if (!acc.getLoginStatus()) {
        System.out.println(x:"You can not like a post since you have not logged in.");
        return;
    }
    username = acc.getUsername();
    accountID = acc.getUserID();
    content = cont;
    p.addtoCommentArray(this);
    acc.getActionHistory().add(new Action (type:"comment",p));
}

public String getContent() {

```

$O(1)$

### 3-Experimental Time Complexity Table

Implementation Type	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Basic Array Structure (HW1)	0.036sec	0.037sec	0.037sec	Not available
Array List Structure (a)	0.037sec	0.037sec	0.037sec	0.039sec
Linked List Structure (b)	0.036sec	0.039sec	0.037sec	0.039sec
LD Linked List Structure (c)	0.041sec	0.041sec	0.044sec	0.042sec

### 4-Problem Solution Approach For LinkedListLD

1-Detection of what i used in LinkedList part of the homework

2-Creating the related methods

2-a:Add => creating a new node and adding it to the end of the list

2-b:Remove=>find the relative node,mark it for lazy deletion,if lazydelete count is 2,remove the 2 nodes from the list

2-c:Get=>Search for the element in a loop,return it

2-d:Set=>Search for the element in a loop,alter its value-data

2-e:Size=>Keep track of the size in add and remove methods using size variable

2-f:LazyDeletion=>Loop through the list-using flag to check for deletion-

if 2 nodes is marked lazilydeleted,update the previous node's next node to the current node's next node.

3-Using TestCases to try and check if the code works.