GEBZE TECHNICAL UNIVERSITY

DATA SCTRUCTURE AND ALGORITHM

HOMEWORK -3 REPORT

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1) Run Program and results:
   I. Basic Array Test 1

```
sbk@ubuntu-22:~/cse222/HW1/Social/src$ java Test1
Creating accounts...
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

Loggin into an account (username: sibelgunduz)

sharing two posts

Following gizemsungu and gokhankaya...

Logging out from account 'sibelgunduz'

Logging in another account (username:gokhankaya)

Viewing sibelgulmez's profile...

User ID: 2
Username: sibelgunduz
Location: Izmit
Birth date: 04.01.1974
sibelgunduz is following2 account(s) and 0 follower(s)
sibelgunduz is following gizemsungu,gokhankaya,
The followers of sibelgunduz are
sibelgunduz has 4 post(s).

Viewing sibelgulmez'posts...

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

Liking a post of sibelgulmez...

Adding a comment on a post of sibelgulmez...

 Following sibelgulmez and gizemsungu...

Sending message to gizemsungu

Logging out from account 'gokhankaya'..

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

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

Message ID: 0
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
-------------------------------------------

Viewing sibelgulmez's profile...

User ID: 2
Username: sibelgunduz
Location: Izmit
Birth date: 04.01.1974
sibelgunduz is following2 account(s) and 1 follower(s)
sibelgunduz is following gizemsungu,gokhankaya,
The followers of sibelgunduz are gokhankaya,
sibelgunduz has 4 post(s).

Viewing sibelgulmez's posts...

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

Viewing sibelgulmez's posts' interactions..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya,
The post has 0 comments.....

--------------------------------------------------

(PostID :2):JAva the coffe..
The post was liked by the following account(s):
The post has 1 comments.....
Comment 0: 'gokhankaya'said'me too!!'

--------------------------------------------------

Liking sibelgulmez's posts...

Viewing sibelgulmez's posts' interactions..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya, gizemsungu,
The post has 0 comments.....
```

```
--------------------------------------------------

(PostID :2):JAva the coffe..
The post was liked by the following account(s):
The post has 1 comments.....
Comment 0: 'gokhankaya'said'me too!!'

--------------------------------------------------

0.045371342 second
```

II. Basic Array Test 2

```
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

User ID: 2
Username: sibelgunduz
Location: Izmit
Birth date: 04.01.1974
sibelgunduz is following2 account(s) and 0 follower(s)
sibelgunduz is following gizemsungu,gokhankaya,
The followers of sibelgunduz are
sibelgunduz has 4 post(s).

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

There is/are 0 message(s) in the outbox
There is/are 1 message(s) in the inbox
Message ID: 0
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
-----------------------------------------

User ID: 2
Username: sibelgunduz
Location: Izmit
Birth date: 04.01.1974
sibelgunduz is following2 account(s) and 1 follower(s)
sibelgunduz is following gizemsungu,gokhankaya,
The followers of sibelgunduz are gokhankaya,
sibelgunduz has 4 post(s).

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya,
The post has 0 comments.....

-------------------------------------------------
```

```
(PostID :2):JAva the coffe..
The post was liked by the following account(s):
The post has 1 comments.....
Comment 0: 'gokhankaya'said'me too!!'

-------------------------------------------------

Loggin into an account (username: gizemsungu)

Sharing postss....

Logging out from account 'gizemsungu'

Loggin into an account (username: sibelgunduz)

View gizemsungu profiles..

User ID: 1
Username: gizemsungu
Location: istanbul
Birth date: 13.07.1998
gizemsungu is following0 account(s) and 2 follower(s)
gizemsungu is following
The followers of gizemsungu are sibelgunduz,gokhankaya,
gizemsungu has 4 post(s).

Like post 1

Logging out from account 'sibelgunduz'

Loggin into an account (username: gokhankaya)

View gizemsungu profiles..

User ID: 1
Username: gizemsungu
Location: istanbul
Birth date: 13.07.1998
gizemsungu is following0 account(s) and 2 follower(s)
gizemsungu is following
The followers of gizemsungu are sibelgunduz,gokhankaya,
gizemsungu has 4 post(s).

Comment post 1

Send message

Logging out from account 'gokhankaya'
```

```
Comment post 1

Send message

Logging out from account 'gokhankaya'

Loggin into an account (username: gizemsungu)

View own profile
User ID: 1
Username: gizemsungu
Location: istanbul
Birth date: 13.07.1998
gizemsungu is following0 account(s) and 2 follower(s)
gizemsungu is following
The followers of gizemsungu are sibelgunduz,gokhankaya,
gizemsungu has 4 post(s).

Read message from gokhankaya
There is/are 2 message(s) in the inbox
Message ID: 0
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
----------------------------------------

Message ID: 1
From: gokhankaya
To: gizemsungu
Message: Hello!!!
----------------------------------------

0.044672549 second
```

III.   Basic Array Test 3

```
Loggin into an account (username: gizemsungu)

Block sibelgunuz...

Loggin into an account (username: sibelgunduz)

You can not permision to send message
0.048941335 second
```

IV. Array List Structure Test 1

```
Creating accounts...
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

Loggin into an account (username: sibelgunduz)

sharing two posts

Following gizemsungu and gokhankaya...

Logging out from account 'sibelgunduz'

Logging in another account (username:gokhankaya)

Viewing sibelgulmez's profile...

--------------------
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 0 followers(s).
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

Viewing sibelgulmez'posts...

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

Liking a post of sibelgulmez...

Adding a comment on a post of sibelgulmez...

 Following sibelgulmez and gizemsungu...

Sending message to gizemsungu

Logging out from account 'gokhankaya'..

Logging into another account (username: gizemsungu)...
Checking outboox
There is/are 0 message(s) in the inbox
```

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

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

Message ID: 1
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
-----------------------------------------

Viewing sibelgulmez's profile...

----------------------
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 1 followers(s).
The followers of sibelgunduz are: gokhankaya,
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

Viewing sibelgulmez's posts...

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

Viewing sibelgulmez's posts' interactions..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya,
The post has 0 comments.....

-------------------------------------------------

(PostID :2):JAva the coffe..
The post was liked by the following account(s): gokhankaya,
The post has 1 comments.....
Comment 1: 'gokhankaya'said'me too!!'

-------------------------------------------------

Liking sibelgulmez's posts...

Viewing sibelgulmez's posts' interactions..
```

```
-------------------------------------------------
(PostID :2):JAva the coffe..
The post was liked by the following account(s): gokhankaya, gizemsungu,
The post has 1 comments.....
Comment 1: 'gokhankaya'said'me too!!'

-------------------------------------------------

0.049221098 second
```

V. Array List Structure Test 2

```
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

---------------------
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 0 followers(s).
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

There is/are 0 message(s) in the inbox
There is/are 0 message(s) in the inbox
There is/are 1 message(s) in the inbox
Message ID: 1
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
-----------------------------------------

---------------------
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 1 followers(s).
The followers of sibelgunduz are: gokhankaya,
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya,
The post has 0 comments.....

-----------------------------------------
```

```
(PostID :2):JAva the coffe..
The post was liked by the following account(s): gokhankaya,
The post has 1 comments.....
Comment 1: 'gokhankaya'said'me too!!'

--------------------------------------------------

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya, gizemsungu,
The post has 0 comments.....

--------------------------------------------------

(PostID :2):JAva the coffe..
The post was liked by the following account(s): gokhankaya, gizemsungu,
The post has 1 comments.....
Comment 1: 'gokhankaya'said'me too!!'

--------------------------------------------------

Loggin into an account (username: gizemsungu)

Sharing postss....

Logging out from account 'gizemsungu'

Loggin into an account (username: sibelgunduz)

View gizemsungu profiles..

--------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Like post 1

Logging out from account 'sibelgunduz'

Loggin into an account (username: gokhankaya)
```

```
Loggin into an account (username: gokhankaya)

View gizemsungu profiles..

---------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Comment post 1

Send message

Logging out from account 'gokhankaya'

Loggin into an account (username: gizemsungu)

View own profile
---------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Read message from gokhankaya
There is/are 2 message(s) in the inbox
Message ID: 1
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
----------------------------------------

Message ID: 2
From: gokhankaya
To: gizemsungu
Message: Hello!!!
----------------------------------------

0.048095596 second
```

```
Loggin into an account (username: gizemsungu)

Block sibelgunuz...

Loggin into an account (username: sibelgunduz)

You dont follow gizemsungu
0 second
```

```
TEST 4
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

An account with username aysekalhas been created

An account with username ahmetkayahas been created

Loggin into an account aysekal
Sharing Post
Follow accounts
View gizemsungu profile...
---------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: gokhankaya, aysekal,
gizemsungu has 2 posts.

Block gizemsungu profile...
Logout...
Login...
View ahmetkaya profile...
---------------------
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

View ahmetkaya post...
(Post ID: 1) Insan yalniz dogar da yalniz olmesmis? n'aber

Add comment post that view...
Like post that view...
View ahmetkaya profile...
---------------------
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
```

```
Remove comment post that add comment before
Remove like from postView ahmetkaya profile...
---------------------
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

Logout
Login into aysekal
unfollow gokhankaya
try view profile which unfollow by ayse
You can not permision to view Profile
0.052008138 second
```

VIII. LinkedList Structure Test 1

```
sbk@ubuntu-22:~/cse222/HW3/LinkedList/Social/src$ javac *.java
sbk@ubuntu-22:~/cse222/HW3/LinkedList/Social/src$ java Test1
Creating accounts...
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

Loggin into an account (username: sibelgunduz)

sharing two posts

Following gizemsungu and gokhankaya...

Logging out from account 'sibelgunduz'

Logging in another account (username:gokhankaya)

Viewing sibelgulmez's profile...

---------------------
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 0 followers(s).
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

Viewing sibelgulmez'posts...

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

Liking a post of sibelgulmez...

Adding a comment on a post of sibelgulmez...

 Following sibelgulmez and gizemsungu...

Sending message to gizemsungu

Logging out from account 'gokhankaya'..

Logging into another account (username: gizemsungu)...
Checking outboox
There is/are 0 message(s) in the inbox
There is/are 0 message(s) in the inbox
```

```
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 1 followers(s).
The followers of sibelgunduz are: gokhankaya,
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

Viewing sibelgulmez's posts...

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

Viewing sibelgulmez's posts' interactions..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya,
The post has 0 comments.....

------------------------------------------------

(PostID :2):JAva the coffe..
The post was liked by the following account(s): gokhankaya,
The post has 1 comments.....
Comment 1: 'gokhankaya'said'me too!!'

------------------------------------------------

Liking sibelgulmez's posts...

Viewing sibelgulmez's posts' interactions..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya, gizemsungu,
The post has 0 comments.....

------------------------------------------------

(PostID :2):JAva the coffe..
The post was liked by the following account(s): gokhankaya, gizemsungu,
The post has 1 comments.....
Comment 1: 'gokhankaya'said'me too!!'

------------------------------------------------

0.047209295 second
```

```
sbk@ubuntu-22:~/cse222/HW3/LinkedList/Social/src$ java Test2
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

--------------------
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 0 followers(s).
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

There is/are 0 message(s) in the inbox
There is/are 0 message(s) in the inbox
There is/are 1 message(s) in the inbox
Message ID: 1
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
-------------------------------------------

--------------------
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 1 followers(s).
The followers of sibelgunduz are: gokhankaya,
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya,
The post has 0 comments.....

-------------------------------------------------
```

```
--------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Comment post 1

Send message

Logging out from account 'gokhankaya'

Loggin into an account (username: gizemsungu)

View own profile
--------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Read message from gokhankaya
There is/are 2 message(s) in the inbox
Message ID: 1
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
-----------------------------------------

Message ID: 2
From: gokhankaya
To: gizemsungu
Message: Hello!!!
-----------------------------------------

0.049119738 second
```

X. LinkedList Structure Test 3

```
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

Loggin into an account (username: gizemsungu)

Block sibelgunuz...

Loggin into an account (username: sibelgunduz)

You dont follow gizemsungu
0 second
```

XI. LinkedList Structure Test 4

```
You dont follow gizemsungu
TEST 4
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

An account with username aysekalhas been created

An account with username ahmetkayahas been created

Loggin into an account aysekal
Sharing Post
Follow accounts
View gizemsungu profile...
- - - - - - - - - - - - - - - - - - - -
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: gokhankaya, aysekal,
gizemsungu has 2 posts.

Block gizemsungu profile...
Logout...
Login...
View ahmetkaya profile...
- - - - - - - - - - - - - - - - - - - -
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

View ahmetkaya post...
(Post ID: 1) Insan yalniz dogar da yalniz olmesmis? n'aber

Add comment post that view...
Like post that view...
View ahmetkaya profile...
- - - - - - - - - - - - - - - - - - - -
```

```
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

Remove comment post that add comment before
Remove like from postView ahmetkaya profile...
--------------------
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

Logout
Login into aysekal
unfollow gokhankaya
try view profile which unfollow by ayse
You can not permision to view Profile
0.049360294 second
```

XII.   LDLinkedList Structure Test 1

```
sbk@ubuntu-22:~/cse222/HW3/LDLinkedList/Social/src$ javac *.java
sbk@ubuntu-22:~/cse222/HW3/LDLinkedList/Social/src$ java Test1
Creating accounts...
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

Loggin into an account (username: sibelgunduz)

sharing two posts

Following gizemsungu and gokhankaya...

Logging out from account 'sibelgunduz'

Logging in another account (username:gokhankaya)

Viewing sibelgulmez's profile...

---------------------
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 0 followers(s).
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

Viewing sibelgulmez'posts...

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

Liking a post of sibelgulmez...

Adding a comment on a post of sibelgulmez...

 Following sibelgulmez and gizemsungu...

Sending message to gizemsungu

Logging out from account 'gokhankaya'..

Logging into another account (username: gizemsungu)...
Checking outboox
```

```
User ID: 2
Username: sibelgunduz
Location: Izmit
Birth Date: 04.01.1974
sibelgunduz is following 2 account(s) and has 1 followers(s).
The followers of sibelgunduz are: gokhankaya,
sibelgunduz is following: gizemsungu, gokhankaya,
sibelgunduz has 2 posts.

Viewing sibelgulmez's posts...

(Post ID: 1) I like Java.

(Post ID: 2) JAva the coffe..

Viewing sibelgulmez's posts' interactions..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya,
The post has 0 comments.....

-------------------------------------------------

(PostID :2):JAva the coffe..
The post was liked by the following account(s): gokhankaya,
The post has 1 comments.....
Comment 1: 'gokhankaya'said'me too!!'

-------------------------------------------------

Liking sibelgulmez's posts...

Viewing sibelgulmez's posts' interactions..

(PostID :1):I like Java.
The post was liked by the following account(s): gokhankaya, gizemsungu,
The post has 0 comments.....

-------------------------------------------------

(PostID :2):JAva the coffe..
The post was liked by the following account(s): gokhankaya, gizemsungu,
The post has 1 comments.....
Comment 1: 'gokhankaya'said'me too!!'

-------------------------------------------------

0.050373837 second
```

XIII. LDLinkedList Structure Test 2

```
-------------------------------------------------

Loggin into an account (username: gizemsungu)

Sharing postss....

Logging out from account 'gizemsungu'

Loggin into an account (username: sibelgunduz)

View gizemsungu profiles..

---------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Like post 1

Logging out from account 'sibelgunduz'

Loggin into an account (username: gokhankaya)

View gizemsungu profiles..

---------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Comment post 1

Send message

Logging out from account 'gokhankaya'

Loggin into an account (username: gizemsungu)

View own profile
```

```
Logging out from account 'sibelgunduz'

Loggin into an account (username: gokhankaya)

View gizemsungu profiles..

--------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Comment post 1

Send message

Logging out from account 'gokhankaya'

Loggin into an account (username: gizemsungu)

View own profile
--------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgunduz, gokhankaya,
gizemsungu has 2 posts.

Read message from gokhankaya
There is/are 2 message(s) in the inbox
Message ID: 1
From: gokhankaya
To: gizemsungu
Message: Homework is easy!!
----------------------------------------

Message ID: 2
From: gokhankaya
To: gizemsungu
Message: Hello!!!
----------------------------------------

0.04842404 second
```

XIV.   LDLinkedList Structure Test 3

```
Loggin into an account (username: gizemsungu)

Block sibelgunuz...

Loggin into an account (username: sibelgunduz)

Plese check login or followers
0 second
```

XV.   LDLinkedList Structure Test 4

```
Plese check login or followers
TEST 4
An account with username gizemsunguhas been created

An account with username sibelgunduzhas been created

An account with username gokhankayahas been created

An account with username aysekalhas been created

An account with username ahmetkayahas been created

Loggin into an account aysekal
Sharing Post
Follow accounts
View gizemsungu profile...
--------------------
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 13.07.1998
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: gokhankaya, aysekal,
gizemsungu has 2 posts.

Block gizemsungu profile...
Logout...
Login...
View ahmetkaya profile...
--------------------
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

View ahmetkaya post...
(Post ID: 1) Insan yalniz dogar da yalniz olmesmis? n'aber

Add comment post that view...
Like post that view...
View ahmetkaya profile...
--------------------
```

```
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

View ahmetkaya post...
(Post ID: 1) Insan yalniz dogar da yalniz olmesmis? n'aber

Add comment post that view...
Like post that view...
View ahmetkaya profile...
---------------------
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

Remove comment post that add comment before
Remove like from postView ahmetkaya profile...
---------------------
User ID: 4
Username: aysekal
Location: Antalya
Birth Date: 04.01.1274
aysekal is following 3 account(s) and has 0 followers(s).
aysekal is following: gizemsungu, sibelgunduz, gokhankaya,
aysekal has 1 posts.

Logout
Login into aysekal
unfollow gokhankaya
try view profile which unfollow by ayse
You can not permision to view Profile
0.050575237 second
```

2) Time Complexity Analysis:

Structures / Methods	Time Complexity			
	Basic Array Structure	Array List Structure	Linked List Structure	LD Linked List Structure
followCheck	O(n)	O(n)	O(n)	LinkedList Structure Test 4
checkBlock	O(n)	O(n)	O(n)	O(n)
follow	O(4)	O(6)	O(6)	O(n)
blockAccount	O(1)	O(1)	O(1)	O(6)
sendMessage	O(n+7)	O(2n+5)	O(2n+5)	O(1)
checkInbox	O(n + 4)	O(2)	O(2)	O(2n+5)
checkOutbox	O(n + 4)	O(3)	O(3)	O(2)
sharingPost	O(6)	O(4)	O(4)	O(3)
likePost	O(4)	O(3)	O(n+2)	O(4)
commentPost	O(5)	O(4)	O(n+3)	O(n+2)
viewIntereactions	$O(2n^2)$	$O(2n^2)$	$O(2n^2)$	O(n+3)
viewPost	O(n)	O(n)	O(n)	$O(2n^2)$
viewInbox	O(n)	O(n)	O(n)	O(n)
viewProfile	O(3n)	O(3n)	$O(2n^2)$	O(n)
unfollow	Not available	O(n+3)	O(n+3)	$O(2n^2)$
unblock		$O(2n^2)$	$O(2n^2)$	O(n+3)
unlikePost		O(n+4)	$O(2n^2+n)$	$O(2n^2)$
uncommentPost		O(n+4)	$O(2n^2+n)$	$O(2n^2+n)$
viewHistory		O(n+1)	$O(n^2)$	$O(2n^2+n)$

3) Experimental Running time analysis:

Implementation Type	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Basic Array Structure	0.045 second	0.044 second	0.048 second	Not available
Array List Structure	0.049 second	0.048 second	0.00 second	**0.052 second**
Linked List Structure	0.047 second	**0.049 second**	0.00 second	0.049 second
LD Linked List Structure	**0.05 second**	0.048 second	0.00 second	0.05 second

When we work basic array and array list, time complexity is not too complex as well we work linkedList and LDlinkedList. Basically, it depends on the node and linked structure. Normally we just add element information we don't keep which element come first and then continue to another element. So, arrive to specific element in this list, the time decreasing. Because we can know where element where it in list is. We don't need to traverse all the list. As you can see table time complexity. If the method consists of get method (follow, unfollow, viewMessage etc), time complexity is increasing. We can see same result in time analysis. But in scenario 3, the time is close to zero. I think that it causes view profile which blocked by profile. That's why the code run fast.

4) <u>Problem Solution Approach for LDlinkedlist:</u>

In solving this problem to create LDlinkedlist from Abstractlist. There are methods that use for arriving element, remove element, get size of list etc. In this list we should overriding. So respectively created methods as like below.

LDlinkedlist should consist of get, size, move and add. The list type is linked so create nodes for link each of element. The nodes consist of data, isDeleted information (I will mention) and next linked information node. isDeleted is boolen value for checking the node is deleted. If the node deleted sets True. When we need to physically remove the lazily deleted nodes, we check traverse the list and count of isDeleted as True. If the counter was bigger than 2, we deleted nodes physically. And then we change the next information on previous and later nodes. Overall, the LDLinkedList implementation will have the same behavior as a regular linked list, but with the added feature of lazy deletion.