

GTU Department of Computer Engineering

CSE 222/505 - Spring 2023

Homework #1 Report

REŞİT AYDIN

200104004019

1- Problem Definition

We were supposed to design and implement a basic social media software that provides sharing posts with people. In this software, each account has a profile which contains username, birth date, location, posts (if exists), follower accounts (if exists) and following accounts (if exists). Additionally, each account can interact with others by liking a post, commenting on a post etc.

2- System Requirements

This is a social media software that will be used for providing people interacting each other. We need to create an account for every user to hold their information. So, we need to have Account objects for this.

```
public Account(int accId, String uName, String bDate, String loc)
```

To create an account object, we need to give account id, username, birth date and location as parameter.

```
accounts[2] = new Account(3,"gokhankaya", "19.03.1986", "Ankara");
```

We can create an Account object as above.

```
accounts[1].login(accounts);
```

To log into an account, we should call login() method on an Account object and give Accounts[] as parameter.

```
accounts[1].follow(accounts[0]);
```

In order to follow an account, we need to call follow() method on an object we want.

```
Post post1 = new Post(1, "I like Java.");
```

```
accounts[1].addPost(post1);
```

To share a post from an account, we need to create a Post object as seen above, then we must call addPost() method and giving it the Post object, that we just create, as parameter.

```
accounts[1].logout();
```

To log out of an account, we just need to call logout() method on the account we want.

3- Use Case Diagram



4. Problem Solutions Approach

We are asked to design and implement a social media software that provides people to interact each other.

First problem was about creating proper class hierarchy for this software.

Firstly, I decided to create 6 separate classes named Account, Interaction, Like, Comment, Message, Post.

Then for code reusability, I used inheritance as also said to use in the pdf we're provided. I decided to make Interaction class super class, then I made Like and Comment class as its subclass.

On the other hand, I used composition. For example, I keep Messages array and Post array in my Account class to keep track of them.

Second problem I faced was about implementing two-sided operations algorithms like following an account. To solve this, I created two separate String array which named following and followers. After doing that, if an account follow the other, I keep the person's name in followers array and other's name in following account who was followed.

5. Test Cases

- Step 1: Create 3 accounts with usernames “gizemsungu”, “sibelgulmez”, and “gokhankaya”.
 - Step 2: Login to the account with username “sibelgulmez”.
 - Step 3: Share two posts.
 - Step 4: Follow “gizemsungu” and “gokhankaya”.
 - Step 5: Log out from the account.
 - Step 6: Login to the account with username “gokhankaya”.
 - Step 7: View “sibelgulmez”’s profile.
 - Step 8: View “sibelgulmez”’s posts.
 - Step 9: Like a post of “sibelgulmez”.
 - Step 10: Comment on a post of “sibelgulmez”.
-
- Step 11: Follow “sibelgulmez” and “gizemsungu”.
 - Step 12: Send a message to “gizemsungu”.
 - Step 13: Log out from the account.
 - Step 14: Login to the account with username “gizemsungu”.
 - Step 15: Check the number of messages in the outbox.
 - Step 16: Check the number of messages in the inbox.
 - Step 17: View the messages in the inbox.
 - Step 18: View “sibelgulmez”’s profile.
 - Step 19: View “sibelgulmez”’s posts.
 - Step 20: View “sibelgulmez”’s posts’ interactions.
 - Step 21: Like “sibelgulmez”’s posts.
 - Step 22: View “sibelgulmez”’s posts’ interactions.

SCENARIO 2

After the actions in Scenario 1 are completed, your code is responsible for doing the following tasks including Scenario 1.

1. "gizemsungu" logs in.
 - a. shares a post (let's call it Post1).
 - b. shares another post (let's call it Post2).
 - c. logs out.
2. "sibelgulmez" logs in.
 - a. views the profile of "gizemsungu".
 - b. likes Post1.
 - c. logs out.
3. "gokhankaya" logs in.
 - a. views the profile of "gizemsungu".
 - b. comments on Post2 (ex: Nice!).
 - c. sends a message to "gizemsungu" (ex: "Hello!")
 - d. logs out.
4. "gizemsungu" logs in.
 - a. views her own profile.
 - b. reads the message from "gokhankaya".

SCENARIO 3 (Bonus 20 points)

In this scenario, the account can block any accounts in the software. Remember that you will continue from Scenario 1 to implement the following tasks.

1. "gizemsungu" logs in.
 - a. blocks "sibelgulmez".
 - b. logs out.
2. "sibelgulmez" logs in.
 - a. tries to view the profile of "gizemsungu".
 - b. tries to send a message to "gizemsungu".

6. Running Command and Results

6.1 Running Commands

```
resitaga@resitaga:~/Desktop$ cd homework1
resitaga@resitaga:~/Desktop/homework1$ javac *.java
resitaga@resitaga:~/Desktop/homework1$ cd ..
resitaga@resitaga:~/Desktop$ java homework1.TestClass1
```

```
resitaga@resitaga:~/Desktop$ java homework1.TestClass2
```

```
resitaga@resitaga:~/Desktop$ java homework1.TestClass3
```

6.2 Results (Outputs)

6.2.1 Scenario 1

-----SCENARIO 1 STARTS-----

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 (username: sibelgulmez)...

Sharing two posts...

Following gizemsungu and gokhankaya...

Logging out from account 'sibelgulmez'...

Logging into another account (username: gokhankaya)...

Viewing sibelgulmez's profile...

User ID: 2

Username: sibelgulmez

Location: Istanbul

Birth Date: 10.03.1995

sibelgulmez is following 2 account(s) and has 0 follower(s)

sibelgulmez is following: gizemsungu, gokhankaya,

sibelgulmez has 2 post(s).

Viewing sibelgulmez's posts...

(PostID: 1) sibelgulmez: I like Java.

(PostID: 2) sibelgulmez: Java the coffee...

Liking a post of sibelgulmez..

Adding a comment on a post of sibelgulmez...

Following sibelgulmez and gizemsungu...

Sending a message to gizemsungu...

Logging out from account 'gokhankaya'..

Logging into another account (username: 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: 1

To: gizemsungu

From: gokhankaya

Message: This homework is too easy!

```
-----  
Viewing sibelgulmez's profile...  
User ID: 2  
Username: sibelgulmez  
Location: Istanbul  
Birth Date: 10.03.1995  
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 post(s).  
  
Viewing sibelgulmez's posts...  
(PostID: 1) sibelgulmez: I like Java.  
(PostID: 2) sibelgulmez: Java the coffee...  
  
Viewing sibelgulmez's posts' interactions...  
-----  
(Post ID: 1): I like Java.  
The post was liked by the following account(s): gokhankaya,  
The post has 1 comment(s)...  
Comment 1: 'gokhankaya' said 'me too!'  
-----  
(Post ID: 2): Java the coffee...  
  
The post has no likes.  
The post has no comments.  
  
Liking sibelgulmez's posts...  
  
Viewing sibelgulmez's posts' interactions...  
-----  
(Post ID: 1): I like Java.  
The post was liked by the following account(s): gokhankaya,gizemsungu,  
The post has 1 comment(s)...  
Comment 1: 'gokhankaya' said 'me too!'  
-----  
(Post ID: 2): Java the coffee...  
The post was liked by the following account(s): gizemsungu,  
The post has no comments.  
  
-----SCENARIO 1 ENDS-----
```

6.2.2 Scenario 2

-----SCENARIO 2 STARTS-----

'gizemsungu' logs in.
Someone is already logged in!

Sharing two posts...
'gizemsungu' logs out.

'sibelgulmez' logs in.

Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Istanbul
Birth Date: 13.01.1993
gizemsungu is following 0 account(s) and has 2 follower(s)
The followers of gizemsungu are: sibelgulmez, gokhankaya,
gizemsungu has 2 post(s).

liking Post1...
You need to view posts before liking a post!
'sibelgulmez' logs out.

'gokhankaya' logs in.

Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Istanbul
Birth Date: 13.01.1993
gizemsungu is following 0 account(s) and has 2 follower(s)
The followers of gizemsungu are: sibelgulmez, gokhankaya,
gizemsungu has 2 post(s).

Commenting on Post2..
Sending a message to 'gizemsungu' .
'gokhankaya' logs out.

'gizemsungu' logs in.
Viewing her own profile...

Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: Istanbul
Birth Date: 13.01.1993
gizemsungu is following 0 account(s) and has 2 follower(s)
The followers of gizemsungu are: sibelgulmez, gokhankaya,
gizemsungu has 2 post(s).

Checking Inbox...
There is/are 2 message(s) in the inbox.

Viewing inbox...

Message ID: 1
To: gizemsungu
From: gokhankaya
Message: This homework is too easy!

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

-----SCENARIO 2 ENDS-----

6.2.3 Scenario 3

```
-----SCENARIO 3 STARTS-----  
  
'gizemsungu' logs in.  
Someone is already logged in!  
  
Blocking 'sibelgulmez'  
  
'sibelgulmez' logs in.  
'sibelgulmez' tries to view the profile of 'gizemsungu'  
Oops! Looks like you've been blocked by that account! You cannot view the profile!  
  
'sibelgulmez' tries to send a message to 'gizemsungu'  
Oops! Looks like you've been blocked by that account! You cannot message to this account!  
  
-----SCENARIO 3 ENDS-----
```