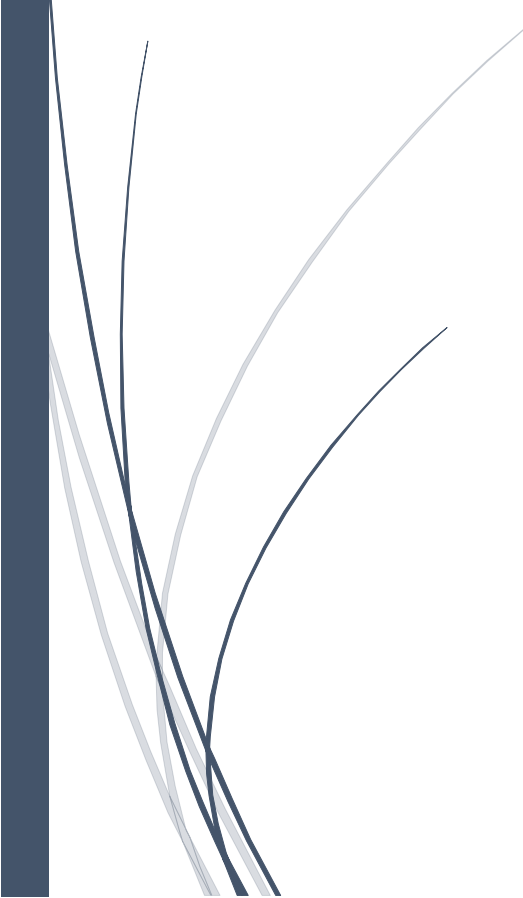


A dark blue vertical bar on the left side of the page. A blue arrow points to the right from the bar, containing the text "[Date]".

[Date]

# Data Structure and Algorithms

HW1 Report

Several thin, curved lines in dark blue and light grey originate from the bottom left corner and curve upwards and to the right.

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# 1.System Requirements:

## Purpose:

The purpose of the system is to create a social media platform similar to Twitter where users can post, comment, like, view profiles and posts of other users, block users, and send direct messages.

## Functionality:

- Users can create accounts with unique usernames, birthdates, and location information.
- Users can post messages that are visible to other users on the platform.
- Users can comment on other users' posts and like them.
- Users can view profiles and posts of other users.
- Users can block other users.
- Users can send direct messages to other users.
- Programmers can modify the system through the main files.
- User information such as usernames, birthdates, and location information are stored in an Account class.

## Target Audience:

The system is intended for people who want to use a social media platform to share their thoughts, opinions, and interests with others.

## Non-functional Requirements:

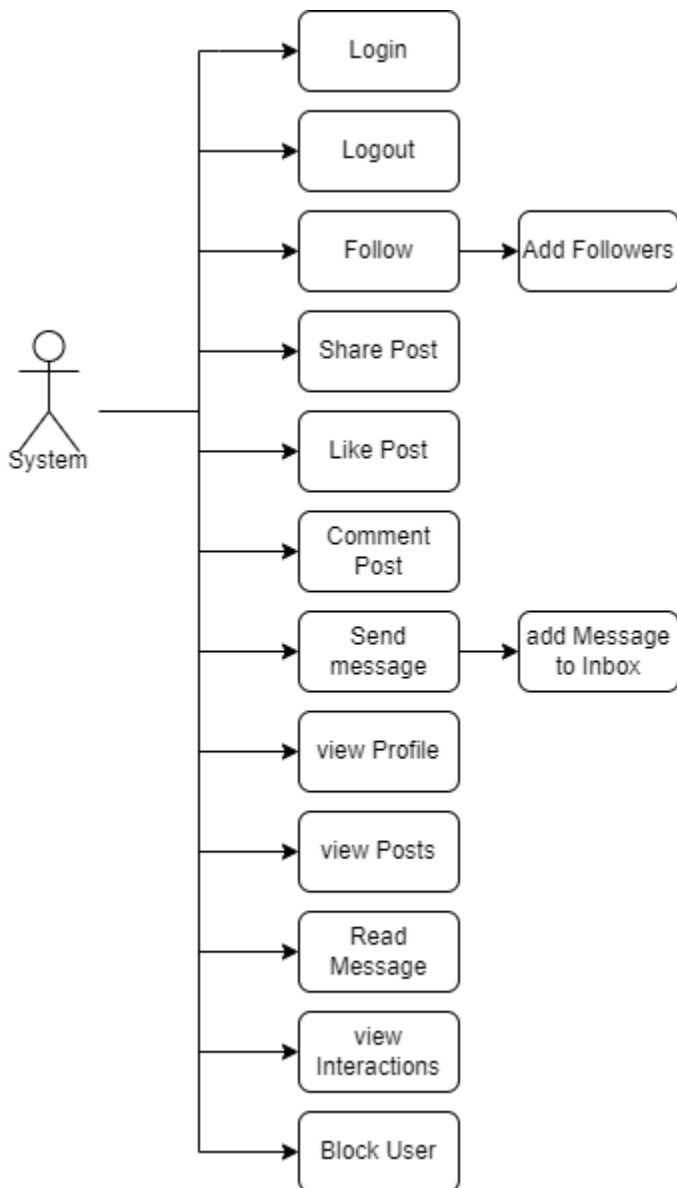
- The system should be secure and protect users' information.
- The system should be reliable and not crash or lose data.
- The system should be scalable to accommodate more users and posts.

## Assumptions and Constraints:

- The system will be developed using Java programming language.

- The system will not require input or output files.
- The system will consist of three main files.
- The system will not have a graphical user interface.
- The system will not use a database management system.

## 2. Use Case Diagram



### 3. Program Solution Approach

This project was designed using the standard array in Java. The inability to use other container structures specific to data structures made it necessary to hold multiple variables. I also included an integer value that holds the size of the array in order to determine its size.

After reading through the project and outlining the requirements, I created class structures based on the table provided in the assignment PDF. Then, as I read through the required features, I began implementing them by keeping the necessary expressions in appropriate data types. The project progressed quickly and smoothly once I confirmed that the code was functioning properly.

Once I saw that the code was working smoothly, I began implementing the error handling that was requested of me. I attempted to create an efficient code by removing unnecessary variables. The most challenging aspect of this project was that, due to the lack of an effective container structure, it became a lengthy and high-workload project.

### 4. Test Cases

#### 4.1 Create socialmedia system

```
// social media system control center
TestClass1 system = new TestClass1();
```

#### 4.2 Create Account

```
//create accounts
Account gizemsungu = new Account(username:"gizemsungu", birthdate:"01/01/2000", location:"Istanbul", accountid:"1-gizemsungu");
System.out.println(x:"An account with username gizemsungu has been created.");

Account sibelgulmez = new Account(username:"sibelgulmez", birthdate:"02/02/2001", location:"Ankara", accountid:"2-sibelgulmez");
System.out.println(x:"An account with username sibelgulmez has been created.");

Account gokhankaya = new Account(username:"gokhankaya", birthdate:"03/03/2002", location:"Izmir", accountid:"3-gokhankaya");
System.out.println(x:"An account with username gokhankaya has been created.");
```

#### 4.3 Add Account to system

```
// add accounts to system
system.addAccount(gizemsungu);
system.addAccount(sibelgulmez);
system.addAccount(gokhankaya);
```

#### 4.4 Login Account

```
//login as sibel
logged_account = system.control_login(sibelgulmez.login());
```

#### 4.5 Share Post

```
// share posts
sibelgulmez.addPost(postid:"post1", content:"I like Java", logged_account.getUsername());
sibelgulmez.addPost(postid:"post2", content:"Java the coffee..", logged_account.getUsername());
```

#### 4.6 Follow

```
// follow
sibelgulmez.follow(gizemsungu, logged_account);
```

#### 4.7 Logout

```
// logout
sibelgulmez.logout(logged_account);
```

#### 4.8 view Profile

```
// view sibel's profile
gokhankaya.viewProfile(sibelgulmez);
```

#### 4.9 view Posts

```
// view sibel's posts
gokhankaya.viewPosts(sibelgulmez, logged_account);
```

#### 4.10 Like Post

```
// like sibel's post
gokhankaya.addLike(postid:"post2", sibelgulmez);
```

#### 4.11 Comment to Post

```
// comment sibel's post
gokhankaya.addComment(postid:"post2", sibelgulmez, content:"Hi Sibel, I am gokhan..");
```

#### 4.12 Send Message

```
// send message to gizemsungu
gokhankaya.sendMessageToOutbox(messageId:"message1", logged_account.getAccountid(), gizemsungu, content:"Hi gizem, I am following to you..");
```

#### 4.13 Check Outbox

```
// check # of message in the outbox
System.out.println(x:"Checking outbox..");
System.out.println("There is/are " + gizemsungu.getNumberOutbox() + " message(s) in the outbox.");
```

#### 4.14 Check Inbox

```
// check # of message in the inbox
System.out.println(x:"Checking inbox..");
System.out.println("There is/are " + gizemsungu.getNumberInbox() + " message(s) in the inbox.");
System.out.println(" ");
```

#### 4.15 view Inbox

```
//view message inbox
gizemsungu.viewInbox();
```

#### 4.16 view Interactions

```
//view sibel's posts interactions
gizemsungu.viewInteractions(sibelgulmez);
```

#### 4.17 view Profile bySelf

```
// view own profile
gizemsungu.viewProfileBySelf();
```

#### 4.18 Read Message

```
// reads messages from gokhankaya
gizemsungu.readMessages(gokhankaya);
```

#### 4.19 Block User

```
// block sibel's profile
gizemsungu.block_user(sibelgulmez, logged_account);
System.out.println(" ");
```

### 5. Running Command and Results

## 5.1 TestCase1 Results

```
PS C:\Users\e.kabalci2018\Desktop\data\sociaimedia> & 'C:\Program Files\Java\jdk-17.0
.1\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localh
ost:50799' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Des
ktop\data\sociaimedia\bin' 'homework1.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 follwing: 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
```

// This account is not logged: gokhankaya: gokhankaya tires to share post but this time logged account is sibelgulmez.

//This account is not logged: gizemsungu : gizemsungu tries to logout, but this time logged account is 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.

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

## 5.2 TestCase2 Results

```
PS C:\Users\e.kabalci2018\Desktop\data\socialmedia> & 'C:\Program Files\Java\jdk-17.0
.1\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localh
ost:50842' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Des
ktop\data\socialmedia\bin' 'homework1.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 follwing: 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
```

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..

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

### 5.3 TestCase3 Results

```
PS C:\Users\e.kabalci2018\Desktop\data\sociaimedia> & 'C:\Program Files\Java\jdk-17.0
.1\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localh
ost:50889' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\e.kabalci2018\Des
ktop\data\sociaimedia\bin' 'homework1.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 follwing: 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 follllowing: 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

// This user cannot found, because of gizemsungu blocked the sibelgulmez