GEBZE TECHNICAL UNIVERSITY
CSE222 – HW1 REPORT

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1) System Requirements:

System requirements and needed conditions are documented below.

- An account can sign up:
* There must not exists an account that has registered before with the same username

- An account can login:
* Account must be signed up to the system before.
* There must not be another account logged in.

- An account can logout:
* Account must be logged in before.

- An account can share post:
* Account must be logged in before.

- An account can follow another account:
* Account must be logged in before.
* Another account must exist in the system.
* Account must not be blocked by the another account.
* Account is not following another account currently.

- An account can like a post:
* Account must be logged in before.
* The post with the given id must exist.
* Account must not be blocked by the owner of the post.
* Account should not have liked the post before.

- An account can make a comment to a post:
* Account must be logged in before.
* The post with the given id must exist.
* Account must not be blocked by the owner of the post.

- An account can send a message to another account:
* Account must be logged in before.
* Receiver account must exist.
* Sender account must follow the receiver account.
* Account must not be blocked by the receiver account.

- An account can view another account:
* Account must be logged in before.
* Another account must exist.
* Account must not be blocked by another account.

- An account can view posts of another account:
* Account must be logged in before.
* Another account must exist.
* Account must not be blocked by another account.
* Account must view the another account before.

- An account can view interactions:
* Account must be logged in before.
* Another account must exist.
* Account must not be blocked by another account.
* Account must view the another account before.

- An account can check inbox:
* Account must be logged in before.

- An account can check outbox:
* Account must be logged in before.

- An account can view inbox:
* Account must be logged in before.

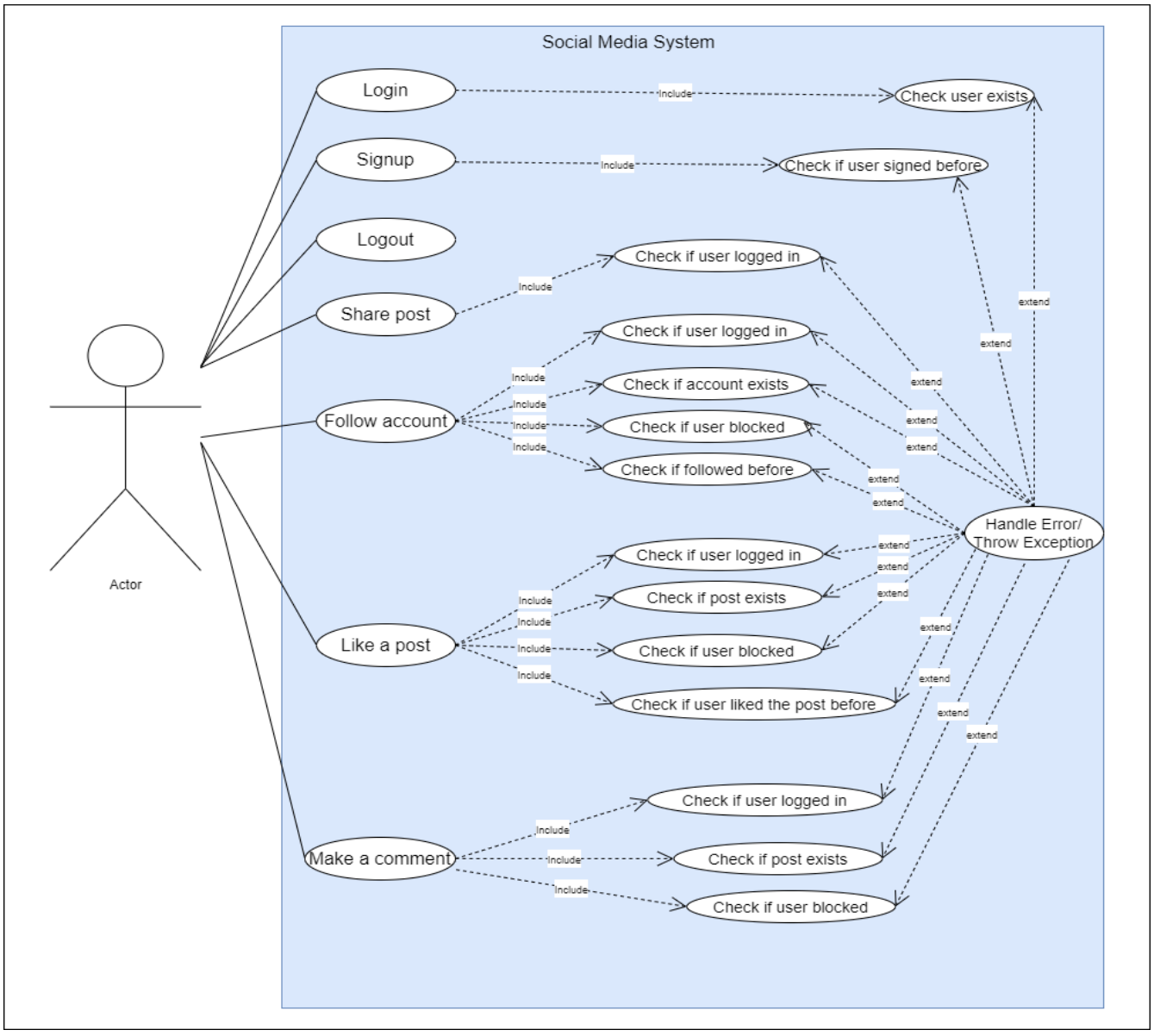
- An account can view outbox:

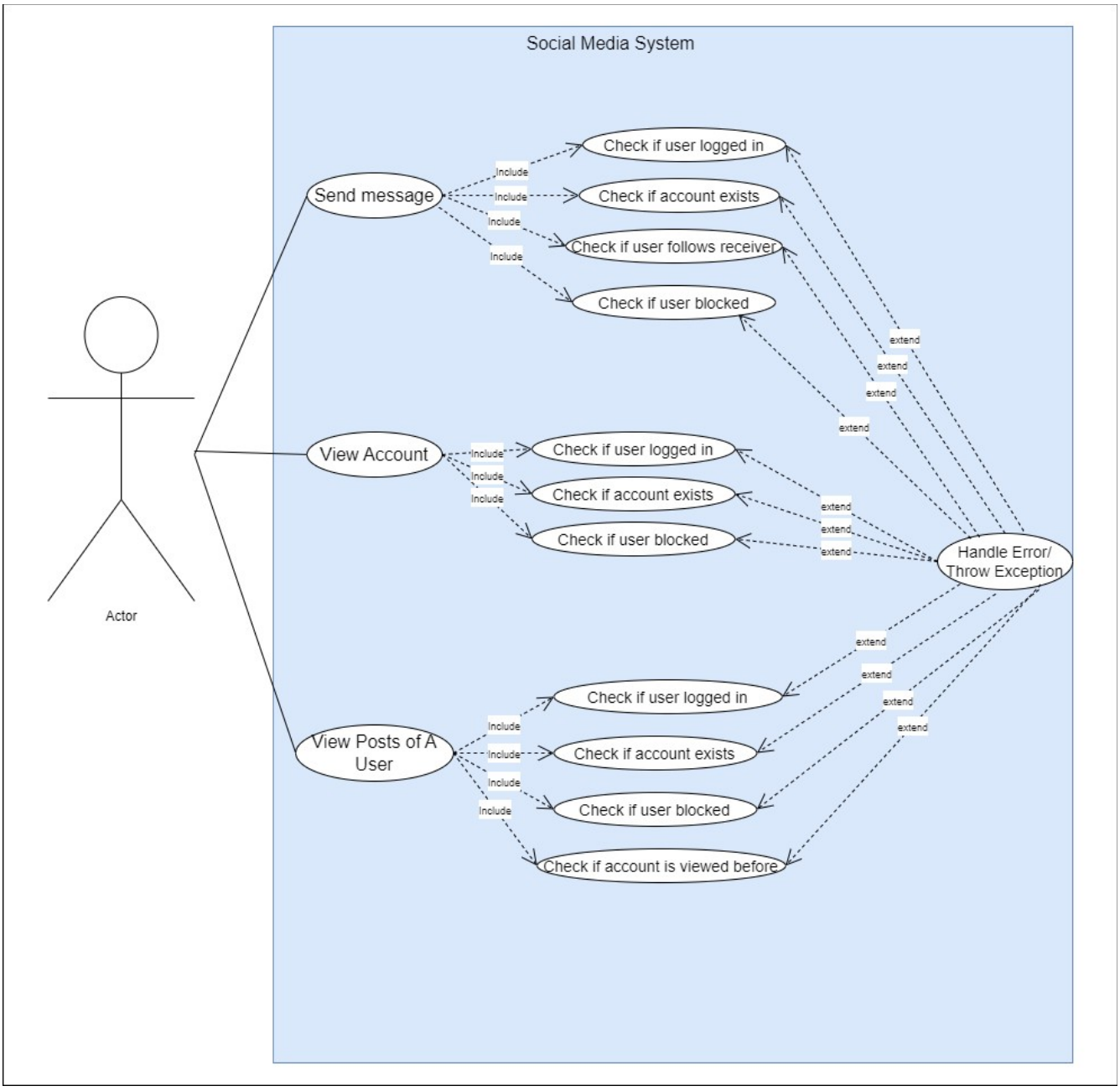
* Account must be logged in before.

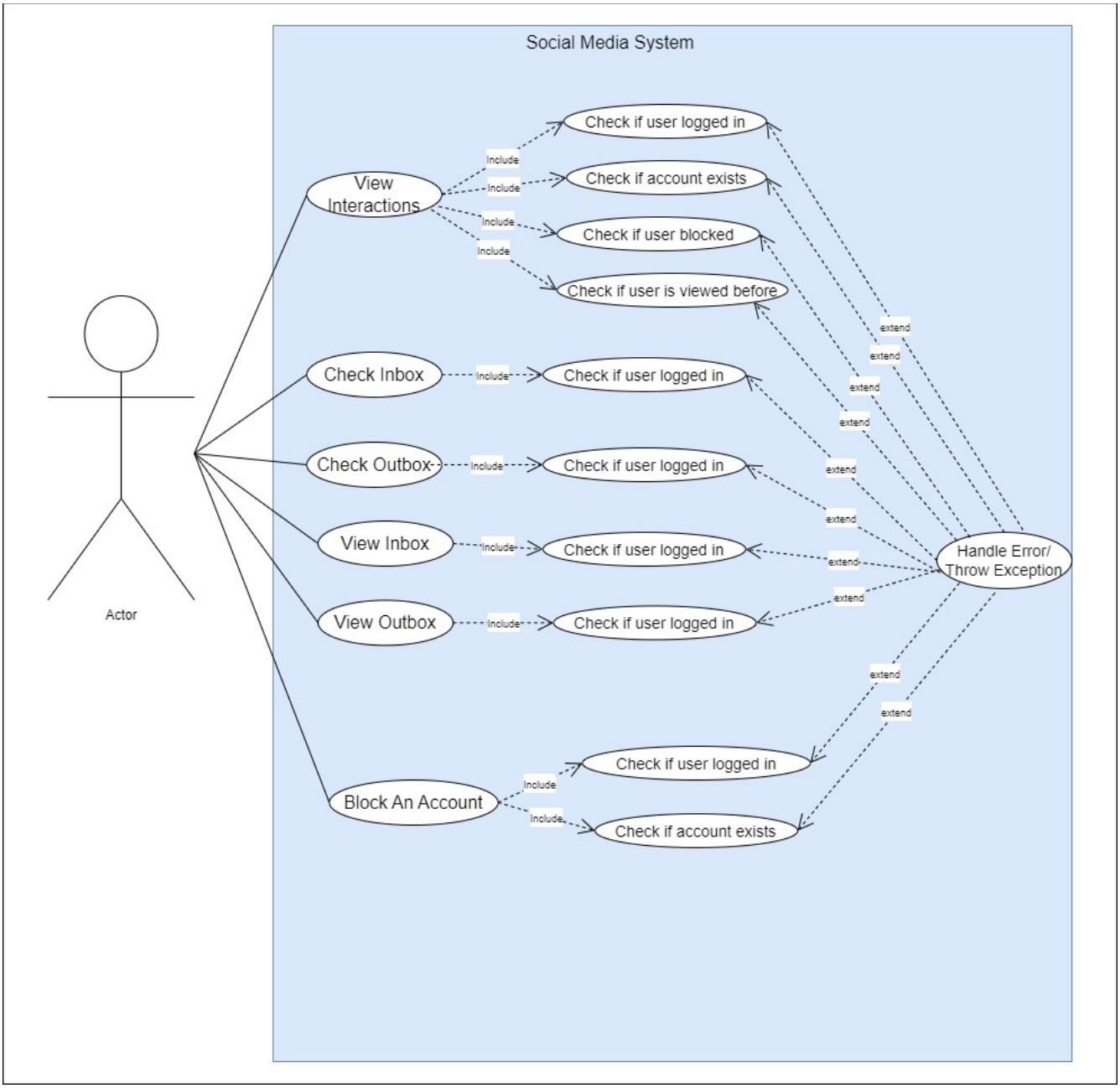
- An account can block another account:

* Account must be logged in before.
* Another account must exist.

2) Use Case Diagrams:




Social Media System
Actor
Send message
View Account
View Posts of A User
Check if user logged in
Check if account exists
Check if user follows receiver
Check if user blocked
Check if account is viewed before
Handle Error/ Throw Exception
Include
extend


Social Media System
Actor
View Interactions
Check Inbox
Check Outbox
View Inbox
View Outbox
Block An Account
Check if user logged in
Check if account exists
Check if user blocked
Check if user is viewed before
Handle Error/ Throw Exception
Include
extend

3) Problem Solution Approach:

In this system, the main problem is around users. Therefore, to solve this issue Account class should be created as designed below.

Account class should consist all needed variables to keep records of the registered users. In that purpose, it consists the variables below :

Class: Account

- accountId: Unique account id.
-username: Unique username of the account.
-birthDate: Birth date of the user.
-location: Location of the user.
-posts: Posts that user shares.
-messages: Messages that user sends or receives.
-following: Accounts that user follows.
-followers: Accounts that follows the user.
-blockedAccounts: Accounts that user blocked.
-isLoginned: Boolean variable that indicates if user has logged in before.
-lastViewedAccount: Username of the last viewed account.

An account and a post or a message has one to many relationship, so an account keeps many posts or messages in array.

A post and a message should keep the relevant internal data except the content, in that purpose they are encapsulated in different classes.

Message class consists the variables below:

Class: Message

-messageId: Unique message id.
-senderId: The id of the sender.
-receiverId: The id of the receiver.
-content: The content of the message.

Then a Post class is needed, but before that which operations a user can make on a post are needed to design.

Users should be able to like or make comments to the posts. Therefore; to keep the relevant informations about a like or comment, these classes are needed to be created.

A like can consist an id, an account id to keep who has the like, a post id to keep which post is liked.
A comment can consist an id, an account id to keep who makes the comment, a post id to keep which post is liked and the content of the comment.

There seems to be a duplicating problem since these classes shares common variables. To solve this issue, I created an abstract class called “Interaction” to keep these common variables in this class.
The final design can be seen below:

Abstract Class: Interaction

-interactionId: The unique interaction id.
-accountId: The account id who makes the interaction.
-postId: The post id which the interaction is made on.

Class: Comment extends Interaction

-content: The content of the comment.

Like class only extends Interaction class.

After creating these classes, Post class is created as below:

Class: Post

-postId: Unique post id.

-accountId: The id of the account who owns the post.
-likes: Likes that are made for the post.
-comments: Comments that are made for the post.
-content: Content of the post.

Account class makes the operations as “signUp, login, follow, sharePost, likePost, makeComment, sendMessage, viewAccount, viewInteractions, viewPosts, checkInbox, checkOutbox, viewInbox, viewOutbox”.
In these operations, needed checks are made for system to be consistent.

NOTE: In the class variables, ‘-’ means the variable is private to make encapsulation and not to give direct access to the client.

4) Test Cases:

Case No: 1
Test Case: Signing up with an account that has not registered before.
Inputs: An account has not registered before. (gizemsungu)
Expected Output: User registers successfully.
Actual Output: User registered successfully.
Result: Pass

Case No: 2
Test Case: Signing up with an account that has registered before.
Inputs: An account that has registered before. (gizemsungu)
Expected Output: Prints “An account with username gizemsungu has already been created.” message.
Actual Output: Prints “An account with username gizemsungu has already been created.” message.
Result: Pass

Case No: 3

Test Case: A registered account logins.
Inputs: An account that has registered before. (gizemsungu)
Expected Output: User logins successfully.
Actual Output: User logins successfully.
Result: Pass

Case No: 4
Test Case: An account that logged in before tries to login again.
Inputs: An account that logged in before. (gizemsungu)
Expected Output: Prints the message “You are already logged in.”
Actual Output: Prints the message “You are already logged in.”
Result: Pass

Case No:5
Test Case: An account that logged in before logouts from the system.
Inputs: An account that logged in before. (gizemsungu)
Expected Output: User logs out successfully.
Actual Output: User logs out successfully.
Result: Pass

Case No:6
Test Case: Sharing post after login.
Inputs: Post content and accounts array.
Expected Output: User shares the post successfully.
Actual Output: User shares the post successfully.
Result: Pass

Case No:7
Test Case: Sharing post without login.
Inputs: Post content and accounts array.
Expected Output: System prints the message “You are not logged in”.
Actual Output: System prints the message message “You are not logged in”.
Result: Pass

Case No:8
Test Case: Following an existing account that did not block the logged in user.
Inputs: An existing account and accounts array.
Expected Output: User follows the user successfully.
Actual Output: User follows the user successfully.
Result: Pass.

Case No:9
Test Case: Following an existing account that blocked the account.
Inputs: An existing account that blocked the account and accounts array.
Expected Output: System prints the message “You are blocked!”
Actual Output: System prints the message “You are blocked!”
Result: Pass.

Case No:10
Test Case: Trying to follow itself.
Inputs: The account of the user’s itself and accounts array.
Excepted Output: System prints the message “You cannot follow yourself.”
Actual Output: System prints the message “You cannot follow yourself.”
Result: Pass.

Case No:11
Test Case: Trying to follow without login.
Inputs: An account and account array.
Excepted Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:12
Test Case: Trying to follow an account that is followed before.
Inputs: An account that is followed before and accounts array.
Excepted Output: System prints the message “You are already following.”

Actual Output: System prints the message “You are already following.”
Result: Pass.

Case No:13
Test Case: Liking an existing post.
Inputs: An existing post id and accounts array.
Excepted Output: User likes the post successfully.

Case No:14
Test Case: Liking a non-existing post.
Inputs: An non-existing post id and accounts array.
Excepted Output: System prints the message “There is no such post.”
Actual Output: System prints the message “There is no such post.”
Result: Pass.

Case No:15
Test Case: Liking a post that belongs to a user who blocked the loginned account.
Inputs: A post id that belongs to a user who blocked the loginned account and accounts array.
Excepted Output: System prints the message “You are blocked!”
Result: Pass.

Case No:16
Test Case: Trying to like a post without login.
Inputs: A post id and accounts array.
Excepted Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:17
Test Case: Trying to like a post that is liked before.
Inputs: A post id that is liked before. and accounts array.
Excepted Output: System prints the message “You liked this post before.”

Actual Output: System prints the message “You liked this post before.”
Result: Pass.

Case No:18
Test Case: Commenting to an existing post.
Inputs: An existing post’s id, the comment’s content and accounts array.
Excepted Output: User comments to the post successfully.
Actual Output: User comments to the post successfully.
Result: Pass.

Case No:19
Test Case: Commenting a non-existing post.
Inputs: An non-existing post’s id, the comment’s content and accounts array.
Excepted Output: System prints the message “There is no such post.”
Actual Output: System prints the message “There is no such post.”
Result: Pass.

Case No:20
Test Case: Commenting a post that belongs to a user who blocked the loginned account.
Inputs: An existing post’s id that belongs to a user who blocked the account, the comment’s content and accounts array.
Excepted Output: System prints the message “You are blocked!”
Actual Output: System prints the message “You are blocked!”
Result: Pass.

Case No:21
Test Case: Trying to comment to a post without login.
Inputs: A post id, the comment’s content and accounts array.
Excepted Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:22
Test Case: Viewing an existing account.
Inputs: An existing account.
Excepted Output: User views the account successfully.
Actual Output: User views the account successfully.
Result: Pass.

Case No:23
Test Case: Viewing a non-existing account.
Inputs: Non-existing account.
Excepted Output: System prints the message “There is no such account.”
Actual Output: System prints the message “There is no such account.”
Result: Pass.

Case No:24
Test Case: Viewing an account that who blocked the loginned account.
Inputs: An account who blocked the user.
Excepted Output: System prints the message “You are blocked.”
Actual Output: System prints the message “You are blocked.”
Result: Pass.

Case No:25
Test Case: Trying to view an account without login.
Inputs: An account.
Excepted Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:26
Test Case: Viewing an existing account’s posts.
Inputs: An existing account’s username.
Excepted Output: User views the account’s posts successfully.
Actual Output: User views the account’s posts successfully.

Result: Pass.

Case No:27
Test Case: Viewing a non-existing account’s posts.
Inputs: Non-existing account.
Excepted Output: System prints the message “There is no such account.”
Actual Output: System prints the message “There is no such account.”
Result: Pass.

Case No:28
Test Case: Trying to view posts of the account that who blocked the user.
Inputs: An account that who blocked the user.
Expected Output: System prints the message “You are blocked.”
Actual Output: System prints the message “You are blocked.”
Result: Pass.

Case No:29
Test Case: Trying to view posts of the account that user is not viewed before.
Inputs: The account that user is not viewed before.
Expected Output: System prints the message “You cannot view the posts before viewing the account.”
Actual Output: System prints the message “You cannot view the posts before viewing the account.”
Result: Pass.

Case No:30
Test Case: Trying to view an account’s posts without login.
Inputs: An account.
Expected Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:31
Test Case: Viewing an existing account’s interactions.
Inputs: An existing account.
Excepted Output: User views the account’s interactions successfully.
Actual Output: User views the account’s interactions successfully.
Result: Pass.

Case No:32
Test Case: Viewing a non-existing account’s interactions.
Inputs: Non-existing account.
Expected Output: System prints the message “There is no such account.”
Actual Output: System prints the message “There is no such account.”
Result: Pass.

Case No:33
Test Case: Trying to view interactions of the account that who blocked the user.
Inputs: An account that who blocked the user.
Expected Output: System prints the message “You are blocked.”
Actual Output: System prints the message “You are blocked.”
Result: Pass.

Case No:34
Test Case: Trying to view interactions of the account that user is not viewed before.
Inputs: The account that user is not viewed before.
Expected Output: System prints the message “You cannot view the interactions before viewing the account.”
Actual Output: System prints the message “You cannot view the interactions before viewing the account.”
Result: Pass.

Case No:35
Test Case: Trying to view an account’s interactions without login.

Inputs: An account.
Expected Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:36
Test Case: Sending a message to an existing account that user follows.
Inputs: An existing account and the message content.
Expected Ouput: User sends the message successfully.
Actual Ouput: User sends the message successfully.
Result: Pass.

Case No:37
Test Case: Sending a message to a non-existing account.
Inputs: A non-existing account and the message content.
Expected Output: System prints the message “There is no such account.”
Actual Output: System prints the message “There is no such account.”
Result: Pass.

Case No:38
Test Case: Sending a message to an existing account that blocked user.
Inputs: an existing account that blocked user and the message content.
Expected Output: System prints the message “You are blocked.”
Actual Output: System prints the message “You are blocked.”
Result: Pass.

Case No:39
Test Case: Sending a message to an existing account that the user does not follow.
Inputs: an existing account that the user does not follow and message content.
Expected Output: System prints the message “You are not following the user that the message will be sent.”
Actual Output: System prints the message “You are not following the user that the message will be sent.”

Result: Pass.

Case No:40
Test Case: Trying to send message without login.
Inputs: An account.
Expected Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:41
Test Case: Checking inbox of an account that logged in.
Inputs: None.
Excepted Ouput: User checks its inbox successfully.
Actual Ouput: User checks its inbox successfully.
Result: Pass.

Case No:42
Test Case: Trying to check inbox without login.
Inputs: None.
Expected Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:43
Test Case: Checking outbox of an account that logged in.
Inputs: None.
Excepted Ouput: User checks its outbox successfully.
Actual Ouput: User checks its outbox successfully.
Result: Pass.

Case No:44
Test Case: Trying to check outbox without login.
Inputs: None.
Expected Output: System prints the message “You are not logged in.”

Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:45
Test Case: Viewing inbox of an account that logged in.
Inputs: None.
Excepted Ouput: User checks its inbox successfully.
Actual Ouput: User checks its inbox successfully.
Result: Pass.

Case No:46
Test Case: Trying to view inbox without login.
Inputs: None.
Expected Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:47
Test Case: Viewing outbox of the account that logged in.
Inputs: None.
Excepted Ouput: User checks its outbox successfully.
Actual Ouput: User checks its outbox successfully.
Result: Pass.

Case No:48
Test Case: Trying to check outbox without login.
Inputs: None.
Expected Output: System prints the message “You are not logged in.”
Actual Output: System prints the message “You are not logged in.”
Result: Pass.

Case No:49
Test Case: Blocking an existing account after login.
Inputs: An existing account.
Expected Output: User blocks the account successfully.
Actual Output: User blocks the account successfully.
Result: Pass.

Case No:50
Test Case: Trying to block a non-existing account after login.
Inputs: A non-existing account.
Expected Output: System throws exception with the message
"There is no account with that username."
Result: Pass.

Case No:51
Test Case: Trying to block an account without login.
Inputs: An account.
Expected Output: System prints the message "You are not logged in."
Actual Output: System prints the message "You are not logged in."
Result: Pass.

5) Running Command and Results:

Running Commands:

1) Unzip the 200104004099.zip file.
2) cd 200104004099
3) cd homework1
4) javac *.java
5) cd ..
6) java homework1.TestClass1
7) java homework1.TestClass2
8) java homework1.TestClass3

Results:

```
emre@ubuntu:~/Desktop$ cd 200104004099
emre@ubuntu:~/Desktop/200104004099$ cd homework1/
emre@ubuntu:~/Desktop/200104004099/homework1$ javac *.java
emre@ubuntu:~/Desktop/200104004099/homework1$ cd ..
emre@ubuntu:~/Desktop/200104004099$ java homework1.TestClass1
CSE222 - HW1

Step 1... 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.

Step 2... Logging into an account (username: sibelgulmez)...

Step 3... Sharing two posts...

Step 4... Following gizemsungu and gokhankaya...

Step 5... Logging out from account 'sibelgulmez'...

Step 6... Logging into another account (username: gokhankaya)..

Step 7... 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 followers(s).
sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

Step 8... Viewing sibulgulmez's posts...
(PostID: 1) sibelgulmez: I like Java.
(PostID: 2) sibelgulmez: Java the coffee...

Step 9... Liking a post of sibelgulmez...

Step 10... Adding a comment on a post of sibelgulmez...

Step 11... Following sibelgulmez and gizemsungu...

Step 12... Sending a message to gizemsungu...
```

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Step 13... Logging out from account 'gokhankaya'..

Step 14... Logging into another account (username: gizemsungu)...

Step 15... Checking outbox...
There is/are 0 message(s) in the outbox.

Step 16... Checking inbox...
There is/are 1 message(s) in the inbox.

Step 17... Viewing inbox...
Viewing inbox...
----------------------
Message ID: 0
From: gokhankaya
To: gizemsungu
Message: This homework is too easy!

Step 18... 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 followers(s).
The followers of sibelgulmez are: gokhankaya,
sibelgulmez is following: gizemsungu, gokhankaya,
sibelgulmez has 2 posts.

Step 19... Viewing sibelgulmez's posts...
(PostID: 1) sibelgulmez: I like Java.
(PostID: 2) sibelgulmez: Java the coffee...

Step 20... Viewing sibelgulmez's posts' interactions...
----------------------
(PostID: 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!'
----------------------
(PostID: 2): Java the coffee...
The post has no likes.
The post has no comments.
```

```
Step 21... Liking sibelgulmez's posts...

Step 22... Viewing sibelgulmez's posts' interactions...
----------------------
(PostID: 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!'
----------------------
(PostID: 2): Java the coffee...
The post was liked by the following account(s): gizemsungu,
The post has no comments.
```

```
emre@ubuntu:~/Desktop/200104004099$ java homework1.TestClass2
CSE222 - HW1

An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.

Step 1... Logging into another account (username: gizemsungu)...

Step 1-a... Sharing a post...

Step 1-b... Sharing another post...

Step 1-c... Logging out from account 'gizemsungu'..

Step 2... Logging into another account (username: sibelgulmez)...

Step 2-a... Viewing gizemsungu's profile...
----------------------
User ID: 1
Username: gizemsungu
Location: Kocaeli
Birth Date: 14.05.1993
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgulmez, gokhankaya,
gizemsungu has 2 posts.

Step 2-b... Liking Post1...

Step 2-c... Logging out from account 'sibelgulmez'..

Step 3... Logging into another account (username: gokhankaya)...

Step 3-a... Viewing gizemsungu's account...
----------------------
User ID: 1
Username: gizemsungu
Location: Kocaeli
Birth Date: 14.05.1993
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgulmez, gokhankaya,
gizemsungu has 2 posts.

Step 3-b... Commenting on Post2...

Step 3-c... Sending a message to gizemsungu...
```

```
Step 3-d... Logging out from account 'gokhankaya'..

Step 4...Logging into another account (username: gizemsungu)...

Step 4-a...Viewing gizemsungu's profile...
----------------------
User ID: 1
Username: gizemsungu
Location: Kocaeli
Birth Date: 14.05.1993
gizemsungu is following 0 account(s) and has 2 followers(s).
The followers of gizemsungu are: sibelgulmez, gokhankaya,
gizemsungu has 2 posts.

Step 4-b...Viewing inbox...
Viewing inbox...
----------------------
Message ID: 0
From: gokhankaya
To: gizemsungu
Message: This homework is too easy!
----------------------
Message ID: 1
From: gokhankaya
To: gizemsungu
Message: Hello!
```

```
emre@ubuntu:~/Desktop/200104004099$ java homework1.TestClass3
CSE222 - HW1

An account with username gizemsungu has been created.
An account with username sibelgulmez has been created.
An account with username gokhankaya has been created.

Step 1...Logging into another account (username: gizemsungu)...

Step 1-a...Blocking sibelgulmez...

Step 1-b...Logging out from account 'gizemsungu'..

Step 2...Logging into another account (username: sibelgulmez)...

Step 2-a...Viewing gizemsungu's profile...
WARNING: You are blocked!

Step 2-b...Trying to send message to gizemsungu
WARNING: You are blocked!
```