

Data Structures and Algorithms

HOMEWORK 3 REPORT

RUNNING COMMANDS AND RESULTS

```
enesaysu@Enes-Aysu-MacBook-Air arraylist % /usr/bin/env /Library/Java/JavaVirtualMachines/jdk-19.jdk/Contents/Home/bin/java --enable-preview -XX:+ShowCodeDetailsInExceptionMessages -cp /Users/enesaysu/Library/Application\ Support/Code/User/workspaceStorage/0cc97b4fee05b6afedde56d89775ba3e/redhat.java /jdt_ws/arraylist_b2550635/bin TestClass3

logging into account (username: sibelgulmez)

logging out from account (username: sibelgulmez)

logging into account (username: gokhankaya)

... Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: izmir
Birth Date: 20.07.1994
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...

logging out from account (username: gokhankaya)

logging into 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
From: gokhankaya
To: gizemsungu
Message: This homework is too easy!

... Viewing sibelgulmez's profile...
User ID: 2
Username: sibelgulmez
Location: izmir
Birth Date: 20.07.1994
sibelgulmez is following 2 account(s) and has 1 follower(s)
sibelgulmez is following: gizemsungu gokhankaya
The followers of sibelgulmez are: 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...
(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

... 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

logging out from account (username: gizemsungu)

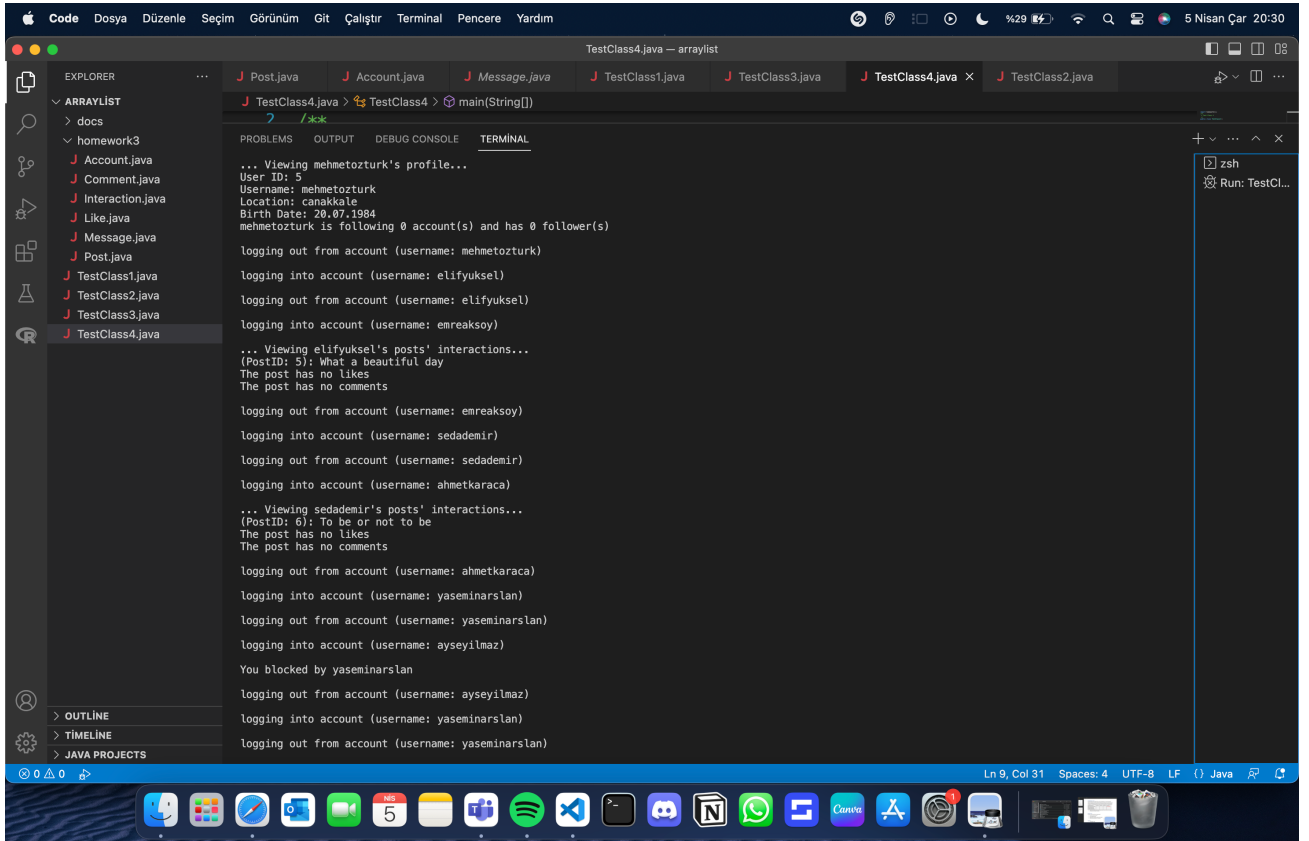
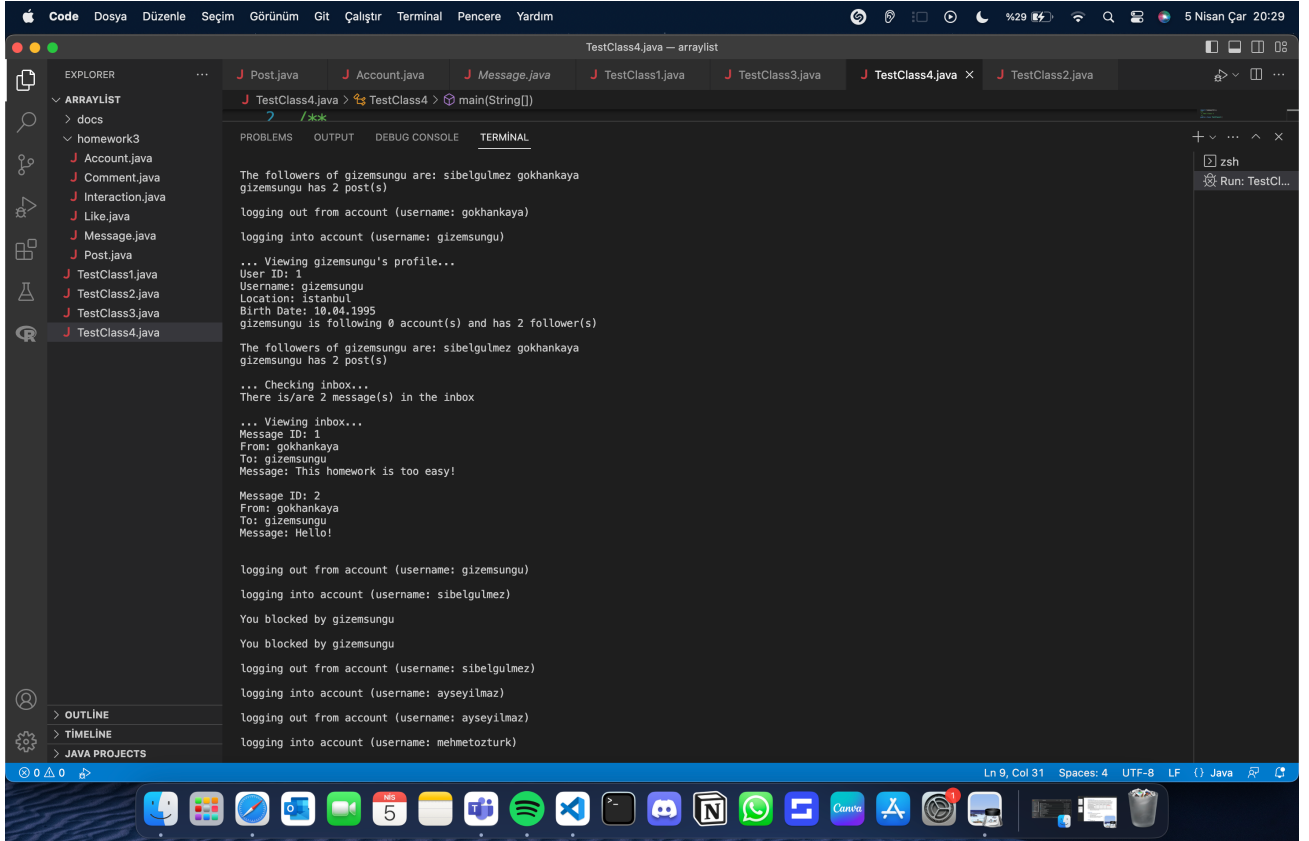
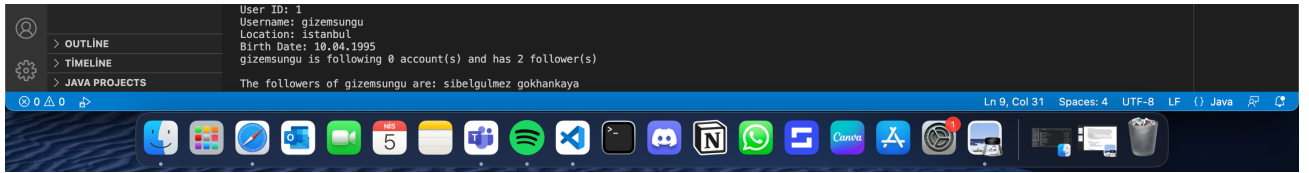
logging into account (username: sibelgulmez)

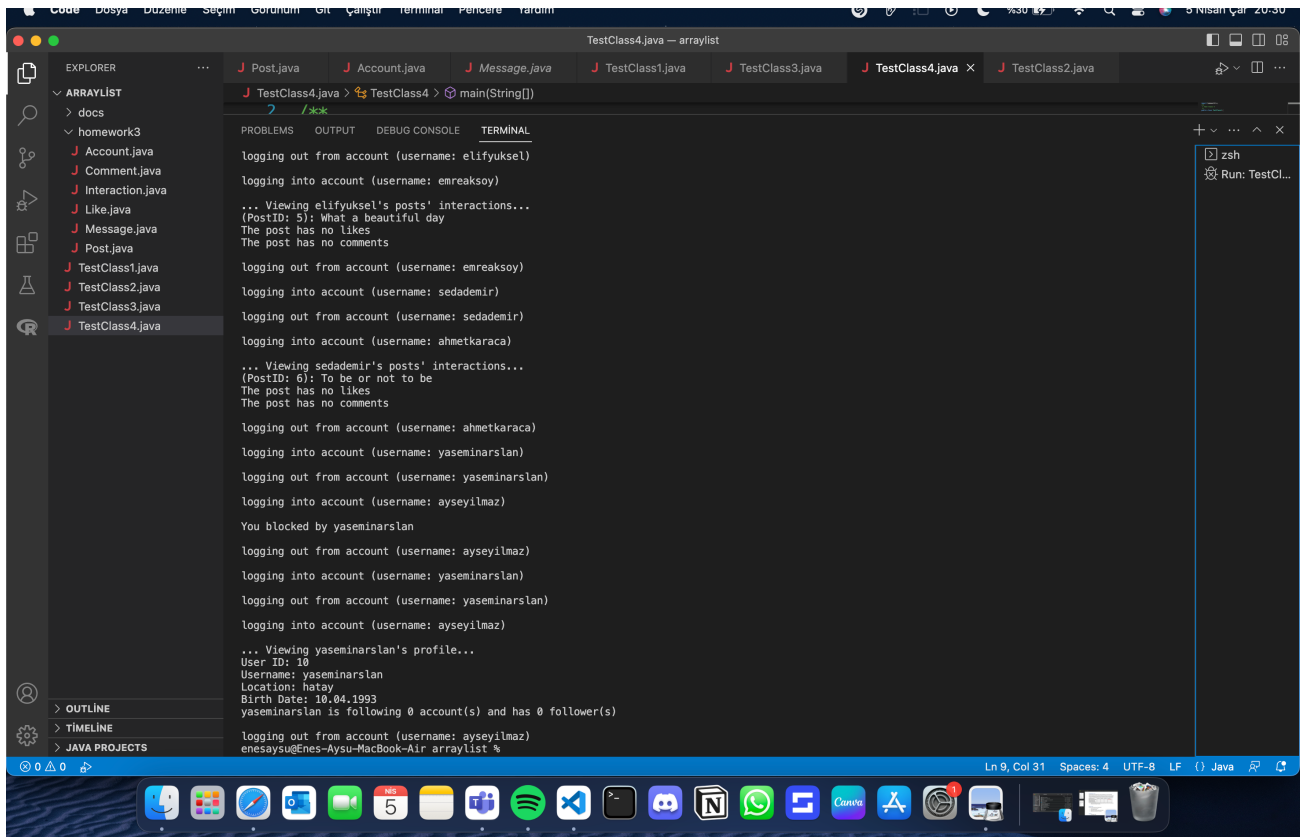
... Viewing gizemsungu's profile...
User ID: 1
Username: gizemsungu
Location: istanbul
Birth Date: 10.04.1995
gizemsungu is following 0 account(s) and has 2 follower(s)
The followers of gizemsungu are: sibelgulmez gokhankaya
gizemsungu has 2 post(s)

logging out from account (username: sibelgulmez)

logging into account (username: gokhankaya)

... Viewing gizemsungu's profile...
```





TIME COMPLEXITY ANALYSIS

- "addPost" function time complexity is **O(1)** (no loop only includes statements)
- "addInbox" function time complexity is **O(1)** (no loop only includes statements)
- "addOutbox" function time complexity is **O(1)** (no loop only includes statements)
- "login" function time complexity is **O(1)** (no loop only includes statements)
- "logout" function time complexity is **O(1)** (no loop only includes statements)
- "isLogin" function time complexity is **O(1)** (no loop only includes statements)
- "isBlocked" function time complexity is **O(n)** (includes one loop and statements)
- "follow" function time complexity is **O(1)** (no loop only includes statements)
- "unfollow" function time complexity is **O(1)** (no loop only includes statements)
- "follower" function time complexity is **O(1)** (no loop only includes statements)
- "unfollower" function time complexity is **O(1)** (no loop only includes statements)
- "block" function time complexity is **O(1)** (no loop only includes statements)
- "unblock" function time complexity is **O(1)** (no loop only includes statements)

"checkInbox" function time complexity is **O(1)** (no loop only includes statements)

"checkOutbox" function time complexity is **O(1)** (no loop only includes statements)

"viewInbox" function time complexity is **O(n)** (includes one loop and statements)

"viewOutbox" function time complexity is **O(n)** (includes one loop and statements)

"viewPosts" function time complexity is **O(n)** (includes one loop and statements)

"viewPostInteraction" function time complexity is **O(n * (k + m))** (includes inner and outer loop twice and statements)

"viewProfile" function time complexity is **O(n)** (includes one loop and statements)

EXPERIMENTAL RUNNING TIME ANALYSIS

Implementation Time	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Basic Array Structure	0.44 s	0.47 s	---	---
Array List Structure	0.40 s	0.42 s	0.45 s	0.45 s
Linked List Structure	0.42 s	0.43 s	0.43 s	0.45 s