Name (Given name) – Alberto Miranda
Name (Given name) – Federico Marin
Date – November 8, 2020
Instructor Dr. Mejia
Assignment Programming assignment 4

I confirm that the work of this assignment is completely our own. By turning in this assignment, I declare that I did not receive unauthorized assistance. Moreover, all deliverables including, but not limited to the source code, lab report and output files were written and produced by my partner and I, alone.

1. Program Explanation

For this assignment we had to fix our code to meet the requirements for PA3. This task was the one that took us most of the time because there were some components in which we both needed to fix. Otherwise, most of the problems we had were fixed when combining our code together. After meeting the requirements for PA3, we added a printable interface. In this interface, the user of our bank can choose to print information of our bank system.

This programming assignment consisted of multiple nested problems. In order to fix PA3, we had to readjust our transaction actions file, and our method of reading and writing to the csv file. Fortunately, we were able to use the new printable interface to better print and write the transactions.

To solve pa4 we had to break down the assignment into smaller assignments. We than divided the assignments between us both to accomplish it. Since first fixing our code to meet the requirements for pa3 was our biggest problem, we concentrated on getting it fixed first. We both made research on how to improve and fix our implementations for the csv file and decided it was best to use the same method just fixing the errors. After figuring out the pa3 portion, we started working on printable. The printable interface, solving this problem was quite simple once we understood the concept that had to be done. We broke the assignment into smaller problems by working on the tedious errors first then working our way down our code.

2. What did I learn?

As a result of this assignment, we learned to work together by combining and refactoring our code. We also learned how to handle and create exceptions. This lab was also great practice for understanding how classes and interfaces work.

Our solution can be improved by creating multiple exceptions that handles all user-given errors. We could have also found a better implementation for our bank statement since neither of us had a good grasp of this part.

Another way we could solve this problem is by

It took us around 4 active days to finish pa4. This is mostly due to the fact that we had to fix pre-existing errors in our code before moving on to the requirements for pa4.

3. Solution Design

To solve pa4, we first had to fix up the requirements for pa3. We had to fix our transactions actions and our readers/writers for the csv files. Once we fixed that, we created our Printable interface. Finally, we handled and created our own exceptions and implemented javadocs accordingly.

Our approach to this problem was to first fix what should be working before modifying it and adding more code. We broke down the assignment into smaller assignments. We than divided the assignments between us both to accomplish it. Since first fixing our code to meet the requirements for pa3 was our biggest problem, we concentrated on getting it fixed first. We both made research on how to improve and fix our implementations for the csv file and decided it was best to use the same method just fixing the errors. After figuring out the pa3 portion, we started working on printable. The printable interface, solving this problem was quite simple once we understood the concept that had to be done. We broke the assignment into smaller problems by working on the tedious errors first then working our way down our code.

We used Array lists for better management and easier understanding. Since we have both been using this data structure since our CS1 class, we were able to create an even more robust program.

Our only assumptions are that we wouldn't need to hash our passwords and it would only have a simple comparison. Also, that printable would only be used for task we created it for (since it was not specified as to what or where to print). Finally, we made the assumption that the user has a basic knowledge of ATM machines.

4. Testing

We tested our program by applying basic prints around the methods that would have logical errors. We also applied various try-catches and try applying brute force testing in the inputs.

We used both. We were able to edit and test our code while having it infront of us and reading it. At the same time, we tested multiple inputs and logic using the console. Mostly for our joint-demo.

We believe we tested our solutions enough. Our testing practices can be improved as to understanding where and how to apply each test.

We used random inputs to test out rigorous input in the console. To test our writers/readers, we would constantly check our csv file for changes and work from there.

During our joint demo, they broke our program a few times when putting random inputs. After the demo was over, we saw this as an opportunity to fix our errors.

5. Test results

Our results came out as expected.

```
Welcome to MinerBank
Before we start, a quick question
Please choose one of the following menu items
1. Client
2. Bank manager
3. Create new client account
2
1. Inquire account by name.
2. Inquire account by type/number
3. Inquire all accounts
4. transaction action file
5. Exit
4
Daniel A
Checking account balance of: $ 1311.17
Savings account balance of: $ 3198.85
Credit balance: $ -186.96
Grecia Navarrete
Checking account balance of: $ 1339.79
Savings account balance of: $ 3901.29
Credit balance: $ -475.59
Mufassa Disney
Checking account balance of: $ 1100.32
Savings account balance of: $ 4801.11
Credit balance: $ -346.32
```

```
Welcome to MinerBank
Before we start, a quick question
Please choose one of the following menu items
1. Client
2. Bank manager
3. Create new client account
1
Enter account Identification Number:
1
Please enter the password for the account
MouseMickey!987


Welcome to minerBank Mickey Mouse
Please choose a menu option
1. Balance
2. Deposit
3. Withdraw
4. Transfer
5. Wire Transfer
6. Print out account information
7. Exit
1
Checking balance of: $2854.17
Savings balance of:  $3940.92
Credit of:   $-1132.03
```

Include any text document output as a result of your tests.

6. Code Review

Person One (Alberto Miranda)

My partners code worked a lot better than mine. He implemented his data structure much better which is why we used most of his implementations.

We both liked using Array lists for its simple use and implementation.

We didn't agree with our implementations of actions transactions, but since his worked best, we ended up using his method.

It changed my understanding by seeing different applications of the same data structure. Although we had somewhat same ideas, he executed them much better.

Person Two (Federico Marin)

My partners code was good but did have some errors that we both came to an agreement where we would use most of my code to complete this assignment. We both came to realize that we used array lists as our data structure and made this group project a lot simpler. The way he was storing the information from the csv file was hard coded and was not efficient when it came down to the csv file changing every project. I realized that there were many different ways to implement array lists and how to use them efficiently.

7. Reflection

Describe the process of combining code

Our process of combining code was somewhat facilitated to the fact that we used that same data structure. Since Federico had most of the parts I was missing, we decided to transfer his code for most of the program.

Describe the process of understanding your partners' code

The process for understanding each other's code involved a lot of communication. Although we had the same data structure, we had different implementations across our code. So we had to explain to each other how it worked. Combining our code took a few days.

8. Demo of another team

Who demo'd to you?

Christopher Reyes and Manuel Melendez

Did you understand their process to perform tasks?

Yes, we understood their process to perform tasks. They mae sure to handle every possible error, which was impressive.

Did they provide you with Javadoc?

Yes, they walked us through their Javadoc.

Did you break their code? How?

With many attempts, we were only able to break their code by putting an empty input in the console.

Did they meet all functionality requirements?

They met all functionality requirements.

9. Demo for another team

Who did you demo with?

Christopher Reyes, Manuel Melendez

Did you provide them with enough information in the console prompts?

Yes, we gave them control over the console via Microsoft Teams. They ran and tested our code with any means they wanted

Did you provide them with Javadoc?

Yes, we provided them with Javadoc.

Did they break your code? What did you learn from it?

They broke our code through unhandled console inputs. After they tested it, we learned that we have to handle all kinds of mistakes from the user.

Did you meet all the functionality requirements?

We were not able to implement our bank statement correctly. During the demo, they reminded us that we needed to create an exception, right after our demo we got right to it.

Person One (Alberto Miranda)

What did I do to contribute to this?

I contributed by creating the report, creating an exception that handles incorrect passwords, handling random user inputs, and implementing Javadoc.

How did I help solve the problem?

I helped solve this lab by providing Federico with my implementations and opinion on how he should change his, vice versa. We divided the work we got.

How much did I do in this assignment?

We tried to divide the work as much as possible, but since Federico's implementation of Array lists was much better, we decided it was best to use his implementation. I helped by creating the report, creating an exception that handles incorrect passwords, handling random user inputs, and implementing Javadoc.

What did I learn from working with a teammate?

I learned that there is always room for improvement. Before this lab, I had the idea that my implementation was very good, but Federico helped me understand how I can improve it.

Person Two (Federico Marin)

What did I do to contribute to this?

- I contributed to this project by using most of my code to implement the new printable interface as well as checking the password. I also completed the Javadoc.

How did I help solve the problem?

- I helped solve this problem by using most of my code and implementing the printable interface as well as checking the password authentication.

How much did I do in this assignment?

- My teammate and I divided the work as evenly as possible. Since my work was working more efficiently, we used mine and implemented some of his. After this we decided that he would do the report as well as adding the exceptions.

What did I learn from working with a teammate?

- I learned that working in a team, we can see how people think differently and implement their code in different ways. This allowed for my group working skills to be improved and learned how we can coordinate working on code even if it via remote access.

(Note: Turn in all source code, output results (if applicable), reports, and all other required material specified by the assignment to Blackboard). Save this lab report at Lastname_Firstname_Programming_Assignment # – Do not turn in report with this note