Ruben Carmona – Person One
Brian G. Rodiles Delgado – Person Two
Jose Luis Espinoza Gonzalez – Person Three
April 12, 2023
Dr. Daniel Mejia
PA5

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

In this section, explain the overview of the assignment.
What did you do?

- In this PA we as a team had to conduct a code review of each team member and ensure that all functionalities were working as expected and that each of us would understand what the code was doing and their approach. We also had to merge our code and have all classes and methods working.

How did you tackle the problem?

- We first started by refactoring the code and seeing which approach was better for each task on the previous PA's meaning that if a method for searching a flight was better to understand and would work better in time complexity, we will use that one as part of our merge.

What techniques did you use to solve the problem?

- We as a team did some testing in all three codes and as mentioned above we would determine what was a better part of the code to merge with the team's code and what was not.

Did you break the problem into smaller problems? Explain.

- We sure did break the problem into smaller solutions because once we had merged all the code and we had built our team's code we started breaking down the problem to see if we could fix it or have a better approach once we merge all the codes. We also did tests on the final code.

2. What did I learn?

What did you learn as a result of this assignment?

- We did learn how we could put our skills into practice when working as a team on a coding project, meaning that the three of us had a code and we all had to merge it into one and had to work as a team to see how this would work.

How can my solution be improved?

- We believe that our approach as of now is a good approach for PA5.

What ideas do I have about another way to solve the problem?

- We as a team do not have other ideas for a different approach compared to the one that we came up with.

How long did it take me to complete this lab assignment?

- On average it took us 2-3 hours per day.

3. Solution Design

What did I do in this program?

- In this program, we merged 3 different source codes to create a "main" source that would work as the team's project.

What was my approach to solving this problem?

- Testing the programs and having a review of what pieces of code would be a better approach for us.

What data structures did I use? Why?

- We used HashMap ArrayList to store information during our program and with these be able to retrieve information such as persons information, tickets, and flight information.

What assumptions, if any, did I make?

4. Testing

How did I test my program?

- We tested our program by running it multiple times and checking how it would behave during the runtime; we also came up with some test cases of our own to make sure it won't crash.

Did I use black-box, white-box testing, or both? Why?

- We used black box testing to make sure we were getting the expected outputs and no errors or exceptions.

Did I test my solution enough? How can my testing practices be improved?

- Yes, we did. Our test practices can be improved by getting with other teams or students from class and comparing their testing approaches, and seeing how we can improve from there.

What are the test cases I used?

- Test cases we used were:
- Making sure the flights were found and inputting unexpected inputs to see if the program will throw exceptions.
- Check if we were storing our ticket list correctly and ensure we could look for and cancel tickets.
- If updated CSV files were created accordingly and the auto purchase was working for all the files provided.

Did I break my program and use that as a way to improve it?

- We did break the program at the beginning because since we were merging all codes, we needed to make sure that the code transition was working smoothly.

5. Test results

Describe the results of your tests.
Include any console outputs showing your results
Include any text document output as a result of your tests.

Buying Tickets

```
Do you want to buy tickets for this flight? (Y/n): y
Perfect, let me send you to the class selection menu...

Available class options:

1. First Class: $2997.0
Available seats: 9

2. Business Class: $1049.0
Available seats: 63

3. Main Cabin Class: $417.0
Available seats: 90

Please select a class number:
Not a valid choice. Please try again. Please try again.

Available class options:

1. First Class: $2997.0
Available seats: 9

2. Business Class: $1049.0
Available seats: 63

3. Main Cabin Class: $417.0
Available seats: 90

Please select a class number: 3

Perfect, you chose Main Class.


Please enter the number of tickets you want to purchase (up to 8 per transaction): 2

The total price for the transaction would be $254.77
Do you confirm this transaction? (Y/n):
That is not a valid choice. Please try again.

The total price for the transaction would be $254.77
Do you confirm this transaction? (Y/n): y

Perfect, let me generate your ticket confirmation...

Generating ticket confirmation...

Your confirmation number is: 23110

Printing your ticket(s)...

Here is your ticket(s) information:
El Paso International Airport (ELP) --> Dallas/Ft. Worth International Airport (DFW)
4/6/2023 5:25 AM --> 4/6/2023 7:59 AM

Ticket(s) type: Main Class
Seat(s) purchased: 2
MinerAirlines Fee: $9.15
Security Fee: $11.20
Money Saved: $312.75
Total price: $254.77
Transaction confirmation number: 23110
```

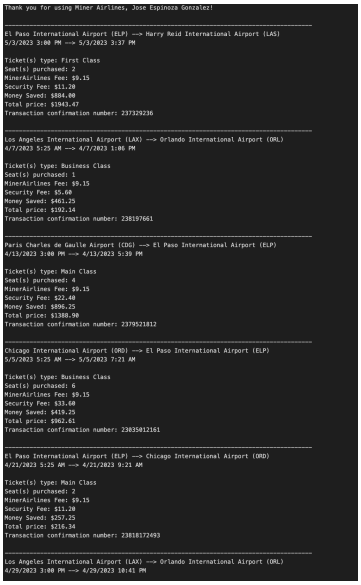
Running auto purchasing

```
Here are the available transaction lists to test:

1) Auto Transaction 10K
2) Auto Transaction 100K
3) Auto Transaction 400K
4) Auto Transaction 800K
5) Auto Transaction 1M

Please enter the list number you want to test: 1

Initializing automatic transactions.

Automatic transactions finalized.
```

Some results from auto purchasing

```
Customer with username alondragonzalezayala selected flight with ID 613.
Customer with username alondragonzalezayala selected flight of type First Class.
Customer with username alondragonzalezayala selected to buy 5 tickets.
Customer with username alondragonzalezayala bought 5 ticket for flight with ID 613.

Customer with username garypark selected flight with ID 1932.
Customer with username garypark selected flight of type Main Class.
Customer with username garypark selected to buy 5 tickets.
Customer with username garypark bought 5 ticket for flight with ID 1932.

Customer with username michaelmartinez selected flight with ID 863.
Customer with username michaelmartinez selected flight of type First Class.
Customer with username michaelmartinez selected to buy 5 tickets.
Customer with username michaelmartinez bought 5 ticket for flight with ID 863.

Customer with username jodysanchez selected flight with ID 3549.
Customer with username jodysanchez selected flight of type First Class.
Customer with username jodysanchez selected to buy 8 tickets.
Customer with username jodysanchez didn't have enough money for transaction.

Customer with username jamesromero selected flight with ID 3423.
Customer with username jamesromero selected flight of type Business Class.
Customer with username jamesromero selected to buy 4 tickets.
Customer with username jamesromero bought 4 ticket for flight with ID 3423.

Customer with username deborahscott selected flight with ID 2082.
Customer with username deborahscott selected flight of type Business Class.
Customer with username deborahscott selected to buy 5 tickets.
Customer with username deborahscott bought 5 ticket for flight with ID 2082.

Customer with username victoriaellis selected flight with ID 31.
Customer with username victoriaellis selected flight of type Main Class.
Customer with username victoriaellis selected to buy 3 tickets.
Customer with username victoriaellis bought 3 ticket for flight with ID 31.

Customer with username jamesking selected flight with ID 2092.
Customer with username jamesking selected flight of type Main Class.
Customer with username jamesking selected to buy 8 tickets.
Customer with username jamesking bought 8 ticket for flight with ID 2092.

Customer with username brittanyrichard selected flight with ID 1777.
Customer with username brittanyrichard selected flight of type Main Class.
Customer with username brittanyrichard selected to buy 8 tickets.
Customer with username brittanyrichard bought 8 ticket for flight with ID 1777.
```

Ticket from each team member



```
Thank you for using Miner Airlines, Jose Espinoza Gonzalez!

--------------------------------------------------------------------------------
El Paso International Airport (ELP) --> Harry Reid International Airport (LAS)
5/3/2023 3:00 PM --> 5/3/2023 3:37 PM

Ticket(s) type: First Class
Seat(s) purchased: 2
MinerAirlines Fee: $9.15
Security Fee: $11.20
Money Saved: $884.00
Total price: $1943.47
Transaction confirmation number: 237329236

--------------------------------------------------------------------------------
Los Angeles International Airport (LAX) --> Orlando International Airport (ORL)
4/7/2023 5:25 AM --> 4/7/2023 1:06 PM

Ticket(s) type: Business Class
Seat(s) purchased: 1
MinerAirlines Fee: $9.15
Security Fee: $5.60
Money Saved: $401.25
Total price: $192.14
Transaction confirmation number: 238197661

--------------------------------------------------------------------------------
Paris Charles de Gaulle Airport (CDG) --> El Paso International Airport (ELP)
4/13/2023 3:00 PM --> 4/13/2023 5:39 PM

Ticket(s) type: Main Class
Seat(s) purchased: 4
MinerAirlines Fee: $9.15
Security Fee: $22.40
Money Saved: $896.25
Total price: $1388.90
Transaction confirmation number: 2379521812

--------------------------------------------------------------------------------
Chicago International Airport (ORD) --> El Paso International Airport (ELP)
5/5/2023 5:25 AM --> 5/5/2023 7:21 AM

Ticket(s) type: Business Class
Seat(s) purchased: 6
MinerAirlines Fee: $9.15
Security Fee: $33.60
Money Saved: $419.25
Total price: $962.61
Transaction confirmation number: 23035012161

--------------------------------------------------------------------------------
El Paso International Airport (ELP) --> Chicago International Airport (ORD)
4/21/2023 5:25 AM --> 4/21/2023 9:21 AM

Ticket(s) type: Main Class
Seat(s) purchased: 2
MinerAirlines Fee: $9.15
Security Fee: $11.20
Money Saved: $257.25
Total price: $216.34
Transaction confirmation number: 23018172493

--------------------------------------------------------------------------------
Los Angeles International Airport (LAX) --> Orlando International Airport (ORL)
4/29/2023 3:00 PM --> 4/29/2023 10:41 PM
```

```
Thank you for using Miner Airlines, Brian RodilesDelgado!

--------------------------------------------------------------------------------
El Paso International Airport (ELP) --> Tokyo Haneda Airport (HND)
4/15/2023 12:05 PM --> 4/16/2023 4:10 PM

Ticket(s) type: Main Class
Seat(s) purchased: 3
MinerAirlines Fee: $9.15
Security Fee: $16.80
Money Saved: $653.25
Total price: $798.98
Transaction confirmation number: 23711951032

--------------------------------------------------------------------------------
Logan International Airport (BOS) --> Los Angeles International Airport (LAX)
4/18/2023 5:25 AM --> 4/18/2023 7:51 AM

Ticket(s) type: Business Class
Seat(s) purchased: 8
MinerAirlines Fee: $9.15
Security Fee: $44.80
Money Saved: $879.75
Total price: $2685.52
Transaction confirmation number: 23015212160

--------------------------------------------------------------------------------
Los Angeles International Airport (LAX) --> El Paso International Airport (ELP)
4/24/2023 12:05 PM --> 4/24/2023 2:58 PM

Ticket(s) type: Main Class
Seat(s) purchased: 8
MinerAirlines Fee: $9.15
Security Fee: $44.80
Money Saved: $228.00
Total price: $724.68
Transaction confirmation number: 23621754668

--------------------------------------------------------------------------------
Harry Reid International Airport (LAS) --> El Paso International Airport (ELP)
4/14/2023 3:00 PM --> 4/14/2023 5:37 PM

Ticket(s) type: First Class
Seat(s) purchased: 3
MinerAirlines Fee: $9.15
Security Fee: $11.20
Money Saved: $818.50
Total price: $1801.66
Transaction confirmation number: 23010164948

--------------------------------------------------------------------------------
Chicago International Airport (ORD) --> El Paso International Airport (ELP)
4/25/2023 8:20 AM --> 4/25/2023 10:16 AM

Ticket(s) type: Business Class
Seat(s) purchased: 4
MinerAirlines Fee: $9.15
Security Fee: $22.40
Money Saved: $471.75
Total price: $722.71
Transaction confirmation number: 23723024964

--------------------------------------------------------------------------------
El Paso International Airport (ELP) --> Harry Reid International Airport (LAS)
5/1/2023 3:00 PM --> 5/1/2023 3:37 PM
```

```
Thank you for using Miner Airlines, Ruben CarmonaMedrano!

--------------------------------------------------------------------------------
El Paso International Airport (ELP) --> Chicago International Airport (ORD)
4/19/2023 5:25 AM --> 4/19/2023 9:21 AM

Ticket(s) type: Business Class
Seat(s) purchased: 7
MinerAirlines Fee: $9.15
Security Fee: $39.20
Money Saved: $714.75
Total price: $1066.34
Transaction confirmation number: 2321577320

--------------------------------------------------------------------------------
Dallas/Ft. Worth International Airport (DFW) --> El Paso International Airport (ELP)
4/25/2023 12:05 PM --> 4/25/2023 12:39 PM

Ticket(s) type: Main Class
Seat(s) purchased: 5
MinerAirlines Fee: $9.15
Security Fee: $28.00
Money Saved: $231.00
Total price: $464.01
Transaction confirmation number: 23122873843

--------------------------------------------------------------------------------
El Paso International Airport (ELP) --> Paris Charles de Gaulle Airport (CDG)
4/10/2023 12:05 PM --> 4/11/2023 6:44 AM

Ticket(s) type: Main Class
Seat(s) purchased: 5
MinerAirlines Fee: $9.15
Security Fee: $28.00
Money Saved: $1019.25
Total price: $1953.26
Transaction confirmation number: 2325874408

--------------------------------------------------------------------------------
Dallas/Ft. Worth International Airport (DFW) --> El Paso International Airport (ELP)
4/29/2023 3:00 PM --> 4/29/2023 3:34 PM

Ticket(s) type: Main Class
Seat(s) purchased: 1
MinerAirlines Fee: $9.15
Security Fee: $5.60
Money Saved: $222.00
Total price: $103.11
Transaction confirmation number: 23527688606
```

Canceling ticket and exiting the program

```
Here are the available profiles:
1) Customer
2) Employee
Please enter what you are (enter "EXIT" to stop using the program): 2

Please enter your first name: daniel

Please enter your last name: mejia

Found username!

Please enter your username: danielmejia

Please enter your password: Fun!23

Perfect, you are logged in.

Select whether you want to:

1) Go to the update menu.
2) Go to ticketing.
3) Inquire about an airport.
4) Generate an ETS (Electronic Ticket Summary) for a customer.
5) Go to auto transaction menu.
6) Exit the employee menu.

Enter your selection here: 2
Select whether you want to buy (1) or cancel (2) a ticket: 2

You have purchased 5 tickets.
Select the ticket number to view/cancel (enter RETURN to go back to the menu or EXIT to log out): 2

This is the information for the ticket:
El Paso International Airport (ELP) --> Los Angeles International Airport (LAX)
4/26/2023 12:05 PM --> 4/26/2023 12:50 PM

Ticket(s) type: Business Class
Seat(s) purchased: 1
MinerAirlines Fee: $9.15
Security Fee: $5.60
Money Saved: $619.00
Total price: $211.56
Transaction confirmation number: 23024111098

Do you want to cancel this ticket (Y/n):
That is not a valid choice. Please try again.
El Paso International Airport (ELP) --> Los Angeles International Airport (LAX)
4/26/2023 12:05 PM --> 4/26/2023 12:50 PM

Ticket(s) type: Business Class
Seat(s) purchased: 1
MinerAirlines Fee: $9.15
Security Fee: $5.60
Money Saved: $619.00
Total price: $211.56
Transaction confirmation number: 23024111098

Do you want to cancel this ticket (Y/n): y

Canceling ticket...
```

6. Code Review

Person One (Ruben Carmona)

How did you feel about your partner's code?

- I did feel good about my teammate's code because I think they did a great job when building their program, since we all work with different approaches when comparing the codes they were very similar so it was a smooth transition of codes for us.

What are some things they did that you liked?

- Speaking of both of my teammates I like how they build the structure of the ticket when printing to the customer and how they also used a good approach of design patterns and how their classes and objects connected and work with each other accordingly.

What were some things they did that you didn't like/didn't agree with?

- I would not say I did not like it at all but probably in some parts of the code to avoid printing extra information that is not needed for the program or that is not relevant.

How did looking at another person's code change your understanding of the Bank system?

- When I looked at my teammate's code it helped me realize how similar approaches can work in a completely different way and even helped the time complexity of the code. I feel like sometimes it is good to share/compare ideas and brainstorm to come up with better solutions.

Person Two (Brain G. Rodiles Delgado)

How did you feel about your partner's code?

- I felt good with my partner's code because they had a good approach and good handling of exceptions also, the similarities of coding approaches made it easy to transition between our projects.

What are some things they did that you liked?

- I like how they have their code organized and easy to read, and how they have commented through their code so that it is easy to understand what the code is doing.

What were some things they did that you didn't like/didn't agree with?

- I did not like that some methods were not communicating with other methods or classes the way they were supposed to.

How did looking at another person's code change your understanding of the Bank system?

- It helped me understand how the value of sharing ideas could lead to great teamwork and great results.

Person Three (Jose Luis Espinoza Gonzalez)

How did you feel about your partner's code?

My teammate's code left a positive impression on me, as they employed a thoughtful approach and managed exceptions effectively. Our similar coding styles facilitated smooth collaboration between our projects.

What are some things they did that you liked?

- Their code stood out for its neat organization and clarity, with comments provided to ensure a comprehensive understanding of its functionality and purpose.

What were some things they did that you didn't like/didn't agree with?

- A minor concern I had was that a few methods didn't properly interact with other methods or classes as expected, which led to some challenges.

How did looking at another person's code change your understanding of the Bank system?

- This experience highlighted the significance of sharing perspectives and working together to drive improved outcomes and foster effective teamwork.

7. Reflection

Describe the process of combining code

- At first, we could say that it was hard to know where to start merging the code but we first run each other's code to see how each of them would behave and from there we break them into parts and check what pieces of code were better for each task asked.

Describe the process of understanding your partners code

- We could say that for some parts it was easy to understand the code because as mentioned before some approaches were similar but in some parts, it was hard to understand because the approach was not clear.

Describe the problems you faced, and how you solved them

- Issues we faced were that when merging the codes, errors and exceptions would appear constantly, and as we would fix some bugs and merge more code we would get another error but, we could say that most of the time were simple errors that could be fixed on the spot.

8. Demo of another team

Who demo'd to you?

- Team 1

Did you understand their process to perform tasks?

- Yes, the Javadoc and user prompts managed to explain to us what the program wanted as input and what it did with that data.

Did they provide you with Javadoc?

- Yes, I accessed their web-based Javadoc.

Did you break their code? How?

- No, we did not break the code

Did they meet all functionality requirements?

- Yes, they did meet all requirements.

9. Demo for another team

Who did you demo with?

- Team 1

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

- Yes, everything was self-explanatory and ideal for user navigation.

Did you provide them with Javadoc?

- Yes, they had access at all times to the Javadoc.

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

- When purchasing a ticket and being prompted to input Y/n, I input the String "y n' and although it should be an incorrect input, it counts it as 'Y'.
- When purchasing a ticket and being prompted to input the class number, I input the String "1 2' and although it should be an incorrect input, it counts it as 'First Class'.
- Customer is unable to view their flights previously purchased

- Does not write a running list of user's tickets to the new .txt file, instead, it only writes 1 ticket transaction that is specifically specified.

Note: When searching for a flight by departure date or arrival date, show the possible times.
Did you meet all the functionality requirements?

Yes, all computations were done correctly and met all PA requirements.

Person One (Ruben Carmona)

What did I do to contribute to this?

- I contributed by providing pieces of code to our team project and making sure that my code was working, and it was maintainable. Also, gave ideas on how to improve our solutions.

How did I help solve the problem?

- Testing the code frequently and reviewing the code.

How much did I do in this assignment?

- We divided the work evenly so each of us did 33% of the assignment. I helped with the merge of code and with my part of the report accordingly.

What did I learn from working with a teammate?

- That sometimes could be challenging but, in the end, it is always good to work with a group of people because you do learn a lot from others especially when they help you see what you did wrong and how to improve it.

Person Two (Brain G. Rodiles Delgado)

What did I do to contribute to this?

- Provided functional code segments for the team project and additionally offered valuable ideas for enhancing the team's solution.

How did I help solve the problem?

- By conducting regular code testing through code reviews and identifying issues within the project.

How much did I do in this assignment?

- We distributed the workload evenly among my teammates. I helped with merging code segments and completed my portion of the report.

What did I learn from working with a teammate?

- It was good to work in teams, collaborating with others allowed me to learn from their perspective and benefit from their guidance for improvement.

Person Three (Jose Luis Espinoza Gonzalez)

What did I do to contribute to this?

I contributed by delivering efficient code snippets for our team assignment and proposing insightful ideas to refine our overall solution.

How did I help solve the problem?

I actively participated in code reviews, consistently testing the code to identify and resolve any issues that arose within the project.

How much did I do in this assignment?

My teammates and I shared responsibilities equitably. I took charge of integrating the Diagrams based on the code and accomplished my share of the report.

What did I learn from working with a teammate?

Teamwork proved to be a valuable experience, as it allowed me to appreciate different viewpoints and leverage my teammates' expertise to enhance my skills and performance.