

Programming Paradigms
Coursework Project
Test Report

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Test Scope

The Test was carried out on the following functionality:

1. Choosing an operation from the Menu.
2. Every operation available.
3. Enter correct and wrong user input for the operations that require user input.

Test Input

- For all operations, the input is the *mapdata* variable which contains the data coming from the text file "Data.txt". *mapdata* is a Map of type [String, List[Int]].
- *Average* operation takes two additional inputs: *FirstStock* and *SecondStock*. Both are of type String and represent the input of the user.
- *Portfolio* operation takes one additional input: *portfolio* of type Map[String,Int] and represents the input of the user.

Data.txt

SK1, 9, 7, 2, 0, 7, 3, 7, 9, 1, 2, 8, 1, 9, 6, 5, 3, 2, 2, 7, 2, 8, 5, 4, 5, 1, 6, 5, 2, 4, 1
SK2, 0, 7, 6, 3, 3, 3, 1, 6, 9, 2, 9, 7, 8, 7, 3, 6, 3, 5, 5, 2, 9, 7, 3, 4, 6, 3, 4, 3, 4, 1
SK3, 8, 7, 1, 8, 0, 5, 8, 3, 5, 9, 7, 5, 4, 7, 9, 8, 1, 4, 6, 5, 6, 6, 3, 6, 8, 8, 7, 4, 0, 6
SK4, 2, 9, 5, 7, 0, 8, 6, 6, 7, 9, 0, 1, 3, 1, 6, 0, 0, 1, 3, 8, 5, 4, 0, 9, 7, 1, 4, 5, 2, 9
SK5, 2, 6, 8, 0, 3, 5, 5, 2, 5, 9, 4, 5, 3, 5, 7, 8, 8, 2, 5, 9, 3, 8, 6, 7, 8, 7, 4, 1, 2, 3
SK6, 2, 7, 5, 9, 1, 9, 8, 4, 1, 7, 3, 7, 0, 8, 4, 5, 9, 2, 4, 4, 8, 7, 9, 2, 2, 7, 9, 1, 6, 9
SK7, 6, 9, 5, 0, 0, 0, 0, 5, 8, 3, 8, 7, 1, 9, 6, 1, 5, 3, 4, 7, 9, 5, 5, 9, 1, 4, 4, 0, 2, 0
SK8, 2, 8, 8, 3, 1, 1, 0, 8, 5, 9, 0, 3, 1, 6, 8, 7, 9, 6, 7, 7, 0, 9, 5, 2, 5, 0, 2, 1, 8, 6
SK9, 7, 1, 8, 8, 4, 4, 2, 2, 7, 4, 0, 6, 9, 5, 5, 4, 9, 1, 8, 6, 3, 4, 8, 2, 7, 9, 7, 2, 6, 6

Test Result

1. Choose a non-available operation from the menu

Expected: Give an error and allow the user to enter another operation

```
Please select one of the following:
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit
```

8

Sorry, that command is not recognized

```
Please select one of the following:
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
```

2. Choose Operation 1: Current price for all stocks.

Expected output: show the last recent price for every stock which is:

SK1: 1, SK2: 1, SK3: 6, SK4: 9, SK5: 3, SK6: 9, SK7: 0, SK8: 6, SK9: 6

```
Please select one of the following:
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit
```

1

```
SK1: 1
SK2: 1
SK3: 6
SK4: 9
SK5: 3
SK6: 9
SK7: 0
SK8: 6
SK9: 6
```

Actual Output: (Stock: most recent price)

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3. Choose Operation 2: Highest and lowest price for all stocks within the period.

Expected Output: Show the highest and lowest price for each stock within the 30 days period

```
Please select one of the following:
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit
2
SK1 -> Low: 0, High: 9
SK2 -> Low: 0, High: 9
SK3 -> Low: 0, High: 9
SK4 -> Low: 0, High: 9
SK5 -> Low: 0, High: 9
SK6 -> Low: 0, High: 9
SK7 -> Low: 0, High: 9
SK8 -> Low: 0, High: 9
SK9 -> Low: 0, High: 9
```

Actual Output: (Stock => Lowest Price, Highest Price)

4. Choose Operation 3: Median price for all stocks within a period

Expected Output: Show the median price for each stock within the 30 days period, which is:

SK1: 4.5, SK2: 4, SK3: 6, SK4: 4.5, SK5: 5, SK6: 5.5, SK7: 4.5, SK8: 5, SK9: 5.5

```
Please select one of the following:
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit
3
SK1: 4.5
SK2: 4.0
SK3: 6.0
SK4: 4.5
SK5: 5.0
SK6: 5.5
SK7: 4.5
SK8: 5.0
SK9: 5.5
```

Actual Output: (Stock: Median)

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5. Choose Operation 4: The stock with the highest rise over last week.

Expected Output: show the highest rise stock over the last 7 days in the data, which is SK6.

```
Please select one of the following:
```

- 1- Current price for all stocks.
- 2- Highest and lowest price for all stocks within a period.
- 3- Median price for all stocks within a period.
- 4- The stock with highest rise over last week.
- 5- Compare the average price of two stocks within a period.
- 6- Enter a portfolio and get its total value
- 7- quit

```
4
```

```
The stock SK6 had the largest rise over the last week.
```

Actual Output: The name of the stock (SK6)

6. Choose Operation 5: Compare the average price of two stocks and enter the correct stock names.

Input: SK1, SK2

Expected Output: show the average price of both stocks, which is SK1: 4.43 and SK2: 4.63

- ```
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit
```

```
5
```

```
First Stock: SK1
```

```
Second Stock: SK2
```

```
SK1 -> Average: 4.433333333333334
```

```
SK2 -> Average: 4.633333333333334
```

Actual Output: (Stock => Average)

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**7. Choose Operation 5: Compare the average price of two stocks and enter an incorrect first stock.**

Input: SK0, SK1

Expected Output: show an error that the first stock is incorrect.

```
Please select one of the following:
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit
5
First Stock: SK0
Second Stock: SK1
The first stock is not recognized
```

Actual Output: Error Message

**8. Choose Operation 5: Compare the average price of two stocks and enter an incorrect second stock.**

Input: SK1, SK10

Expected Output: show an error that the second stock is incorrect

```
Please select one of the following:
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit
5
First Stock: SK1
Second Stock: SK10
The Second stock is not recognized
```

Actual Output: Error Message

**9. Choose Operation 6: Enter a portfolio and get its total value, and enter the stocks correctly.**

Input: Number of owned stocks, each stock, and its shares.

Example Input: 3, SK1, 100, SK4, 200, SK3, 50

Expected Output: show the total value of the portfolio based on the most recent price of each stock, which is 2200.

```
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit

6
How many stocks do you own?
3
Enter Stock Name: SK1
Enter Shares: 100
Enter Stock Name: SK4
Enter Shares: 200
Enter Stock Name: SK3
Enter Shares: 50
The total value of the portfolio is 2200.
```

Actual Output: Total value of the portfolio.

**10. Choose Operation 6: Enter a portfolio and get its total value, and enter the stocks incorrectly.**

Example Input: Entering one of the stocks incorrectly

Expected Output: Error message and allow the user to enter another one instead to complete the portfolio.

```
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit

6
How many stocks do you own?
2
Enter Stock Name: SK0
Enter Shares: 100
That stock is not recognized, please enter another one
Enter Stock Name: SK1
Enter Shares: 100
Enter Stock Name: SK2
Enter Shares: 100
The total value of the portfolio is 200.
```

Actual Output: Error message and allow to enter another correct one and show the total value of portfolio.

## Coursework Project

### Test Report

#### 11. Choose Operation 7: Quit

Expected Output: Stop the program.

```
Please select one of the following:
1- Current price for all stocks.
2- Highest and lowest price for all stocks within a period.
3- Median price for all stocks within a period.
4- The stock with highest rise over last week.
5- Compare the average price of two stocks within a period.
6- Enter a portfolio and get its total value
7- quit
✓
selected quit

Process finished with exit code 0
```

#### Summary of test results

- The Menu is working as expected, and when a wrong operation is entered an error message appears.
- Every operation is working correctly and outputs the correct answer.
- For the operation that requires user input, a check method is available, and an error message is generated if the input is not as expected.