Programming Assignment 7

https://thumbs.dreamstime.com/t/lottery-ticket-filled-out-ball-pen-42100336.jpg

Objectives:

- Practice exception handling
- Practice using arrays

Assignment:

In this assignment, you are going to simulate a lottery game. The goal of the game is for the player to match as many numbers to the computers as possible. They are allowed to play as many times as they want, and once they quit the game, it shows their total winnings for the game. The user has 3 options when the game begins: Choose Numbers, Check Winnings, and Quit.

If the player selects **Choose Numbers**, they are given two ways to get their lottery numbers: choosing their own or quick pick. If they choose their own, they enter 5 different numbers from 1 to 20. There **CANNOT** be duplicate numbers. If the player enters the same number twice, they see an error message, and have to enter a new number. If they choose quick pick, the computer will generate 5 different random numbers from 1 to 20 for them. There **CANNOT** be duplicate numbers. The 5 numbers chosen by the player or the computer **MUST** be stored in an **array**.

If the player chooses **Check Winnings**, the player's numbers are compared to 5 randomly generated numbers that are the winning numbers. The winning numbers and the player's numbers are displayed. Then, it states the number of matches between the winning numbers and the player's and displays how much money they won. For each number that matches, the player earns $10.00. The winnings are all added to a total that keeps track of how much money has been won altogether.

This will continue until the user enters **Quit**, the game ends, the total amount of money won is displayed, and a goodbye message.

Programming Notes:

- You **MUST** use arrays to store the players 5 numbers and the winning numbers.
- You **MUST** do input validation for all of the user input.
    - Numbers must be integers (no floating-point numbers or words)
        - You **MUST** use exception handling for this.
    - Numbers must be in the correct range.

Sample Execution 1: No Errors

```
Instant Lottery
===============

Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): 1

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Number Options:
===============
1. Choose Your Numbers
2. Quick Pick

Enter choice (1 or 2): 1

Choose 5 Different Numbers

1  2  3  4  5  6  7  8  9  10
11 12 13 14 15 16 17 18 19 20

Number 1: 5
Number 2: 19
Number 3: 7
Number 4: 11
Number 5: 16

Your Numbers: 5 19 7 11 16

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Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): 2

Winning Numbers: 20  5  9 18 17
Player  Numbers:  5 19  7 11 16

Matches: 1
Prize:   $10.00

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Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): 1

--------------------------------

Number Options:
===============
1. Choose Your Numbers
2. Quick Pick

Enter choice (1 or 2): 2

Your Numbers: 11 18 13 15 20

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Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): 2

Winning Numbers: 16  6 11  8 15
Player  Numbers: 11 18 13 15 20

Matches: 2
Prize:   $20.00

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Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): 3

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Total Prize: $30.00

Thanks for playing!
```

Sample Execution 2: Errors

```
Instant Lottery
===============

Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): sldf
Enter choice (1, 2, or 3): 12
Enter choice (1, 2, or 3): -13
Enter choice (1, 2, or 3): 1

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Number Options:
===============
1. Choose Your Numbers
2. Quick Pick

Enter choice (1 or 2): asdlf
Enter choice (1 or 2): 234
Enter choice (1 or 2): 1

Choose 5 Different Numbers

 1  2  3  4  5  6  7  8  9  10
11 12 13 14 15 16 17 18 19 20

Number 1: asdlfj
Number 1: 23
Number 1: -12
Number 1: 4
Number 2: 9
Number 3: 0
Number 3: 89
Number 3: sdf
Number 3: 4
             Error! No Duplicates!
Number 3: 9
             Error! No Duplicates!
Number 3: 11
Number 4: 13
Number 5: 20

Your Numbers: 4 9 11 13 20

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Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): 2

Winning Numbers:  1  6 17 20 11
Player  Numbers:  4  9 11 13 20

Matches: 2
Prize:   $20.00

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Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): 1

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Number Options:
===============
1. Choose Your Numbers
2. Quick Pick

Enter choice (1 or 2): 2

Your Numbers: 17 9 6 12 7

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Options:
========
1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3): 2

Winning Numbers: 17 20 13 10  5
Player  Numbers: 17  9  6 12  7

Matches: 1
Prize:   $10.00

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Options:
========
1. Choose Numbers
2. Check Winnings
```

```
3. Quit

Enter choice (1, 2, or 3): 3

--------------------------------

Total Prize: $30.00

Thanks for playing!
```

Requirements:

- Use an updated comment block
- Your program should use the following comment block at the very beginning of your program.

// Name: Your Name **Date Assigned: Fill in**
//
// Course: CSCI 2003 60357 **Date Due: Fill in**
//
// Instructor: Ms. Greer
//
// File name: Fill in
//
// Program Description: Brief description of what the program does.

- Use appropriate comments throughout the program
- Make good use of whitespace
- Your output should look exactly like the sample output if using the same data.

Deliverables:

- Lottery.java file
- Upload 1 file to Moodle

Grading:

Total Points	15 points
Lottery class	**15 points**
Correct input validation for all input	1 point
Gets games options from user (Choose Numbers, etc)	0.5 point
Choose Numbers	
Get users choice on how to get lottery numbers.	0.5 point
Choose Your Numbers	
Displays numbers 1 -20 correctly	1 point
Gets 5 numbers from user	1 point
Stores 5 numbers in an array	1 point
Doesn't allow for duplicate numbers	1 point
Displays chosen numbers	0.5 point
Quick Pick	
Uses Random class to generate 5 random numbers 1 – 20	1 point
Stores 5 numbers in an array	1 point
Doesn't allow for duplicate numbers	1 point
Displays chosen numbers	0.5 point
Check Winnings	
Compares player's numbers with computer's numbers	1 point
Displays number of matches correctly	1 point
Displays/calculates amount of money won for the round	1 point
Goes back to Options menu	0.5 point
Quit	
Displays total winnings.	1 point
Displays goodbye message.	0.5 point
Not enough comments/whitespace	**-1 point**
Output does not match the sample executions given in the assignment	**-1 point**
Bad variable names, method names, and/or class names	**-1 point**