

Programming Assignment 7 - Honors



<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 machine. The goal of the game is for the player to match as many numbers to the computer's as possible. To play the game, they have to pay either \$1.00 for one round or \$5.00 for 5 rounds. Each round ends after the player's numbers have been compared to the computer's numbers. After the number of rounds they paid for or they manually quit the game, the total amount of money they earned is displayed, and the game goes back to the start menu. The user has 3 options during a round: 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, displays how much money they won that round, and how many rounds are left. 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.

Player chooses **Quit**, the current player's game ends, the total amount of money won is displayed, and then it goes back to the start menu. This program should only end if you close the .java file. If the player chooses **Quit** before they have used all of their rounds, the remaining money they paid to play the game is added to their total winnings.

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

=====

Price Options:

=====

1. \$1.00 for one round.
2. \$5.00 for five rounds.

Enter choice (1 or 2): 1

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): 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: 13

Number 2: 8

Number 3: 1

Number 4: 4

Number 5: 20

Your Numbers: 13 8 1 4 20

Options:

=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Winning Numbers: 20 4 11 3 7

Player Numbers: 13 8 1 4 20

Matches: 2

Prize: \$20.00

Rounds Left: 0

Total Prize: \$20.00

Please take your winnings.

Thanks for playing!

Instant Lottery

=====

Price Options:

=====

1. \$1.00 for one round.
2. \$5.00 for five rounds.

Enter choice (1 or 2): 2

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: 20 14 2 11 18

Options:
=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Winning Numbers: 20 19 18 14 5
Player Numbers: 20 14 2 11 18

Matches: 3
Prize: \$30.00

Rounds Left: 4

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): 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: 1
Number 2: 2
Number 3: 3
Number 4: 4
Number 5: 9

Your Numbers: 1 2 3 4 9

Options:
=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Winning Numbers: 2 11 9 12 15
Player Numbers: 1 2 3 4 9

Matches: 2
Prize: \$20.00

Rounds Left: 3

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: 6 11 8 9 17

Options:
=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Winning Numbers: 3 16 15 11 10
Player Numbers: 6 11 8 9 17

Matches: 1

Prize: \$10.00

Rounds Left: 2

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: 2 6 8 17 20

Options:

=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Winning Numbers: 4 15 2 17 3

Player Numbers: 2 6 8 17 20

Matches: 2

Prize: \$20.00

Rounds Left: 1

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: 17 6 5 10 19

Options:

=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Winning Numbers: 9 14 5 8 7

Player Numbers: 17 6 5 10 19

Matches: 1

Prize: \$10.00

Rounds Left: 0

Total Prize: \$90.00

Please take your winnings.

Thanks for playing!

Instant Lottery

=====

Price Options:

=====

1. \$1.00 for one round.
2. \$5.00 for five rounds.

Enter choice (1 or 2): 2

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: 3 15 8 10 2

Options:

=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Winning Numbers: 12 4 6 14 2

Player Numbers: 3 15 8 10 2

Matches: 1

Prize: \$10.00

Rounds Left: 4

Options:

=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Total Prize: \$14.00

Please take your winnings.

Thanks for playing!

Instant Lottery

=====

Price Options:

=====

1. \$1.00 for one round.
2. \$5.00 for five rounds.

Enter choice (1 or 2):

Sample Execution 2: Errors

Instant Lottery

=====

Price Options:

=====

1. \$1.00 for one round.
2. \$5.00 for five rounds.

Enter choice (1 or 2): asdf

Enter choice (1 or 2): 234y

Enter choice (1 or 2): 34

Enter choice (1 or 2): 1

Options:

=====

1. Choose Numbers
2. Check Winnings
3. Quit

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

Enter choice (1, 2, or 3): 897342

Enter choice (1, 2, or 3): -24

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

Number Options:

=====

1. Choose Your Numbers
2. Quick Pick

Enter choice (1 or 2): 34

Enter choice (1 or 2): sdf

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: 3

Number 2: sdf

Number 2: 987

Number 2: 3

Error! No Duplicates!

Number 2: 19

Number 3: 0

Number 3: 8

Number 4: 19

Error! No Duplicates!

Number 4: 7

Number 5: 4

Your Numbers: 3 19 8 7 4

Options:

=====

1. Choose Numbers
2. Check Winnings
3. Quit

Enter choice (1, 2, or 3):

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 payment from user to determine number of rounds	0.5 point
Gets games options from user (Choose Numbers, etc)	0.5 point
Number of rounds player gets is correct based on payment	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	0.5 point
Gets 5 numbers from user	0.5 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	0.5 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	0.5 point
Displays/calculates amount of money won for the round	0.5 point
Displays number of rounds left correctly	0.5 point
If there're no more rounds, displays total winnings for game.	0.5 point
If there are more rounds, goes back to Options menu	0.5 point
Quit	
Takes user back to start menu	0.5 point
If all the rounds haven't been used, amount of payment not used is added total winnings	1 point
Displays total winnings.	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