

CPSC1012 Core Portfolio 5 – Arrays

Weight: **5%** of your final mark

Introduction

In this assignment you will design and write a modularized menu-driven program that allows the user to play Lotto MAX with EXTRA or to play Lotto 6/49 with EXTRA.

LOTTO MAX

You can play LOTTO MAX by picking **seven** unique numbers from **1** to **50**. To win a prize, numbers matched must appear in the same selection (line) as shown in the table below.

Match	Prize
7 of 7	Win or share Jackpot of at least \$10 Million or 87.25% of Pools Fund
6 of 7 + Bonus	Share of 2.5% of Pools Fund
6 of 7	Share of 2.5% of Pools Fund
5 of 7 + Bonus	Share of 1.5% of Pools Fund
5 of 7	Share of 3.5% of Pools Fund
4 of 7 + Bonus	Share of 2.75% of Pools Fund
4 of 7	\$20
3 of 7 + Bonus	\$20
3 of 7	Free Play

LOTTO 6/49

You can play LOTTO 6/49 by picking **six** unique numbers from **1** to **49**. To win a prize, numbers matched must appear in the same selection (line) as shown in the table below.

Match	Prize
6 of 6	Win or share Jackpot (79.5% of the Pools Fund)
5 of 6 + Bonus	Share of 6% of the Pools Fund
5 of 6	Share of 5% of the Pools Fund
4 of 6	Share of 9.5% of the Pools Fund
3 of 6	\$10
2 of 6 + Bonus	\$5
2 of 6	Free Play

LOTTO EXTRA

You can play EXTRA by getting the system to generate 7 digits for you. To win a prize match the number drawn **in exact order** from the **right-hand side** to win.

Match	Prize
All 7 digits	\$250,000
Last 6 digits	\$100,000
Last 5 digits	\$1,000
Last 4 digits	\$100
Last 3 digits	\$50
Last 2 digits	\$10
Last digit	\$2

Program Menu

Create a program menu to allow the user to perform the operations shown below in the sample:

```
|-----|
| CPSC1012 Lotto Centre |
|-----|
| 1. Change Lotto MAX winning numbers |
| 2. Change Lotto 6/49 winning numbers |
| 3. Change Lotto EXTRA winning numbers |
| 4. Play Lotto MAX |
| 5. Play Lotto 6/49 |
| 0. Exit Program |
|-----|
Enter your menu number choice > 1

The current Lotto MAX winning numbers are: 5, 7, 15, 18, 35, 37, 45 (Bonus: 47)
Would you like to generate or enter the winning numbers (g/e): g
The new Lotto MAX winning numbers are: 10, 20, 24, 25, 32, 39, 46 (Bonus: 15)

// re-display menu
Enter your menu number choice > 1

The current Lotto MAX winning numbers are: 10, 20, 24, 25, 32, 39, 46 (Bonus: 15)
Would you like to generate or enter the winning numbers (g/e): e
Enter number #1: 10
Enter number #2: 17
Enter number #3: 18
Enter number #4: 22
Enter number #5: 23
Enter number #6: 25
Enter number #7: 34
Enter bonus number: 37
The new Lotto MAX winning numbers are: 10, 17, 18, 22, 23, 25, 34 (Bonus: 37)

// re-display menu
Enter your menu number choice > 3

The current Lotto EXTRA number is: 1646351
The new Lotto EXTRA number is: 5379569

// re-display menu
Enter your menu number choice > 4
The current Lotto MAX winning numbers are: 5, 7, 15, 18, 35, 37, 45 (Bonus: 47)
The current Lotto EXTRA number is: 1646351

Your Lotto MAX quick pick numbers are: 1, 3, 5, 7, 35, 37, 50
Your Lotto EXTRA number is: 1646359

Your Lotto MAX Match: 4 / 7
Your Lotto MAX Prize: $20
Your Lotto EXTRA Match: 0 digits
Your Lotto EXTRA Prize: $0

// re-display menu
Enter your menu number choice > 5
The current Lotto 6/49 winning numbers are: 6, 8, 13, 14, 35, 40 (Bonus: 26)
The current Lotto EXTRA number is: 2647447

Your Lotto 6/49 quick pick numbers are: 2, 4, 6, 8, 30, 49
Your Lotto EXTRA number is: 2647047

Your Lotto 6/49 Match: 4 / 7
```

```
Your Lotto 6/49 Prize: Free Play
Your Lotto EXTRA Match: Last 2 digits
Your Lotto EXTRA Prize: $10
```

```
// re-display menu
Enter your menu number choice > 0
Good-bye and thanks for coming to the CPSC1012 Lotto Centre.
```

Generate the winning numbers for Lotto MAX, Lotto 6/49, and Lotto EXTRA at program startup. Design your program to use methods where each method cannot have more than 30 statements. Your program must handle invalid input values and not crash.

Marking Guide

Description	Marks Possible	Marks Earned
Correctness <ul style="list-style-type: none"> • Change Lotto MAX winning numbers (2) • Change Lotto 6/49 winning numbers (2) • Change Lotto EXTRA winning number (1) • Play Lotto MAX (8) <ul style="list-style-type: none"> ○ Seven randomize numbers between 1-50 ○ No duplicate numbers ○ Quick pick numbers are sorted ○ Randomize 7 digit EXTRA number ○ Lotto MAX Match check ○ Lotto MAX Prize check ○ Lotto EXTRA Match check ○ Lotto EXTRA Prize check • Play Lotto 6/49 (2) 	15	
Structure <ul style="list-style-type: none"> • Code for program menu • Appropriate use of methods • Appropriate use of method parameters/arguments • Code to generate and store randomize numbers in a array • Code to check Lotto MAX match count • Code to lookup Lotto 6/49 prize • Code to check Lotto EXTRA match count • Code to lookup Lotto EXTRA prize 	8	
Style and Readability <ul style="list-style-type: none"> • Horizontal and vertical white space • Meaningful identifiers 	1	
Documentation <ul style="list-style-type: none"> • Opening documentation • Source code comments 	1	
Total:	25	

Coding Requirements

The following coding standards must be followed when developing your program:

- Your C# Console App project must be named as **CorePortfolio05-YourFullName** (eg: CorePortfolio05-CodeGuru)
- Opening documentation at the beginning of the source file describing the **purpose, input, process, output, author, last modified date** of the program.
- Write only one statement per line.
- Write only one declaration per line.
- Use camelCase for local variable names and method parameter name.
- Use PascalCase for method names and constant variable names.
- If continuation lines are not indented automatically, indent them one tab stop (four spaces).
- Do NOT use the goto statement.
- There can only be one exit point for a loop, do not use the break statement inside a loop
- Do NOT use static variables.

Submission Requirements

- Submit a compressed (zip) copy of your Visual Studio 2019 project folder to Moodle on or before the due date.