

COP2221 – Intermediate C++ Programming

Module #6 Assignment One

10 points

This assignment refers to **Learning Outcome #2: Create and utilize arrays to store lists of related data**

Programming Problem

You have been hired to create a C++ program to simulate the lottery. Your program allows users to see how often their lottery number choices match a randomly generated set of numbers used to pick lottery winners. The company, "**How Lucky Are You?, Inc.**" wants a modular, professional and user- friendly program designed and developed so you need to spend some time on your program's layout (especially the input and output screens).

Your program will use an array of five integer values named, **lottery**. Generate a **random number** in the range of 0 – 9 for each element in the array. If you've not dealt with random numbers - read Section 3.9 to cover the material dealing with them. Random numbers are lots of fun – a **random number generator** is a piece of software that uses a mathematical algorithm to determine a number. Each number is just as likely as being "generated" as any other number. Random numbers are used to simulate "real life" situations and are used frequently in gaming software. Watch this video: <https://www.youtube.com/watch?v=nqXUIEAIt4U> Notice that this video uses a slightly different approach to obtaining a value from 1 – 6 than does the text. Both are fine!

The user should then be prompted to enter 5 digits in the range 0 – 9. Store the user's input in an array named, **user**. Your program will compare corresponding elements and keep a count of how many digits match. **NOTE:** you are looking for the same number to be in the same position of each array. The program will display the **lottery** array and a message telling the user the number of matching digits he/she entered. If all of the digits in the user's array match the **lottery** array – display a message stating that the user is a grand prize winner.

Validate the user's input – only the digits 0 – 9 are acceptable lottery picks. Function main() should be the overall program driver. You **must** pass the empty **lottery** array to a function that will fill the array with random numbers and return to function main(). **NOTE:** this requirement is for instructional purposes – you need to know how to pass and return an array where the values change (in this case, no values to randomly generated values). Overall, your design should be modular and logical.

Grading Rubric

10 points – well documented, compiles and executes perfectly

8 points – lack of documentation, compiles and executes with a minor (or two) error(s)

6 points - lack of documentation, compiles and executes with a minor (or two) error(s), not all needed tasks are correct or included (missing some functionality)

5 and fewer points – doesn't compile, lack of functionality to solve the programming problem, poor programming style

0 points – no submission