**Assignment 7 – Vectors**

Submit to MUOnline as a compressed (.zip) file containing your code project.

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| 1. | Create a Lottery class based on the following rules:  Generate 5 random numbers between 1 and 30 (**inclusive**, meaning include 1 and 30) and store them in a **vector**.  It should generate **different** numbers each time you run the program.  The 5 numbers generated must be **unique** (no duplicates). Many of you will look online and find the function ‘unique()’, it is NOT the best way to make sure they are unique; read its documentation carefully if you use it, or figure out a different way.  Have a user type in 5 numbers and store those in a separate vector. They should be able to type the numbers in **in any order**.  Determine if the player ‘won’ the lottery by comparing their numbers to the sorted vector of lottery numbers. Remember, the order they chose doesn’t matter. If the lottery numbers were 1-2-3-4-5, and the user picked 3-2-5-1-4, then they won. Use the **sort** function to make it more efficient to compare the two sets of numbers. | 50% |
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| 2. | Add and demonstrate functions to the Lottery class to change how many numbers will be in the game, and what possible values they are (the default being 5 and between 1 and 30). It should keep track of how many attempts have been made, and this number should reset if the lottery numbers reset. | 20% |
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| 3. | Use a while loop to let a ‘computer player’ play the lottery game automatically until it wins. Count and output how many times it tried. If done right, it should only need a few seconds to win with the default game parameters of 5 numbers between 1 and 30. | 30% |