

Extra Credit Assignment 2

Choose 2 problems that you like out of the following 3.

1. Lottery -- 25 pts.
2. getString Function -- 25 pts.
3. string_analyzer Function -- 25 pts.

1. Lottery

Write a program that simulates a lottery. The program should have an array of five integers named `lottery`, and should generate a random number in the range of 0 through 9 for each element in the array. The user should enter five digits which should be stored in an integer array named `user`. The program is to compare the corresponding elements in the two arrays and keep a count of the digits that match. For example, the following shows the `lottery` array and the `user` array with sample numbers stored in each. There are two matching digits: one that is stored in the element with subscript 2 and another one is in the element with subscript 4.

`lottery` array: 7 4 9 1 3
`user` array: 4 2 9 7 3

The program should display the random numbers stored in the `lottery` array and the number of the matching digits. If all of the digits match, display a message proclaiming the user as a grand prize winner.

2. getString Function

Write a function named `getString` that has a local *char* array of 80 elements. The function should ask the user to enter a sentence, and store the sentence in the array. Then the function should dynamically allocate a *char* array just large enough to hold the sentence, plus the null terminator. It should copy the sentence to the dynamically allocated array, and then return a pointer to the array. The caller of the function is responsible for the deletion of the dynamically allocated memory. Demonstrate the function in a complete program.

3. string_analyzer Function

Implement a function with the following header:

`void string_analyzer(char* str, int& word_count, double& avg_word_len)`

The function receives a C-string as a parameter and calculates:

1. The number of words in the string. It returns that number through the reference parameter `word_count`.
2. The average number of letters in each word. It returns the number through the reference parameter `avg_word_len`.

For instance, if the string argument is “Four score and seven years ago”, the number of words is 6 and the average word length is about 4.17 characters.

Demonstrate your function in a program that asks the user for a string and then passes it to the function. The number of words and the average word length should be displayed on the screen.