Homework 01

ECE 449/590, Fall 2022

Due Date: 09/21 by the end of the day (Chicago time)

1. *(20 points)* (Exercise 1-1 and 1-2)

    A. Are the following definitions valid? Why or why not?

    ```
    const std::string hello = "Hello";
    const std::string message = hello + ", world" + "!";
    ```

    B. Are the following definitions valid? Why or why not?

    ```
    const std::string exclam = "!";
    const std::string message = "Hello" + ", world" + exclam;
    ```

2. *(20 points)* The assignment operator = works with two operands L and R in the form L=R. For the following code to generate an output of 3 3 3 3, what should be the associativity of = and what should be the result and the side effects of L=R?

    ```
    int a(0), b(1), c(2), d(3);
    a=b=c=d;
    std::cout << a << " " << b << " " << c << " " << d << std::endl;
    ```

3. *(20 points)* (Exercise 4-8)

    If the following code is legal, what can we infer about the return type of f?

    ```
    double d = f()[n];
    ```

4. *(20 points)* (Exercise 6-3 and 6-4, also see Chapter 6.1)

    A. The following program attempts to copy from u into v. What's wrong?

    ```
    std::vector<int> u(10, 100);
    std::vector<int> v;
    std::copy(u.begin(), u.end(), v.begin());
    ```

    B. Correct the above program. There are at least two possible ways to correct the program but you are only required to implement one.

5. *(20 points)* Suppose `integers` is a container with `int` elements. Implement a function to sort `integers` from the largest to the smallest. (Hint: use `std::sort`.)