All of the test cases passed. This question is complete.

Submit Work Upload your source code files

Drag files (or click) to upload

noise_signal.cpp   ✖

⟳ Test Code

Number of attempts: **10**

CS 002 - Assignment 8: Noise Signals

Collaboration Policy

You may not use code from any source (another student, a book, online, etc.) within your solution to this assignment. In fact, you may not even look at another student's solution or partial solution to this assignment. You also may not allow another student to look at any part of your solution to this exercise. You should get help on this assignment by coming to the instructor's office hours or by posting questions on Canvas (you still must not post assignment code publically on Canvas.)

Assignment specs:

In this assignment, you will demonstrate your knowledge of **arrays**. You are not allowed to use vectors anywhere in your code. In fact, do not use the word vector anywhere, including comments.

In engineering simulations, we often want to generate a floating-point sequence of values with a specified mean and variance. The randFloat function below allows us to generate a random sequence between limits a and b, but it does not allow us to specify the mean and variance. By using results from probability, the following relationships can be derived between the limits of a uniform random sequence and its theoretical mean μ and variance σ2:

$$\mu = \frac{(a+b)}{2} \qquad \sigma^2 = \frac{(b-a)^2}{12}$$

```
/*This function generates a random double value between a and b*/
double randFloat (double a, double b)
{
    return a + (static_cast<double>(rand()) / RAND_MAX) * (b - a);
}
```

Part 1:
Write a program that uses the randFloat function given above to generate sequences of random floating-point values between 4 and 10. You should now use two specific sized sequences; sequences of 100 and 10,000. Then compare the computed mean and variance to the theoretical values computed (using formulas above).

There should be no user input for this section.

The expected output should be seen for both sequences; theoretical mean, practical mean,