

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

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10_lab_arrays.cpp

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↻ Test Code

Number of attempts: 7

CS 002 - Problem Solving and Program Design Using C++

Lab 9: Arrays

Before tackling this lab, you should have completed:

[Savitch Chapter 7](#), and corresponding exercises

Collaboration policy:

Collaboration on these lab exercises is strongly ENCOURAGED.

Lab Objectives

- understand and use arrays

For lab 9 you will start work on the assignment itself (assn 8 - "Noise Signals"). You only have to get part 1 working to get your lab score of 10/10

Lab specs:

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 σ^2 :

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

```
/*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,