

Audio Programming

Week 1 C++ Challenges

Here are two challenges to try in C++. The first asks you to try and spot and correct several coding errors. The second asks you to complete an addition testing application. You probably want to make sure that you've watched the video tutorials for this week first that introduce variables, data types, and conditional statements. For each challenge, there is a starting point .cpp file:

- `challenge1_correct_the_errors.cpp`
- `challenge2_adding_machine.cpp`

To use these, you will need to do the following:

1. Create a new Xcode or Visual Studio project - giving it an appropriate name like “week1challenges” or similar.
2. Find the .cpp file with the main function in (usually `main.cpp`).
3. Delete all of the text in this original cpp file (including the `#include`, comments, main function, etc)
4. Open the challenge .cpp file, e.g. `challenge1_correct_the_errors.cpp`
5. Copy and paste everything from that file into the empty cpp file in the project.
6. For each challenge, you can create a new Target in Xcode, each with their own `main.cpp` file. To choose which is being built/run at any given point, you can go to the Product menu → Scheme, and then select the name of the relevant target.

1 Challenge 1 - find the errors

Most of the time, there will be errors in your code. This is not cause for alarm - this is the normal state of things! You write some code and there are errors. You fix those errors and find more errors. You repeat this process until there are no errors - this is programming! As noted above, you will need to paste the code in the `challenge1_correct_the_errors.cpp` file into the main file of a new Xcode or Visual Studio project or target (replacing everything in the `main.cpp` file).

Try to make the challenge 1 code to compile and output the correct volume value. You can look at both the default program that you get when you create new project and the other week 1 resources to help you solve the issues.

2 Challenge 2 - adding game

This is a slightly harder example that asks you to use an if/else statement to complete an adding game. You will also need to use the `std::cin` function to ask the user for their answer via the command line. The existing challenge code creates two random numbers between 0 and 99 and asks the user what the sum of the two numbers is. You will need to:

1. read in the user answer
2. find the actual answer
3. compare the two
4. congratulate or commiserate the user on their answer, as appropriate