HYPED

Workshop 2 - By Jack Horsburgh

If you want to check out last year's repo it's here, ask us questions about it if you want and we will do our best to answer them.

Here is a link to a useful website that will help you learn the syntax and also has some example code. Feel free to ask any questions. We are here to help.

http://www.cplusplus.com/doc/tutorial/classes/ This may be useful for exercises that are about classes.

Also, ask about last week's workshop if you are still trying it.
If you are stuck or feel completely clueless, ask us for help! Please don't be put off by the exercises. we are here to help.

Exercise 1 - Tic Tac Toe

Download the file: xxxxx to help get you started.

Requires:

variables, data types, and numerical operators
basic input/output
logic (if statements, switch statements)
loops (for, while, do-while)
Arrays
Functions

1. Make a two player tic tac toe game.
2. Modify the program so that it will announce when a player has won the game (and which player won, X or O)
3. (Optional, come back if you have time) Create an AI to play against the user. You may have to change the structure of the program.

Exercise 2 - Pointers point to things

Requires:

Variables, data types, and numerical operators

Pointers

Functions

Arrays

Basic input/output

If you would like to read about pointers here is a good link.

1. Create, initialise and use pointer variables. Here is an example.
2. Create a function to swap 2 numbers using call by reference.
3. Write a program that takes input and print array elements using pointers.
4. (Optional, come back if you have time) Create a program to sort an int array descending/ascending using pointers.

Exercise 3 - Structuring a Person

Requires:

variables, data types, and numerical operators

basic input/output

Structs

1. Create a struct called Person that contains a name, age and height.
2. In your main get the user to input their details and set them in the Person struct, then output their name, age and height.

Exercise 4 - Shaping up

Requires:

variables, data types, and numerical operators

basic input/output

Functions

Classes

1. Create a rectangle class which has 2 private member variables width and height. The class should also have a member function area which returns the area of the rectangle. The class should have a constructor, getters and setters. (The links should help you, but ask if you want help to get you started).
2. Create an instance in your main function. This should output the width, height and area of the rectangle class.

3. Now do 1 again but this time using a header file(.hpp), a source file(.cpp) and a separate main file. To compile use ‘g++ rectangle.hpp rectangle.cpp <main-name>.cpp’ in your terminal, you should get a a.out file. To run use ./a.out.

If you didn’t complete last weeks workshop, you can continue it.
If you have any C++ related questions ask the Slack channel ‘tech-software-cpp’.

References:
http://www.cplusplus.com/forum/articles/12974/
https://codeforwin.org/2017/12/pointer-programming-exercises-and-solutions-in-c.html