コース: CS 50

Harvard CS50 Notebook

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Contents

1 C **1**

2 Arrays **2**

Abstract

My notes during the CS50 Harvard online course.

Chapter 1

C

Things to focus on when writing code:

1. Correctness
2. Design
3. Style

Unsorted notes:

1. Source code is compiled into machine code via gcc(compiler).
2. Arguments are inputs to functions.
3. Functions take arguments and result in output
4. Types of outputs are: side effects (visual, audio output), return values (that can be used).
5. Look at the mario program.
   Notice that a do while is used at the top. This checks whether the user has co-operated by inputting a number bigger than 0. If the user inputs 0 it will again ask for the width.
6. Integers divided by integers truncate to only the decimal on the right of the "." it throws away all decimals
7. How ever you can type cast with (type) variable name. (see the calculator program for example)
8.

Chapter 2

Arrays

The compiling process:

1. preprocessing: Scans header files for relative prototypes. (So the compiler knows what printf is)
2. compiling: Turn code into assembly language before it is turned into 0's and 1's.
3. assembling: Where the assembly language is turned into machine code.
4. linking: Combines all the machine code into the final program that can be executed as your program.

Debugging
buggy.c

```
1  #include <stdio.h>
2
3  int main(void)
4  {
5          for (int i = 0; i <= 3; i++)
6          {
7                  printf("i␣is␣%i\n", i);
8                  printf("#\n");
9          }
10 }
```

The code above will print a column of 3 #.
The commented line is an example of printf debugging. (A method of debugging where the programmer uses printf to check the values of variables while the code runs).
In this example our issue was that we expected a column of 3 # symbols but instead got 4. After using the printf debugging method it was easy to see that the "i" variable was incremented one to may times due to this little code section.
for (int i = 0; **i <= 3**; i++)