

CPSC 256

① Why programming?

② Why C?

③ Why C#?

④ Next Steps

① Why programming?

→ Life is about solving problems:
programming should be an
enjoyable and creative way to
learn how to solve problems.

- - - blend of art

→ Programming is a science and science. It helps develop both sides of our brain, and helps enhance cross-nasal pathways in the brain.

→ Good programmers have excellent organizational skills. Programming enhances one's ability to think logically and systematically through a solution.

→ Solving a problem through programming almost always reveals new things that you did not anticipate before hand! One attains a deeper knowledge of the thought process through programming.

problem through it

↑
This last one, for me, is the most interesting! 😊

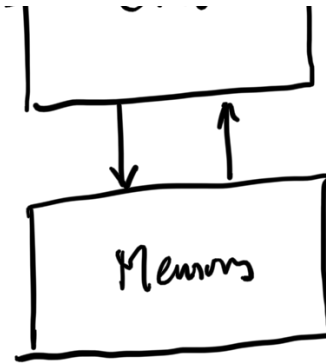
② Why C?

How do computers actually do anything?
In fact, they are very simple beasts.

- ① Storage.
- ② Input
- ③ Output
- ④ Processing



Input



- The CPU takes input, moves things around on registers (special memory locations) and produces output.
- Programs → sets of instructions that tell how to create an output from a given set of inputs.

Add two numbers.

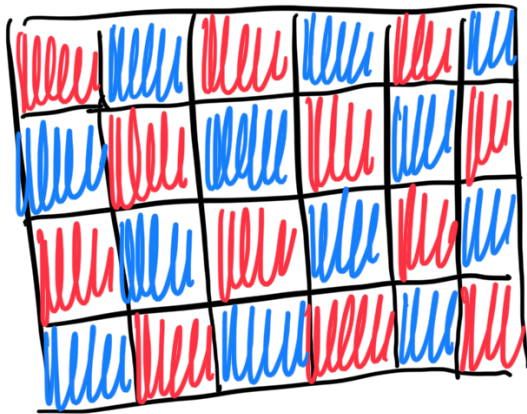
getInput (a)

getInput (b)

$C = a + b$

putOutput (c)

Let's Make A Quilt



6 x 4 pattern
red + blue.
red in upper left

Python

```
import quiltmaker  
quiltmaker(6, 4, 'red', 'blue', 'red')
```

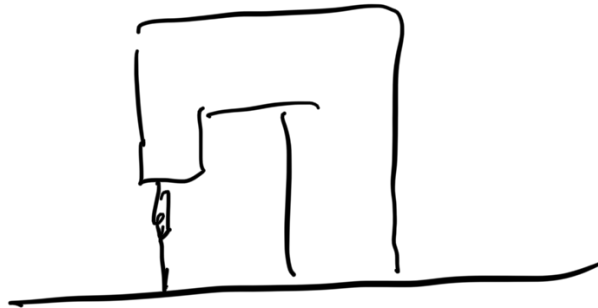
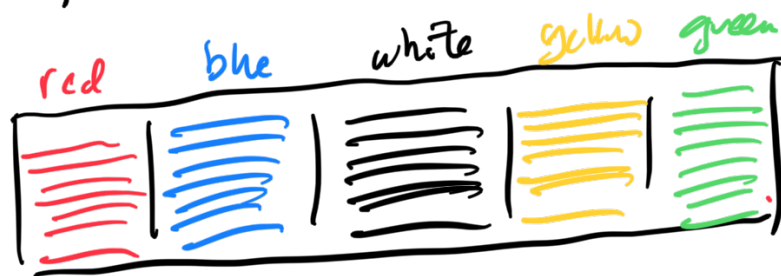
What happened, or Programming in C!!

- ① Start quilt making business.
store swatches of

② Buy racks to store
different colors.

③ Buy sewing machine.

④ Go to fabric store and buy
swatches of different colors, in
bulk, and store in new racks.



⑤ Receive order
→ $(6 \times 4, 'red', 'blue', 'red')$

a) calculate total squares

$$6 \times 4 = 24$$

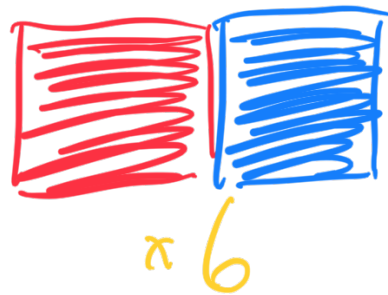
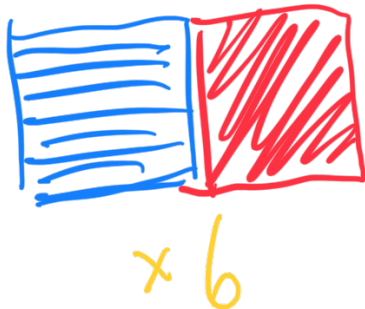
b) divide by 2

$$\frac{24}{2} = 12$$

c) retrieve 12 reds + 12 blues from storage.

d) divide by 2 again.

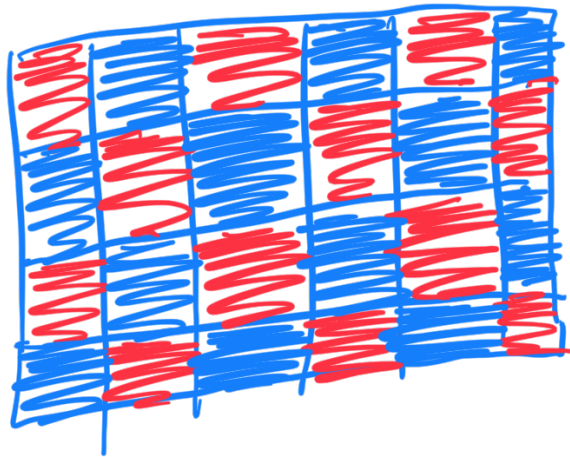
$$\frac{12}{2} = 6$$



e) Assemble rows.



f) Assemble Quilt.



g) Ship to customer, have beer!



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- ① Method to calculate # of "rectangles"
 - ② Method to sew together a rectangle-object.
 - ③ Method to assemble rectangles into quilt. (flip or not?)
-

③ Why C#?

Python is, basically, a "wrapper" for
C code

e.g. numpy
matplotlib
pandas
⋮

So is C++ !!

The advantage of C++ is that it
is forwards compatible with C. All
C code is C++ compatible. So, C libraries
work fine in C++ ...

Why is it called C++ ?

↑
ANSI standard
C

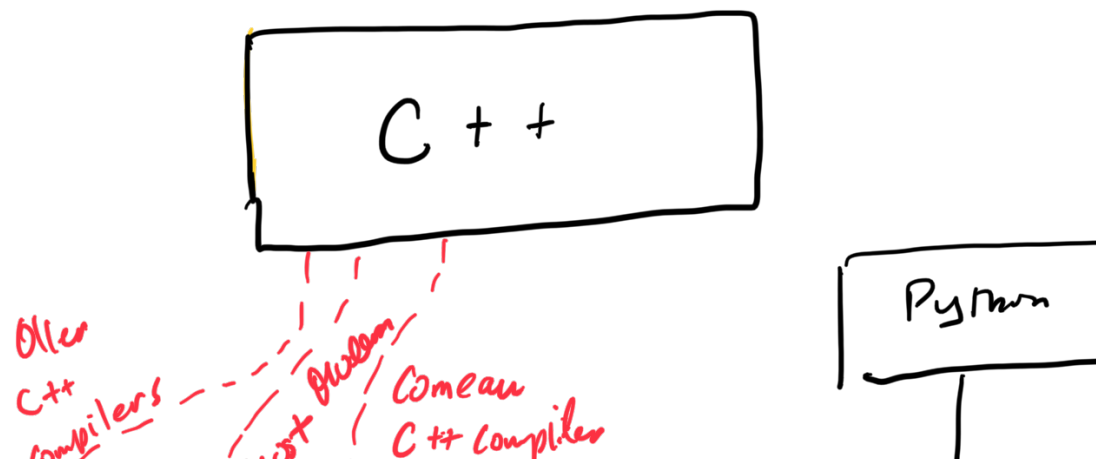
extra features not in C

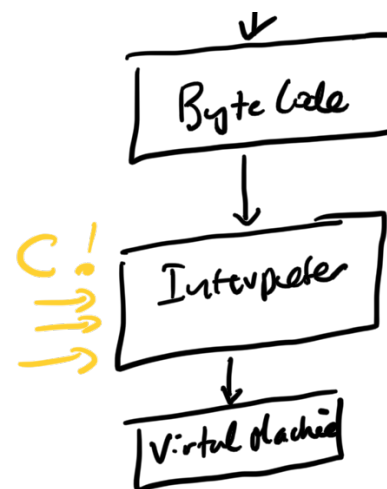
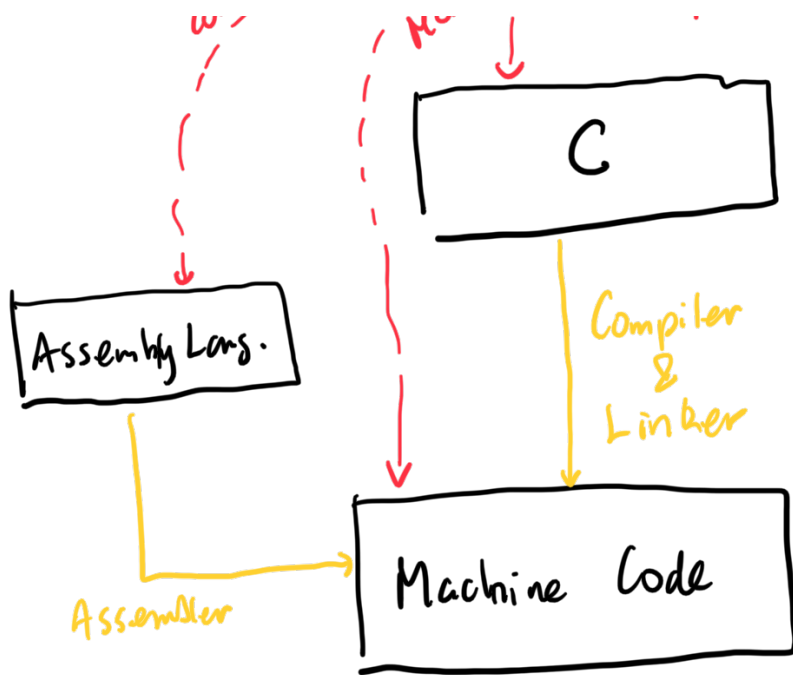
object oriented approach

① Photoshop

② Spotify

- ③ Youtube
 - ④ Amazon.com
 - ⑤ Windows OS (and Mac OS and Linux, too)
 - ⑥ MS Office
 - ⑦ Google (along with Java & Python)
 - ⑧ MySQL
 - ⋮
-





& binary executable
that
actually runs on
an architecture.

"The App"