

A photograph of a rugged, light-colored rock cliff on the left, overlooking a vast, deep blue ocean. In the distance, a small figure of a person stands on the cliff's edge. The sky is overcast with white and grey clouds.

Learning To
PROGRAM

So what is a
PROGRAM

Most People Think a Program Is

CODE

| | | | | | | | | | | | | | | | | | | | |
|-------|----|----|----|----|----|----|----|----|----|-------|----|----|----|----|----|----|----|----|----|
| C040: | C0 | 4C | 2B | C0 | AD | 00 | DC | C9 | 8D | C210: | 69 | 00 | 8D | FD | C1 | CA | D0 | DE | 41 |
| C048: | 6F | D0 | E0 | AD | 83 | C1 | C9 | 05 | 2B | C218: | 60 | AD | FD | C8 | D0 | 1E | EE | F9 | C4 |
| C050: | F0 | D9 | EE | 83 | C1 | A9 | 01 | 8D | 87 | C220: | C8 | AD | F9 | C8 | C9 | 08 | D0 | 14 | 10 |
| C058: | FD | C8 | AE | 83 | C1 | BD | 69 | C1 | FB | C228: | A9 | 00 | 8D | F9 | C8 | EE | FF | 07 | 18 |
| C060: | AA | A9 | BA | 9D | 00 | D0 | A9 | 86 | 0E | C230: | AD | FF | 07 | C9 | E3 | D0 | 05 | A9 | 12 |
| C068: | 9D | 01 | D0 | A9 | E3 | 8D | FF | 07 | F9 | C238: | E0 | 8D | FF | 07 | AD | 19 | D0 | 29 | 6E |
| C070: | AE | 83 | C1 | AD | 15 | D0 | 5D | 6F | C4 | C240: | 01 | F0 | 42 | 8D | 19 | D0 | 20 | 2C | 38 |
| C078: | C1 | 8D | 15 | D0 | A9 | 01 | 8D | FC | E2 | C248: | C1 | CE | 16 | D0 | AD | 16 | D0 | C9 | 1E |
| C080: | C8 | 9D | 75 | C1 | 4C | 2B | C0 | A2 | F8 | C250: | D0 | D0 | 2F | EE | F9 | C1 | AD | F9 | 73 |
| C088: | 00 | BD | CF | C4 | 9D | 83 | 06 | A9 | AB | C258: | C1 | C9 | D8 | D0 | 1A | 20 | AB | C1 | 35 |
| C090: | 01 | 9D | 83 | DA | E8 | E0 | 21 | D0 | 49 | C260: | 20 | 88 | C2 | AD | FE | C8 | C9 | 0C | 17 |
| C098: | F0 | 60 | 60 | EE | FA | C8 | AD | FA | A5 | C268: | 90 | 03 | EE | 82 | C1 | A9 | FF | 8D | 66 |
| C0A0: | C8 | C9 | 02 | D0 | F5 | A9 | 00 | 8D | 33 | C270: | 83 | C1 | A9 | 00 | 8D | F9 | C1 | 20 | C8 |
| C0A8: | FA | C8 | AD | FC | C8 | F0 | 25 | AE | A4 | C278: | E5 | C1 | 20 | 2C | C1 | A9 | D7 | 8D | 3D |
| C0B0: | 83 | C1 | BD | 69 | C1 | AA | DE | 01 | 69 | C280: | 16 | D0 | 4C | BC | FE | 4C | 31 | EA | D7 |
| C0B8: | D0 | FE | 00 | D0 | FE | 00 | D0 | EE | 18 | C288: | A2 | 00 | BD | 75 | C1 | D0 | 03 | 20 | 14 |
| C0C0: | FB | C8 | AD | FB | C8 | C9 | 06 | D0 | 98 | C290: | 94 | C1 | E8 | E0 | 06 | D0 | F3 | A2 | 1E |

That's
WRONG

Code is
HOW
you make a program

A program is just a set of
INSTRUCTIONS

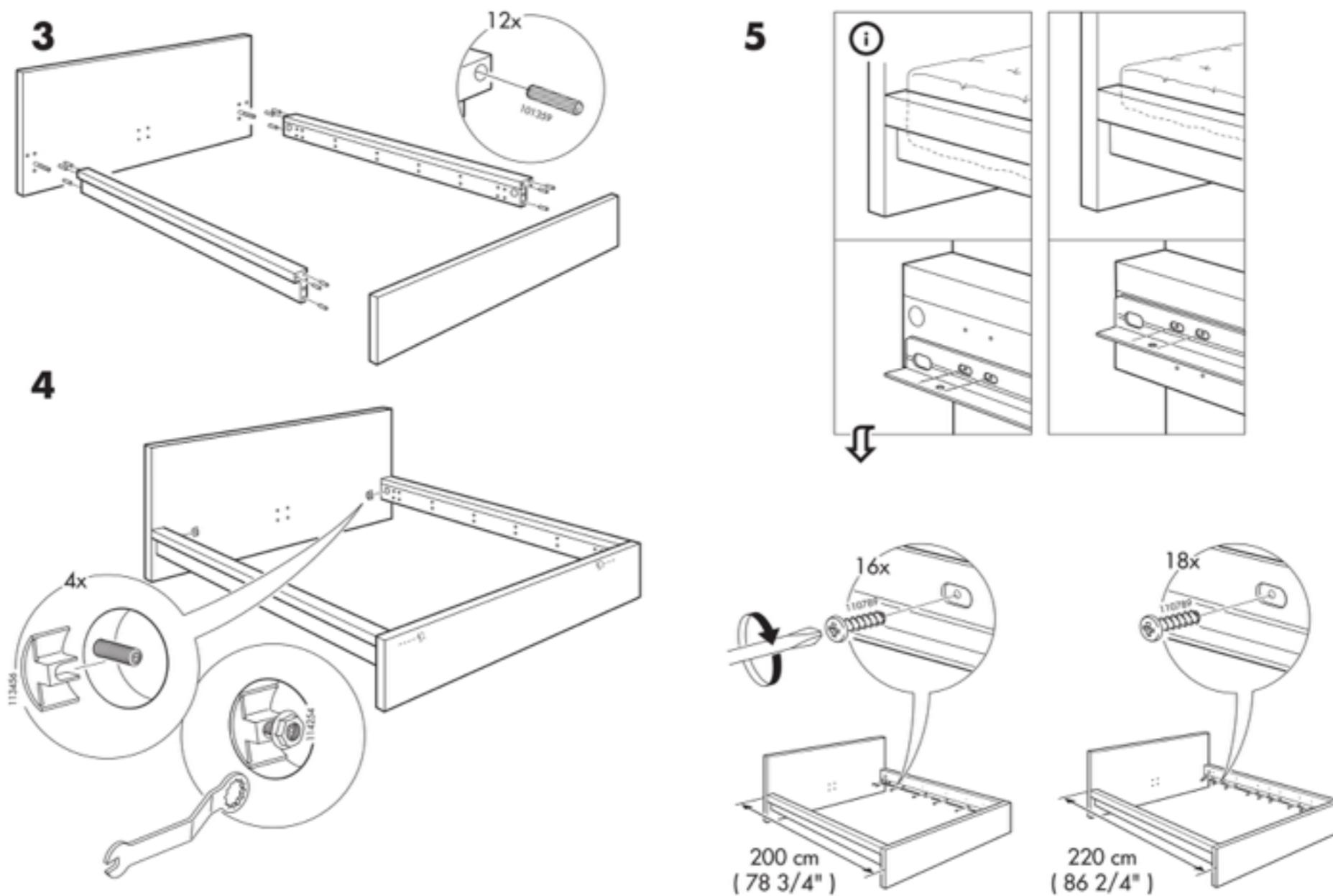
Anyone have an
IKEA BED?



They require **INSTRUCTIONS**
to build

Instruction Manuals are
PROGRAMS

Can You Describe **STEPS 3-5?**



Thinking about programs as
PSEUDO CODE

IKEA BED PROGRAM

bedBuild

attach bedSills to headboard and footboard

tighten bedSills fasteners

secure bedRails

THE DISCONNECT



You might have noticed how
dumb computers appear to be.
Why is that?

EXAMPLE

I say, "I'm going to become the next Miss America".



Human: Laughs (maybe cries?)
Computer: Ok, now what?

CONTEXT

Computer doesn't know I'm a mid-30s
programmer with too much flab.

It NEVER KNOWS context. The art of
thinking like a computer is to assume
nothing. It only knows what you tell it.



Who is
HUNGRY?

How about a
STIR-FRY?



Because recipes are
PROGRAMS

STIR FRY PROGRAM

```
spices = soySauce + riceVinegar + sugar
```

```
oil = 1.5 ounces
```

```
brownRice = 1.5 cups
```

```
broccoli = 2 cups
```

```
shrimp = .5 pounds
```

```
stirFry {  
    cook brownRice  
    whisk spices  
    heat oil in pan  
    add broccoli  
    cook shrimp  
    add spices  
}
```

STIR FRY PROGRAM

```
spices = soySauce + riceVinegar + sugar  
oil = 1.5 ounces  
brownRice = 1.5 cups  
broccoli = 2 cups  
shrimp = .5 pounds
```

```
stirFry(spices, oil, brownRice, broccoli, shrimp)  
cook(brownRice, .25)  
whisk spices  
heat oil in pan  
add broccoli  
cook shrimp  
add spices  
}
```

Recipe verbs are **functions**
you can use with the
ingredient variables

The ingredients act as
variables being passed into
the stirFry **function**.

VARIABLES

Reusable object in a program

FUNCTIONS

Modular container for an
instruction set



The White House



The White House

4.2 ★★★★☆ 4,856 reviews

Federal Government Office



Directions



SAVE



NEARBY



SEND TO YOUR
PHONE



SHARE

Landmark, historic home & office of the United States president, with tours for visitors. - Google



1600 Pennsylvania Ave NW, Washington, DC 20500



whitehouse.gov



(202) 456-1111



Suggest an edit

How would you get to the **WHITE HOUSE?**



JAVASCRIPT

Have Assignment 1 Open

WHAT IS JS?

-Most basic way to understand it:

The dynamic parts of a webpage

WHAT CAN JS DO?

- 1) Respond to user actions (events)
- 2) Change HTML Content / CSS Styles
- 3) Loading/sending data to and from the server

WHAT MAKES JS SPECIAL?

- All programming languages require code to be compiled before viewing
- Javascript is unique because the compiler is your browser, so you can see your work immediately

HOW IT LOOKS

```
var firstFlight = null;

function kittyHawk(firstFlight) {
  if (firstFlight >= 1903) {
    console.log("We're airborne");
  }
  else {
    console.log("Let us dream...");
  }
}
```

DATA TYPES

- ⇒ Numbers
- ⇒ Strings
- ⇒ Booleans
- ⇒ Null/Undefined
- ⇒ Functions
- ⇒ Objects (for later)

NUMBERS

- You've probably seen these before:
0, 1, 2, 3, 4, 5, 6, 7, 8, 9
- Used mathematically throughout JS code, so normal math rules apply
- Paired with operators:
+, -, *, /

NUMBERS

$$10 * 10 \\ \Rightarrow 100$$

$$8 - 4 \\ \Rightarrow 4$$

$$49 / 7 \\ \Rightarrow 7$$

STRINGS

-String means text, that's it:

"It is a beautiful evening";

"Is it really Monday?";

"I am feeling good today!";

-With JS, you can merge strings w/ "+" operator, ie:

"You want" + "to go" + "eat
on 14th?"

BOOLEAN

-True / false variables in JS, don't over think it

```
var Chinatown = Boolean("Jack Nicholson");  
⇒ True
```

```
var apocalypseNow = Boolean("1979");  
⇒ True
```

```
var smashingPumpkinSEP = Boolean("0");  
⇒ False
```

NULL / UNDEFINED

-Values that denote nothingness in Javascript:

```
var Lysine;  
console.log(Lysine);  
⇒ undefined
```

```
console.log(9 * null);  
⇒ 0
```

```
console.log("five" * 5);  
⇒ NaN
```

MOST BASIC OUTPUT

```
// Writes to webpage  
document.write("yes!");
```

```
// Writes to console  
console.log("Houston, do you  
copy?");
```

```
// Makes popups happen  
alert("You destroyed the  
computer again");
```

CHECK OUT ASSIGNMENT 1



CODE ALONG

VARIABLES

- Data storage in a program
- Declare all variables with var keyword
- 'Call' variable just by using it's name somewhere in your program

```
var flyingMonkeys = 5;
```

```
var tiredGoats = 7
```

```
flyingMonkeys + tiredGoats
```

```
⇒ 12
```

VARIABLE NAMING

- Names should be easily understood
- No spaces allowed
- You can use "-" or "_" but don't
- Use camelCase - itWorksLikeThis

```
var howManyCoasters = 18;  
var midWeek = "Wednesday";
```

VARIABLE REASSIGNMENT

```
var x = 18;  
console.log(x);  
⇒ 18
```

```
x * 2;  
console.log(x);  
⇒ 18
```

VARIABLE REASSIGNMENT

```
var x = 18;  
console.log(x * 2);  
⇒ 36
```

```
var x = 18 * 2;  
console.log(x);  
⇒ 36
```

FUNCTION

- Chunk of code grouped together, executes together - a modular program in a program
- Take input, perform logic and return output

FUNCTION

- Reusable functions need names, identical to variable name rules
- They must be called or 'invoked' to return a value.

```
function superBasic() {  
    var greeting = "Hola amigos. ";  
    greetingResponse = "Como estas?";  
    alert (greeting + greetingResponse);  
}  
  
superBasic();
```

**MORE
CODEALONG**

YOUR TURN

- 1) Make 10 variables: 4 strings, 4 numbers, 1 null, 1 Boolean - experiment with them
- 2) Calculate and output:
 - Product of 100 and 10
 - Quotient of 90 and 9
 - Difference of 87 and 58
 - Sum of 1230 and 2139
 - Make your name out of two variables
- 3) Create function that outputs at least 2 of the variables you made.

NEXT TIME

Finish HW #3

Start thinking about your final project

Intro to jQuery and Selectors

JS Events in Detail