

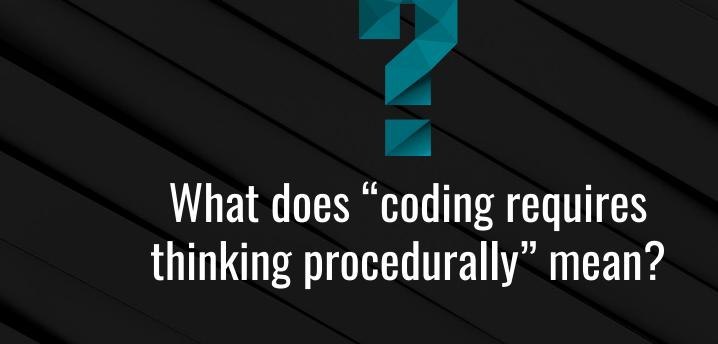
Control Flow with VBA

Data Boot Camp

Lesson 2.1



Refresher



How a Computer Thinks (Procedurally)

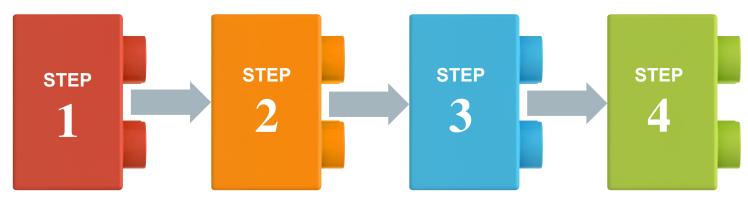
Every software development problem begins with a complex and abstract real-world need.



How a Computer Thinks (Procedurally)

In order for a computer to interpret things, a real-world problem must be broken down into a set of procedural steps.

Complex Real-World Problem



How Code Is Written (Procedurally)

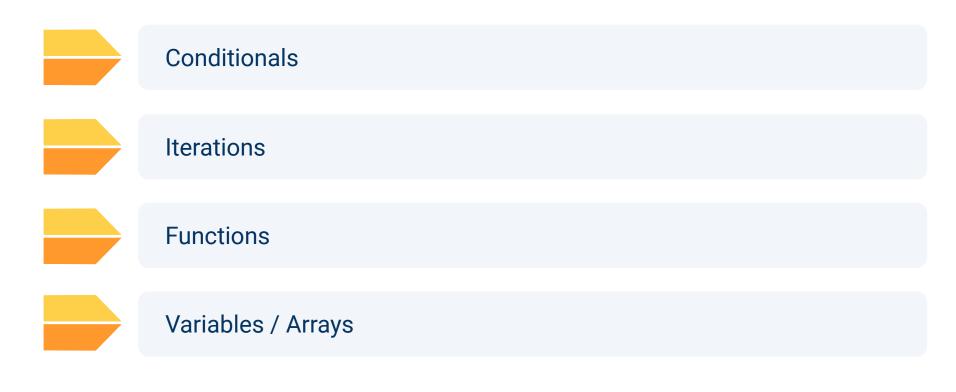
Code (JavaScript)

```
// STEP 1
                                                         STEP 1
   var thingamagig = 500;
   var doodad = 200;
 5
                                                         STEP 2
   // STEP 2
   var combindedThing = thingamagig + doodad
 9
   // STEP 3
                                                         STEP 3
   runContraption(combindedThing);
13
   // STEP 4
                                                         STEP 4
16 resetContraption();
```



Fundamental Tools of Programming

These structures are found in nearly all programming languages:



Variables: The Nouns of Code



Variables are effectively the items in a procedure.



In VBA, items can be **declared** as variables by using dim followed by the type. Then they can be **assigned** a value.

Variable Declaration

dim ing1 as String
dim ing2 as String
dim budget as Double

Variable Assignment

```
ing1 = "Peanut Butter"
ing2 = "Jelly"
budget = 5.00
```

Array: A Collection of Items

Arrays are effectively **groups** of related items. They are another way to store and reference similar pieces of information.

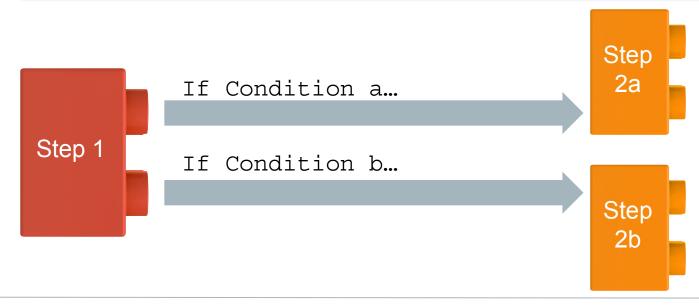
```
Item 0
                       Item 1
                                       Item 2
["Peanut Butter",
                                         "Bread"
                       "Jelly",
dim ingredients(0 to 2) as String
ingredients(0) = "Peanut Butter"
ingredients(1) = "Jelly"
ingredients(2) = "Bread"
```

Conditionals: If This, Then That



Conditionals can control the flow of logic based on certain conditions being met.

Most programming languages use **if/else** code for this purpose.

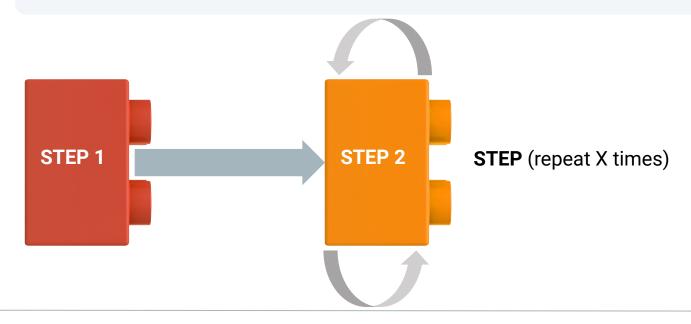


Iteration: Round and Round We Go!



Iteration is the concept of using loops to perform a group of tasks repeatedly a number of times.

Almost all programming languages use **for loops** and **while loops** for iteration.



Functions: When One Block Can't Do It All!

Functions are, in essence, a sort of sub-process. They allow us to create premade, reusable blocks of code that can be called on demand.

