WEEK FIVE - ACTION

Functions

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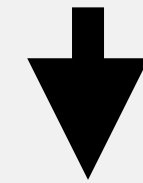
THE BUILDING BLOCKS OF CODING
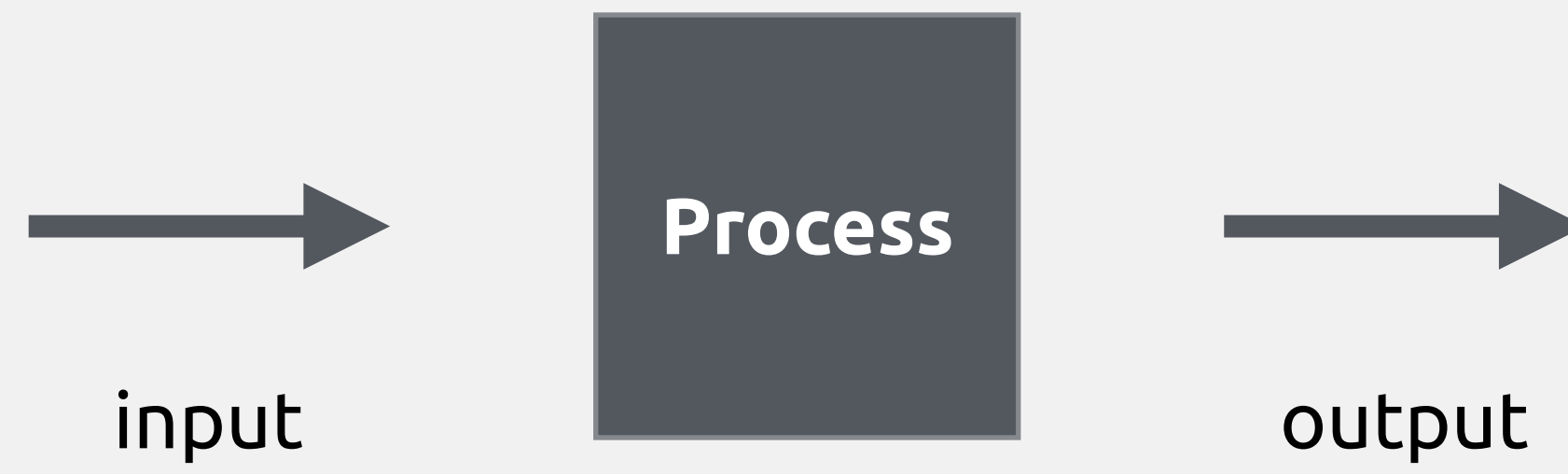
You are Here

↓

MEMORY   DECISION   REPETITION   **ACTION**
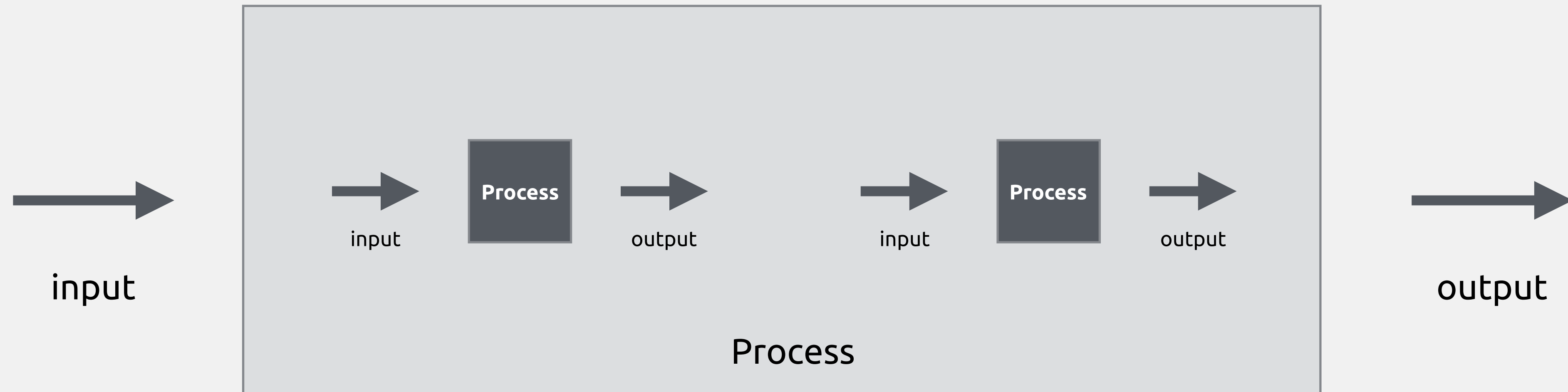
ACTION

- <u>Functions</u> are the building blocks of computer programs

- A Function is a <u>named block of code</u> that can be invoked.

- Functions may have one or more <u>parameters</u>

- Functions may <u>return</u> a single <u>value</u>
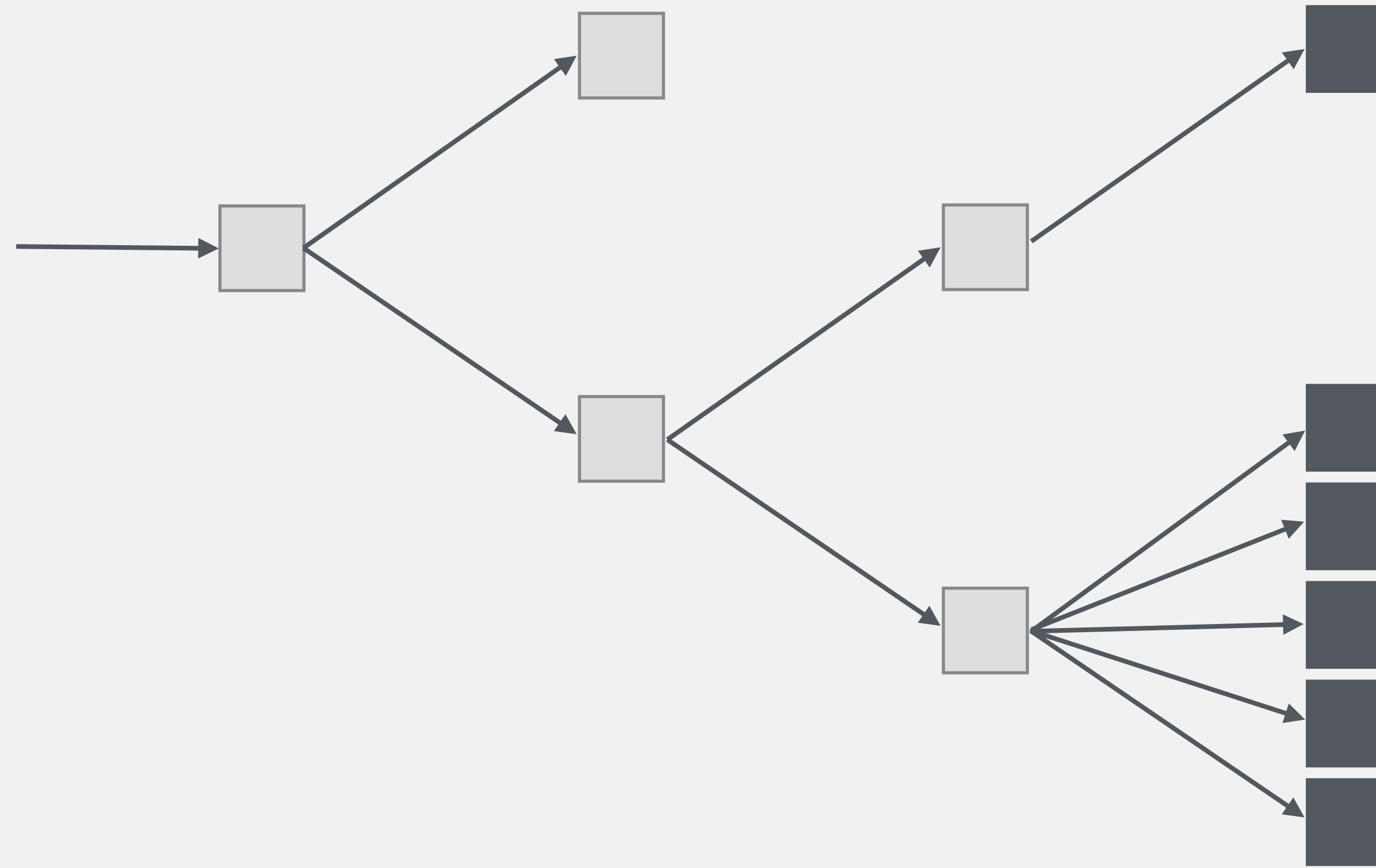
ENCAPSULATION

input **Process** output

ENCAPSULATION

input

output

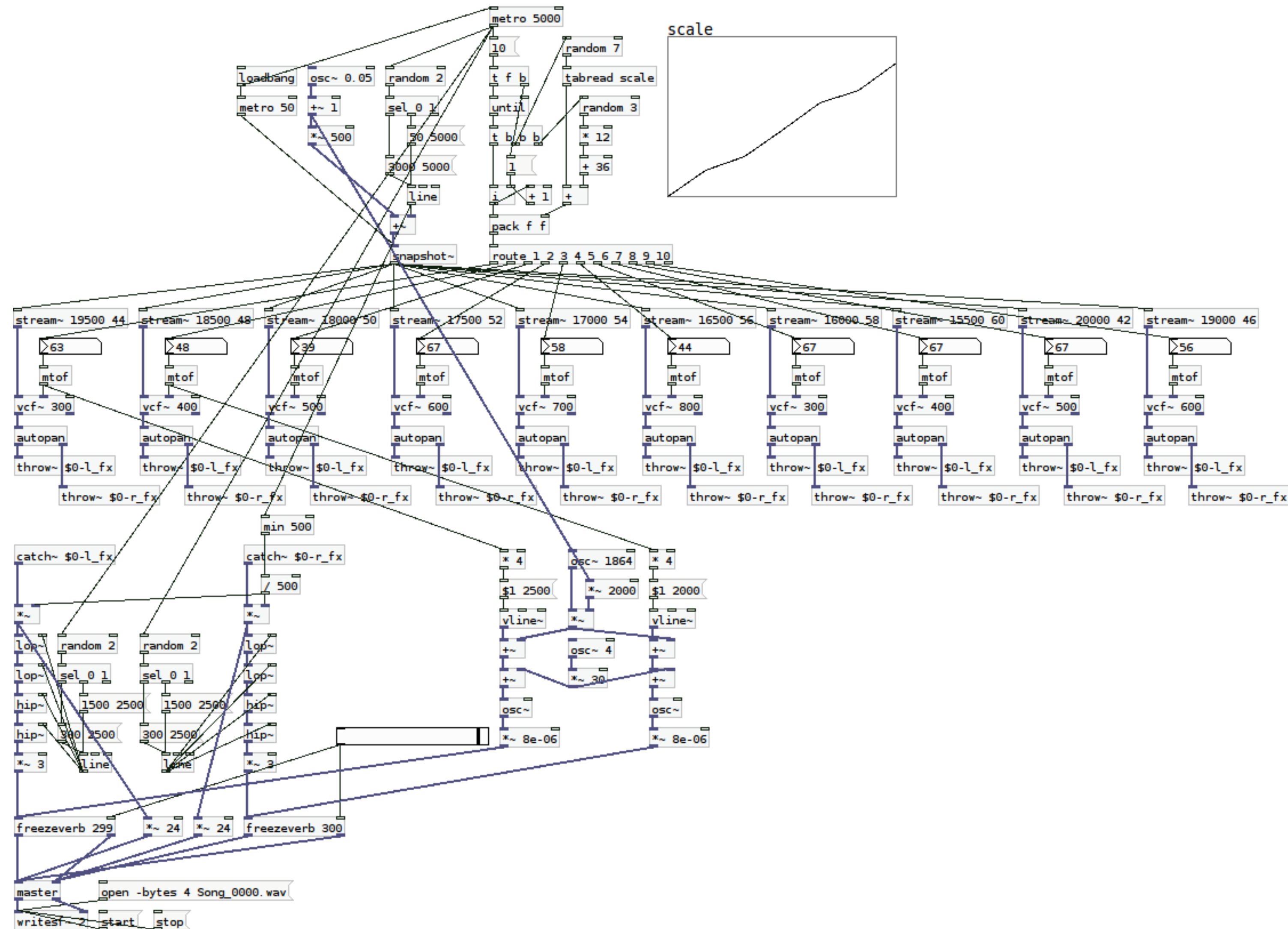# BRANCHING LOGIC

The combination of conditions, loops and functions allows us to express ANY algorithm

DATA FLOW PROGRAMMING

https://puredata.info/

PARAMETERS

```
line(0, 0, 100, 100);
```

Parameters are bits of information which the function should use

(input)

RETURN VALUE

```
var num = random(-10, 10);
```

The Return value is what replaces the function call inline

(output)

A FUNCTION DEFINITION

```
sayHello();

// …

function sayHello(){

  print("Hello!");

}
```

no Parameters, no Return value

A FUNCTION DEFINITION

```javascript
var rto = getMouseRatio();

// …

function getMouseRatio(){

  return (mouseX / mouseY);

}
```

Return value, no Parameters,

A FUNCTION DEFINITION

```
drawAnXAt(mouseX, mouseY);

// …

function drawAnXAt(x, y){

  line(x-10, y-10, x+10, y+10);

  line(x-10, y+10, x+10, y-10);

}
```

Parameters, no Return value

A FUNCTION DEFINITION

```javascript
var a = testMouseXPos(200);

// …

function testMouseXPos(xPos){

  if(mouseX >= xPos){

    return true;

  }

  return false;

}
```

Parameters and Return value

MODULO

```
(40 / 10) >> 4 (0)  ──▶  (40 % 10) >> 0

(42 / 10) >> 4 (2)  ──▶  (42 % 10) >> 2
```

MODULO returns the remainder when dividing two numbers

MODULO

```
if(currentFrame % 10 == 0){

  // do something once every 10 frames

}
```

MODULO is useful for testing divisions and increments

MODULO

```
for(var i = 0; i < 100; i++){

  strokeWeight(1);

  if(i % 5 == 0) strokeWeight(5);

  line(i*10, 0, i*10, height);
}
```

every fifth line will be thicker

HOMEWORK #5

Variations on a Grid

Please create a sketch which generates a grid of unique drawings.

save and print out your sketch on A3 format for next week

(You may want to start with the origami sketch)