

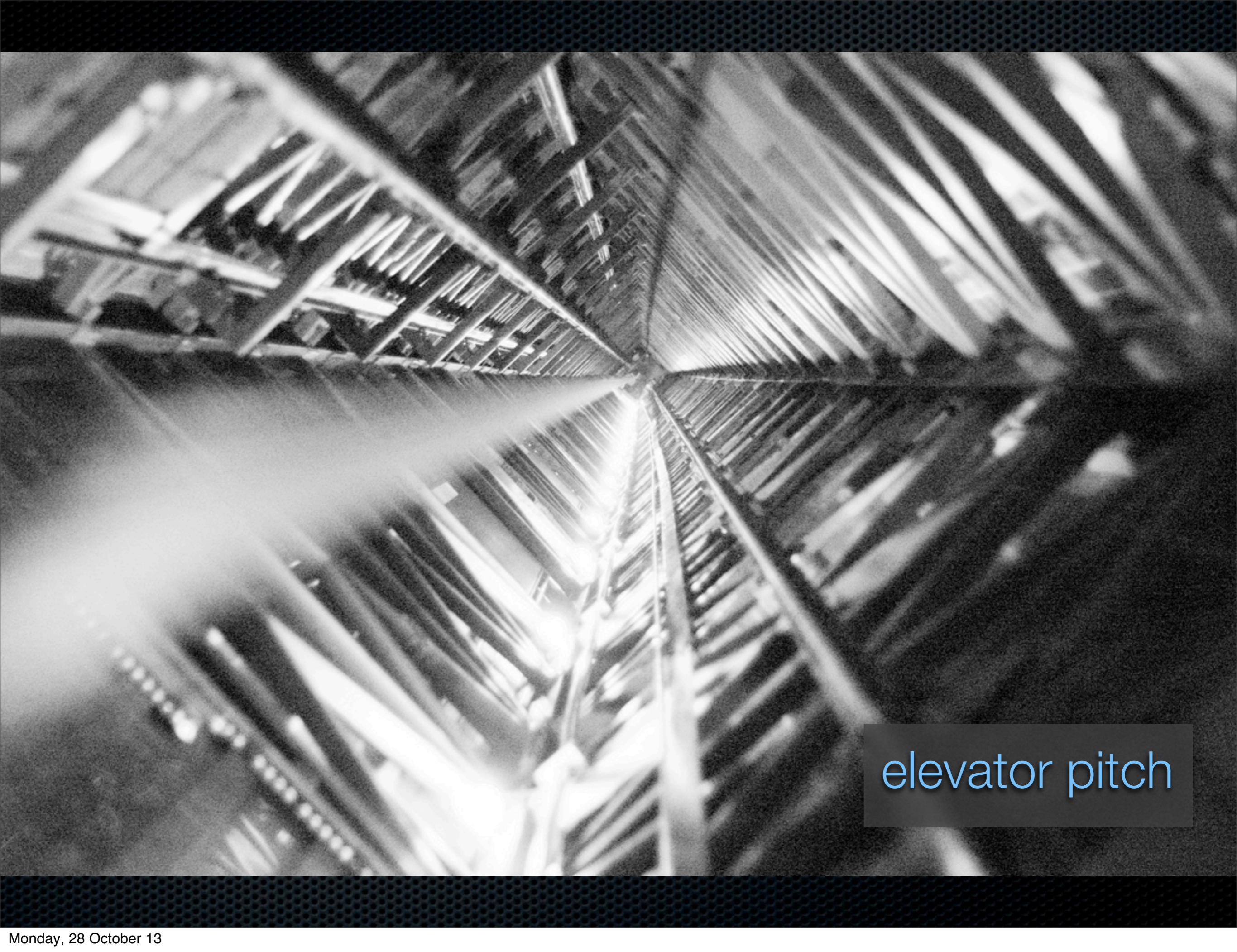
FUNCTIONAL PROGRAMMING

```
function() {  
    return ['fun', 'profit'];  
}
```



James Ottaway

@jms_



elevator pitch



teaser examples

```
(take 25 (squares-of (integers))))
```

```
[‘1’, ‘2’, ‘3’, ‘4’].map(&:to_i).reduce(&:+)
```

```
[1,2,3,4,5].filter(function(i) {  
  return i % 2 == 0;  
});
```

history



lambda calculus

DECLARE.

declarative programming



> how



nested paradigms

**I KNOW, I'LL USE A
REGULAR EXPRESSION.**

regex

For IBM Personal System/2 Series,
IBM PC/AT, and 100%
Compatibles

Microsoft Excel for Windows

Complete Spreadsheet with Business Graphics and Database

This carton
contains both
3½" and 5¼"
(1.2 MB) disks.

Business Week: Best of 1987
InfoWorld Rating: 9.4
PC Magazine: 1987 Technical
Excellence Award

Microsoft®

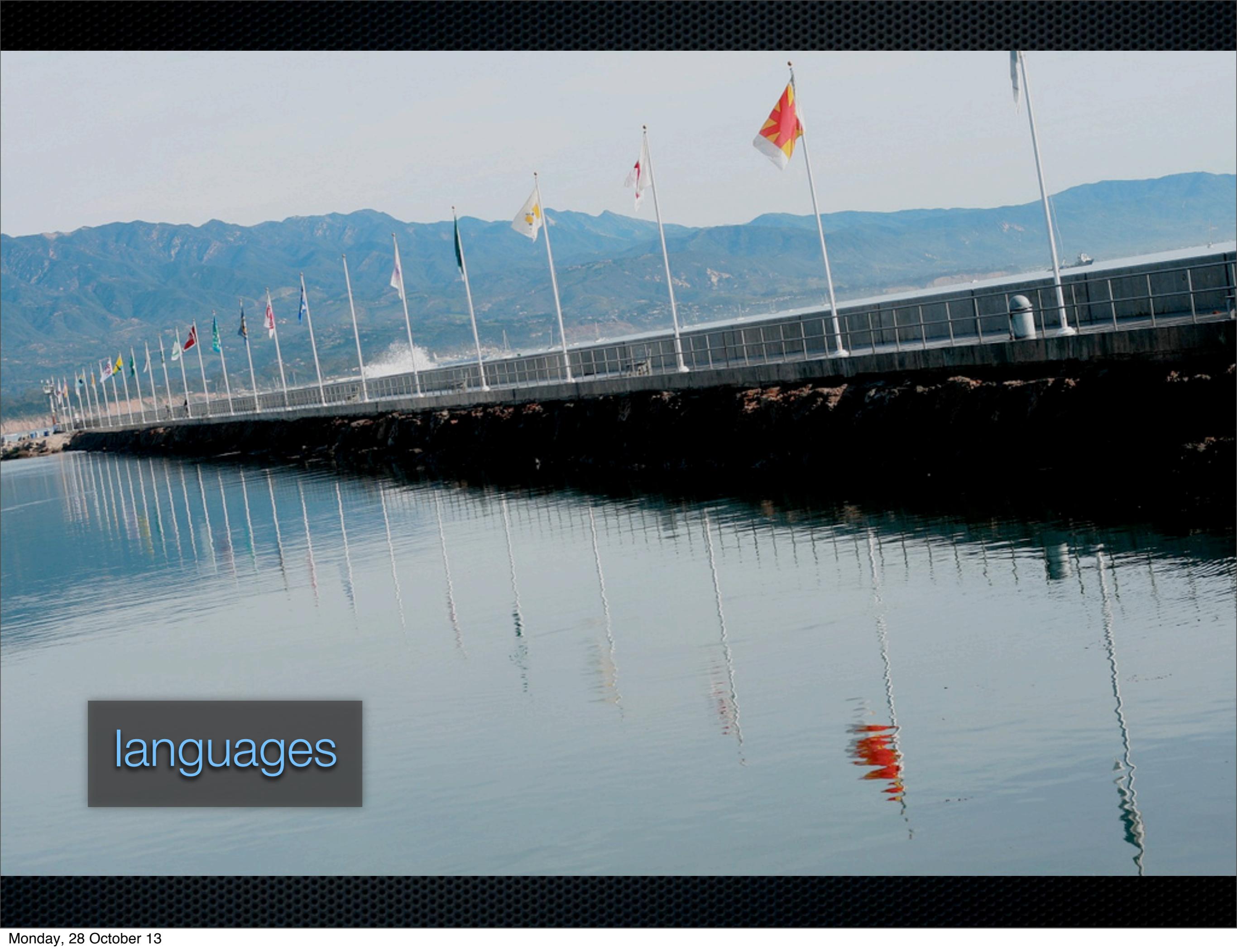
reactive programming

domain specific languages





functional programming



languages



concepts

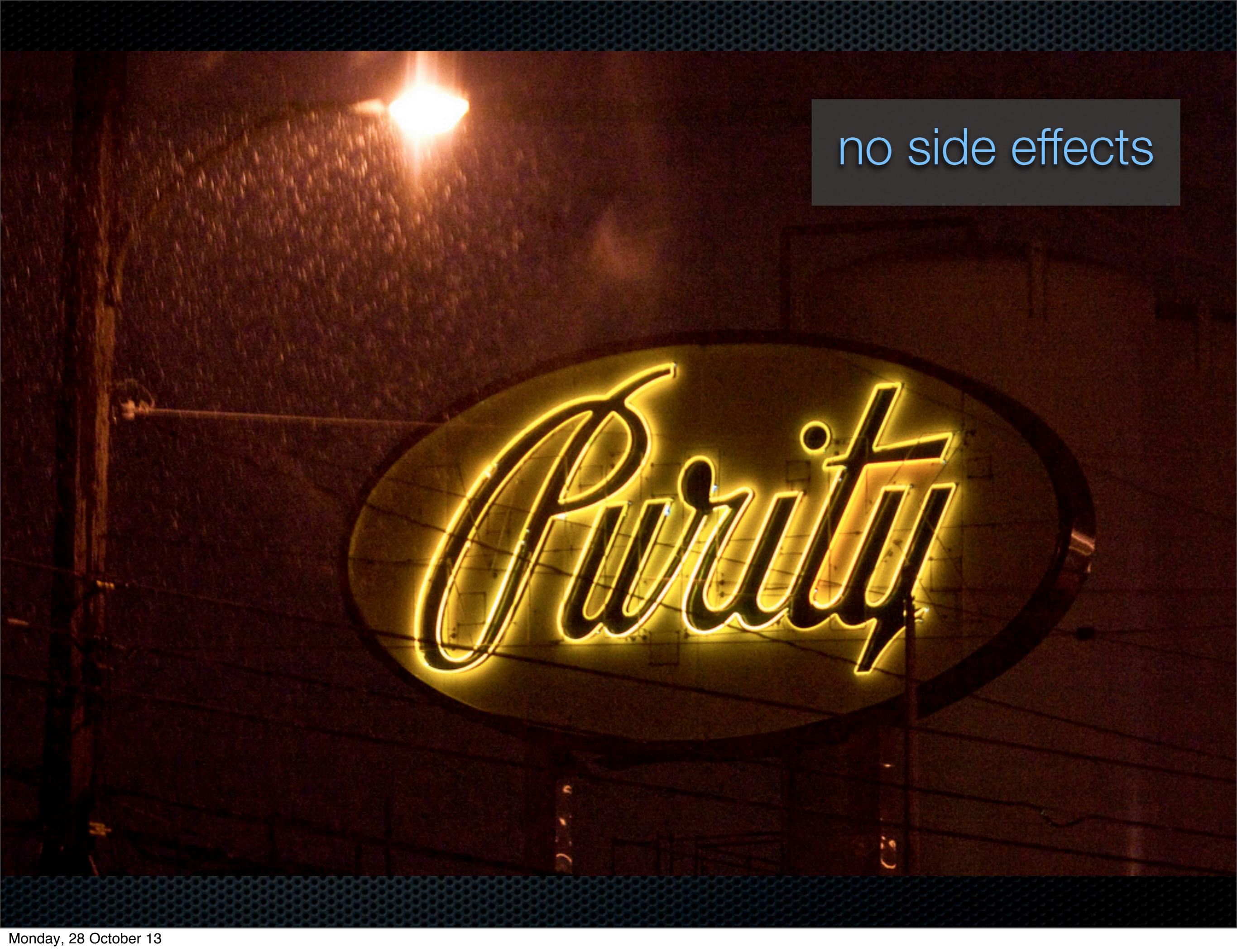
```
function() { }
```

```
function counter() {  
    var x = 0;  
  
    function increment(y) {  
        x += y;  
        console.log(x);  
    }  
  
    return increment;  
}
```

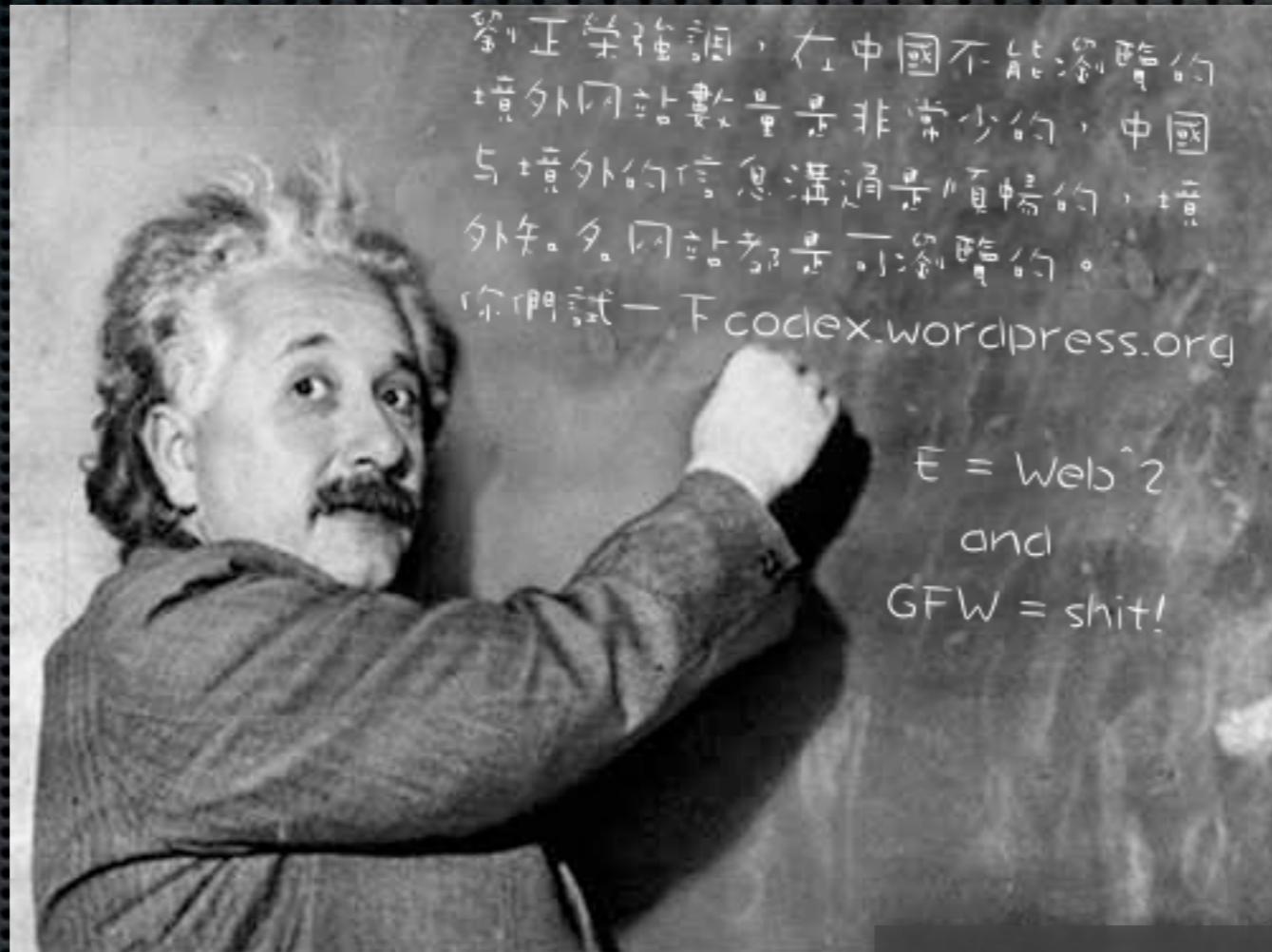
```
first_counter = counter();
second_counter = counter();

first_counter(1)           // returns 1
first_counter(2)           // returns 3
first_counter(3)           // returns 6

second_counter(5)          // returns 5
second_counter(5)          // returns 10
second_counter(5)          // returns 15
```



no side effects



劉正榮強調，在中國不能瀏覽的境外網站數量是非常少的，中國與境外的信息溝通是“直暢”的，境外大多網站都是可瀏覽的。

你們試一下codex.wordpress.org

$E = Webs^2$
and
 $GFW = shit!$

insanity

```
ONE = 1;
```

```
add = lambda { |x, y|  
  x + y  
}
```

```
addOne = lambda { |x|  
  add[x, ONE]  
}
```

referential transparency

```
require 'date'

opaque_millis = lambda {
  DateTime.now.strftime('%Q').to_i
}

transparent_millis = lambda { |datetime|
  datetime.strftime('%Q').to_i
}
```

referential transparency

memoisation





deforestation



state is inevitable

Reality



recursion



Structure and Interpretation of Computer Programs

Second Edition



Harold Abelson and
Gerald Jay Sussman
with Julie Sussman

structure and interpretation of computer programs

Real world →



examples

list comprehension



```
source = [1,2,3,4,5]
destination = []

for i in 0..source.length-1 do
    destination << source[i]*2
end

return destination
```

```
[1,2,3,4,5].map { |i| i * 2 }
```

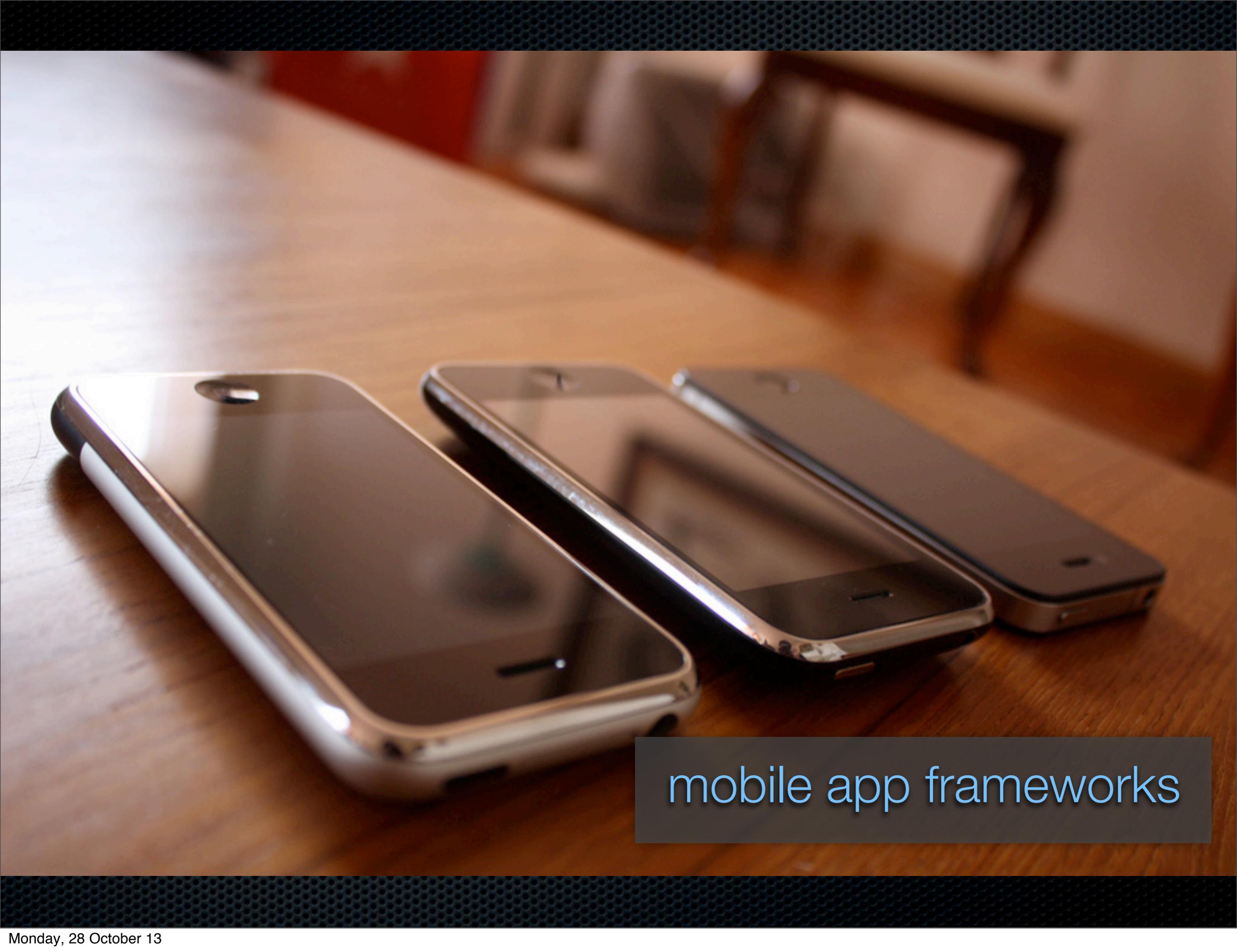
```
numbers = [1,2,3,4,5]
x = 0

for i in 1..numbers.length-1 do
  x += numbers[i]
end

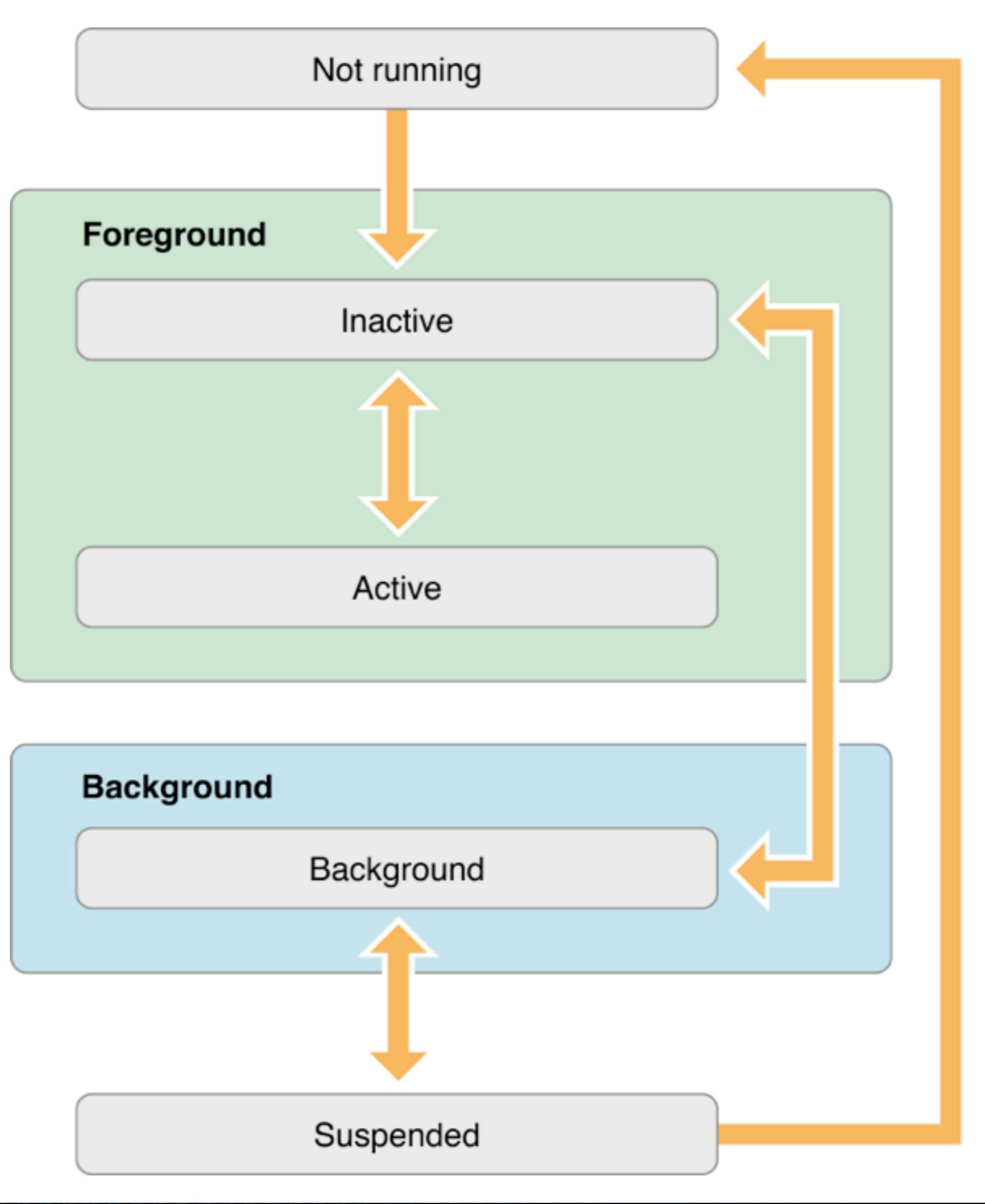
return x
```

```
[1,2,3,4,5].reduce { |acc, x| acc + x }
```

```
[1,2,3,4,5].reduce(&:+)
```

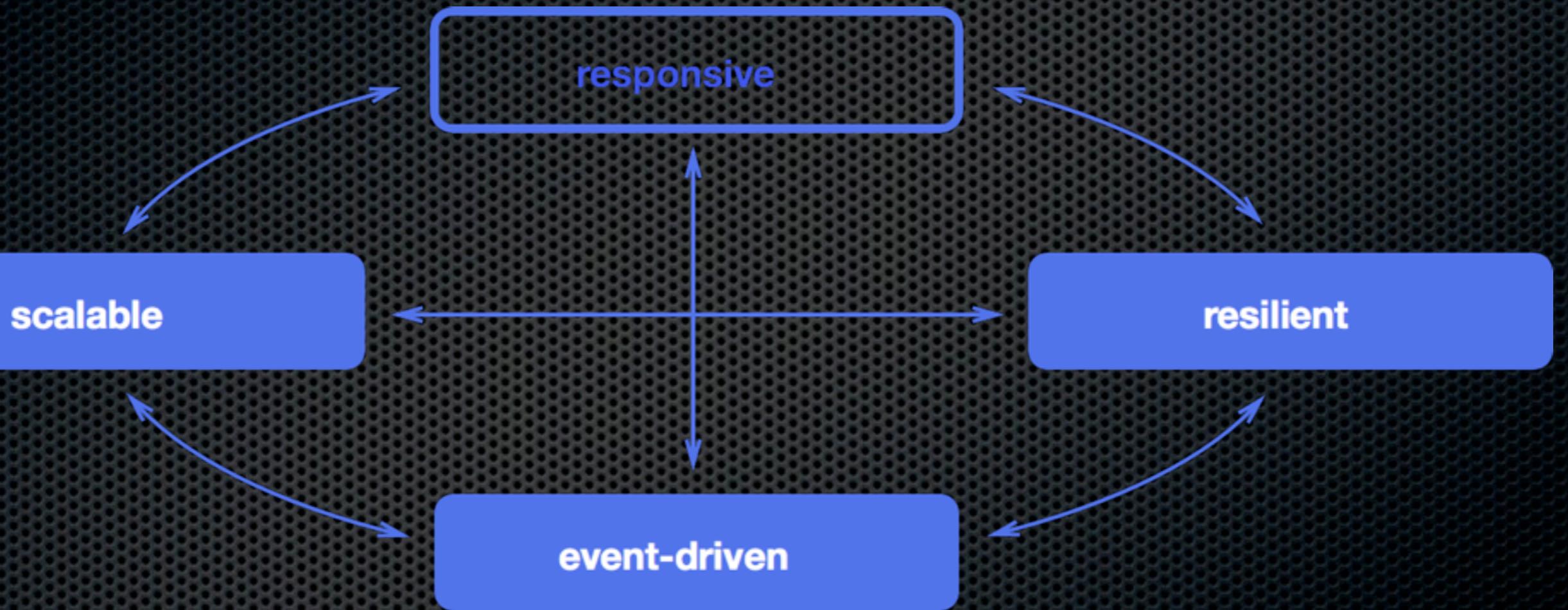
A photograph showing three smartphones (two silver and one black) resting on a wooden surface. The phones are arranged diagonally from top right to bottom left. The background is blurred.

mobile app frameworks



programming with nothing

nothing



reactive extensions

github desktop clients



go forth and prosper!

thanks

