
Welcome
please
Come In
Sthlm
Clojure
Bridge

Who am I ?

Maja Kontrec

maja@kontrec.com

Erlang

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What is programming?

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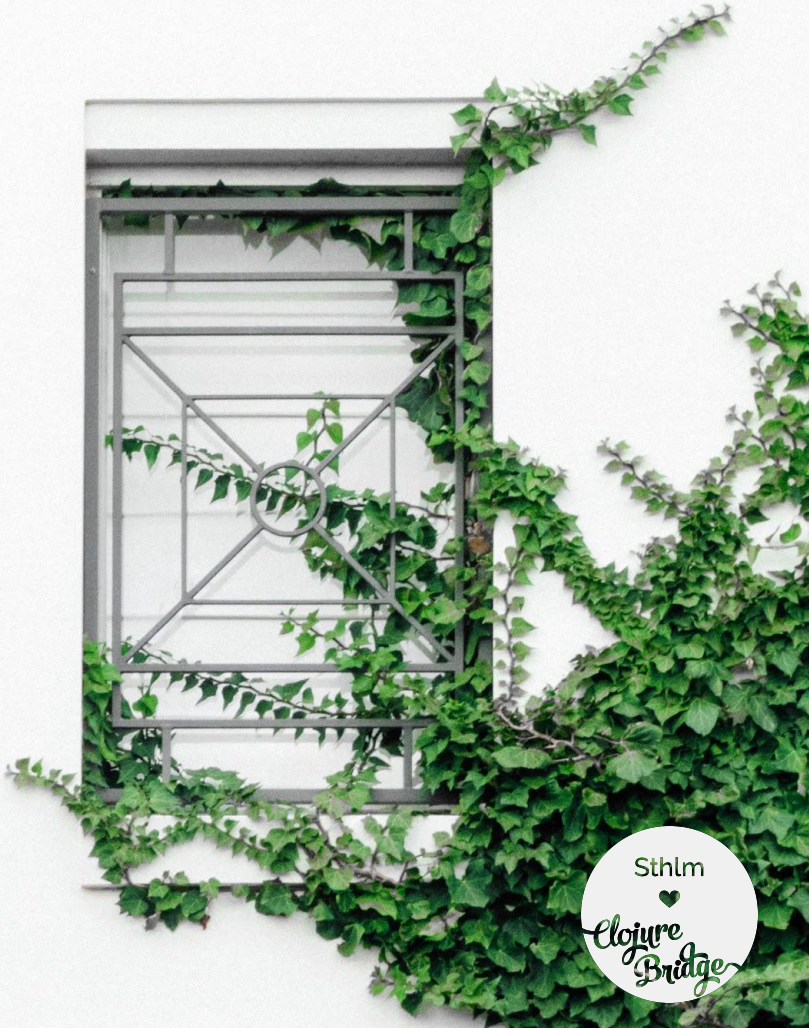
Why Clojure?

simple

all-purpose

fun



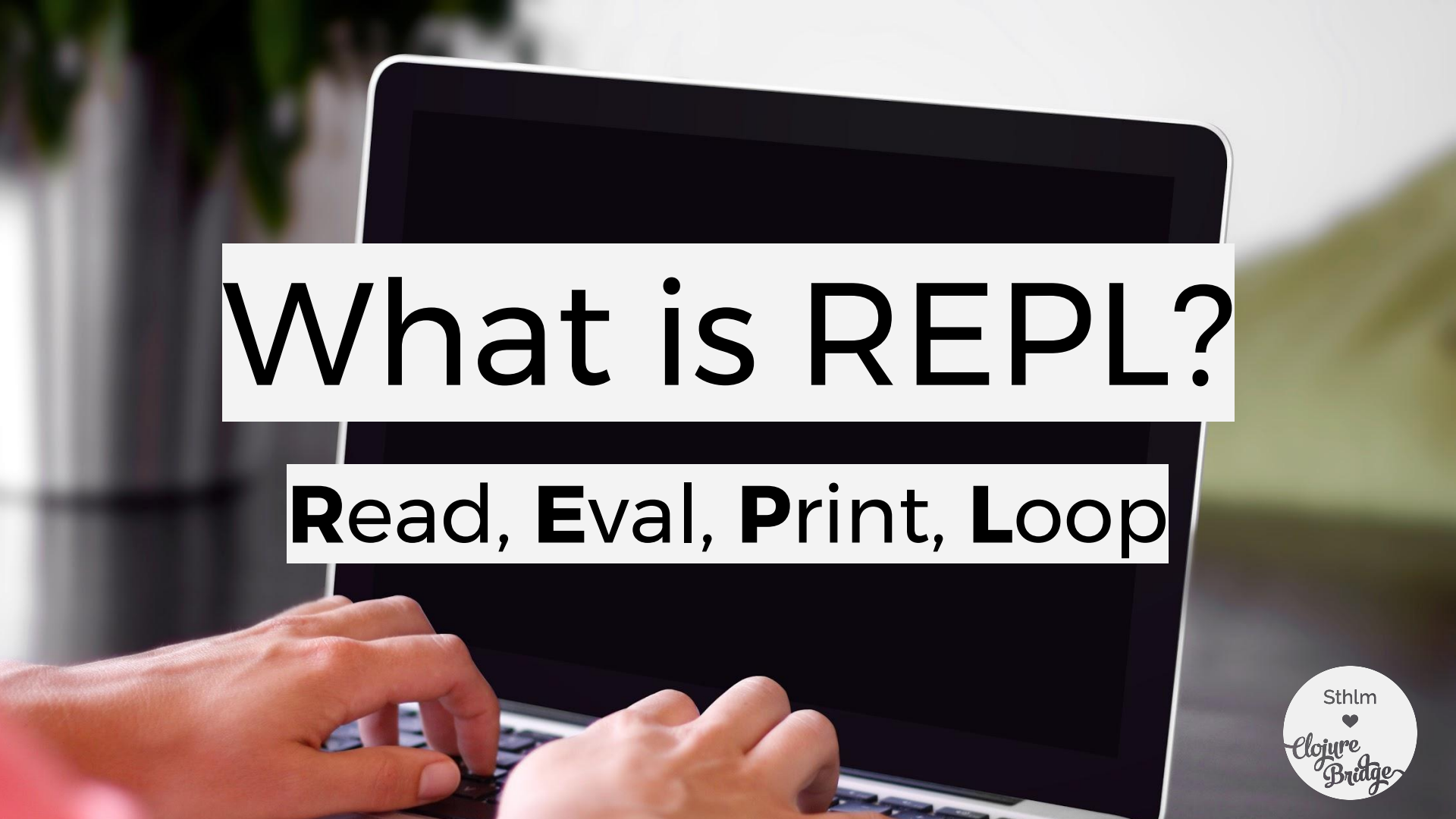
What does Clojure look like?

```
;; this is a comment

(print-str "Hello, World!")  ;prints Hello, World!

(+ 3 4)

(forward :trinity 40)
```


What is REPL?
Read, Eval, Print, Loop
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Try Nightcode InstaREPL

Exercise 1

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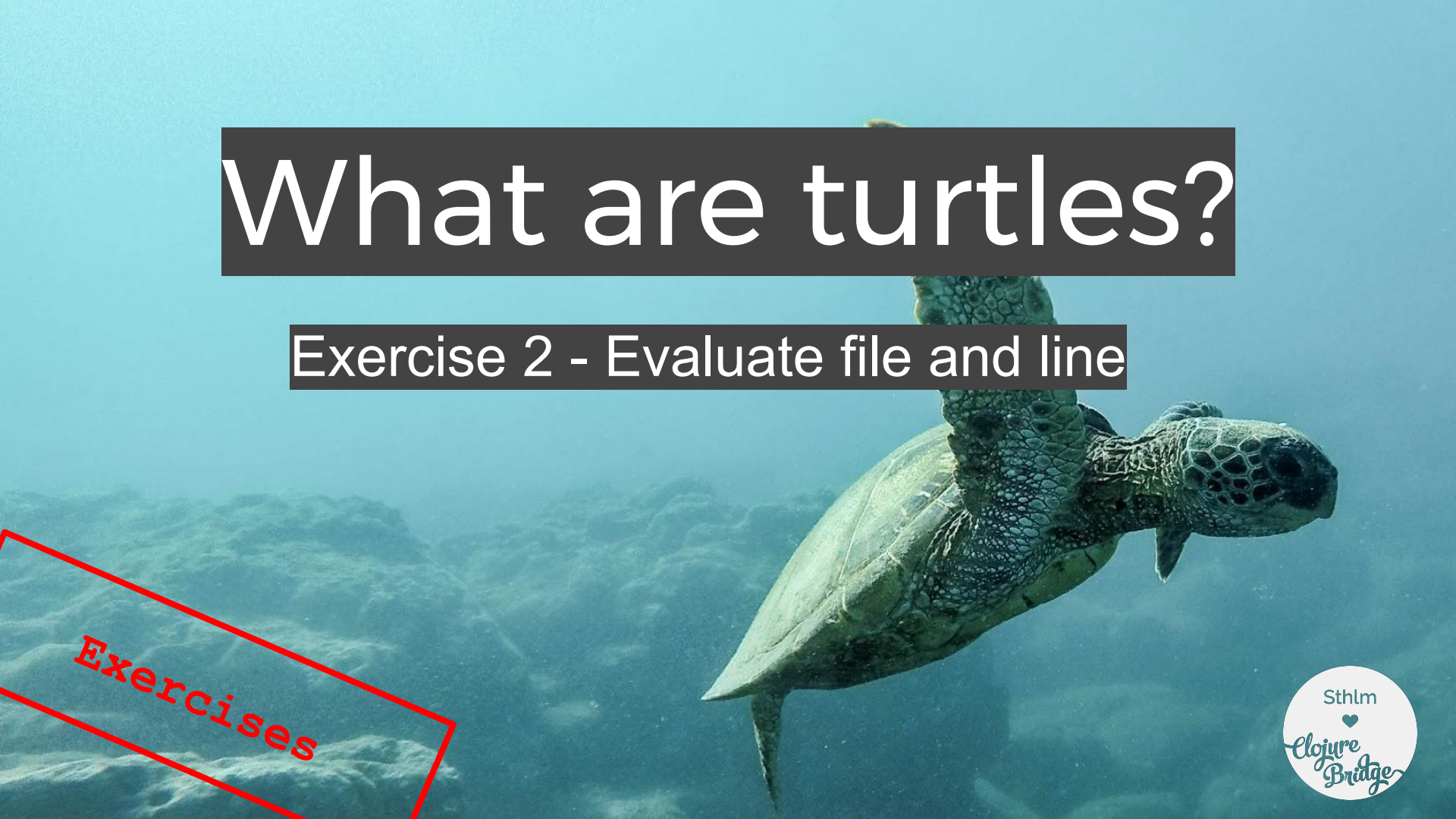
What are turtles?

Exercise 2 - Evaluate file and line



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Look at Clojure docs

Exercise 3

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Simple values
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Strings = Text

```
"Hello, World!"
"This is a longer string that I wrote for purposes of an example."
```

Booleans and nil

```
false
true
nil
```

:Keywords

Numbers

Integers	Decimal numbers	Ratios
0	0.0000072725	1/2
12	10.5	-7/3
-42	-99.9	

Arithmetic

```
;;2+1
(+ 2 1)
```

Assignment: def

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Assigning names to values

```
(def mangoes 3)
(def oranges 5)
(+ mangoes oranges)
;=> 8
```

Assigning names to results

```
(def fruit-amount (+ mangoes oranges))
(def average-fruit-amount (/ fruit-amount 2))
average-fruit-amount
;=> 4
```

Basic arithmetic

Exercise 4

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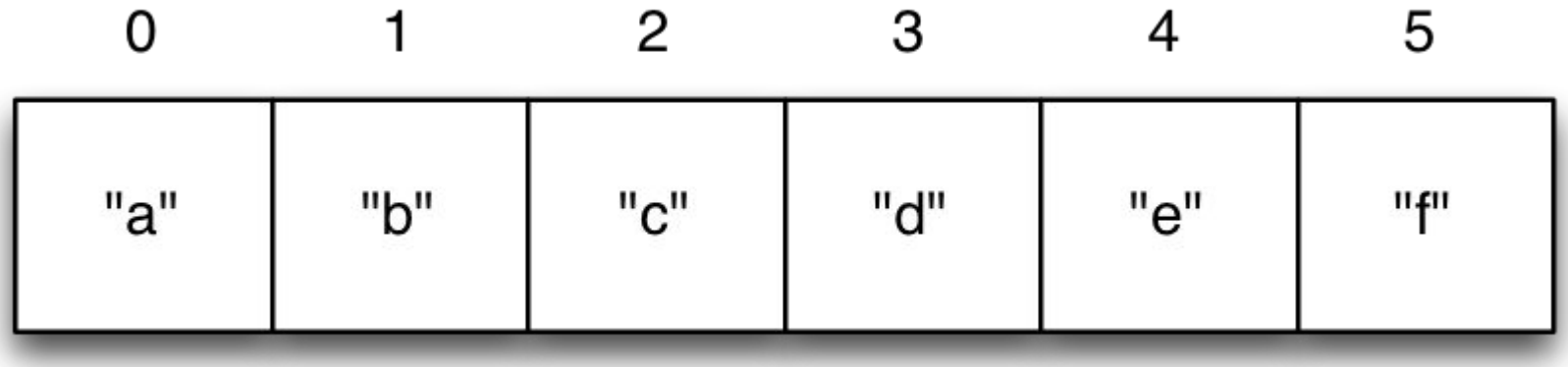
Data Structures

Vectors/Maps

Vectors



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Usage

```
(count [5 10 15])
;=> 3
(nth [5 10 15] 1)
;=> 10
```

```
(first [5 10 15])
;=> 5
(rest [5 10 15])
;=> (10 15)
```

```
(conj [5 10] 15)
;=> [5 10 15]
```

Remember Turtles?

Exercise 5 - **Turtle name**

Exercise 6 - **Create a vector**

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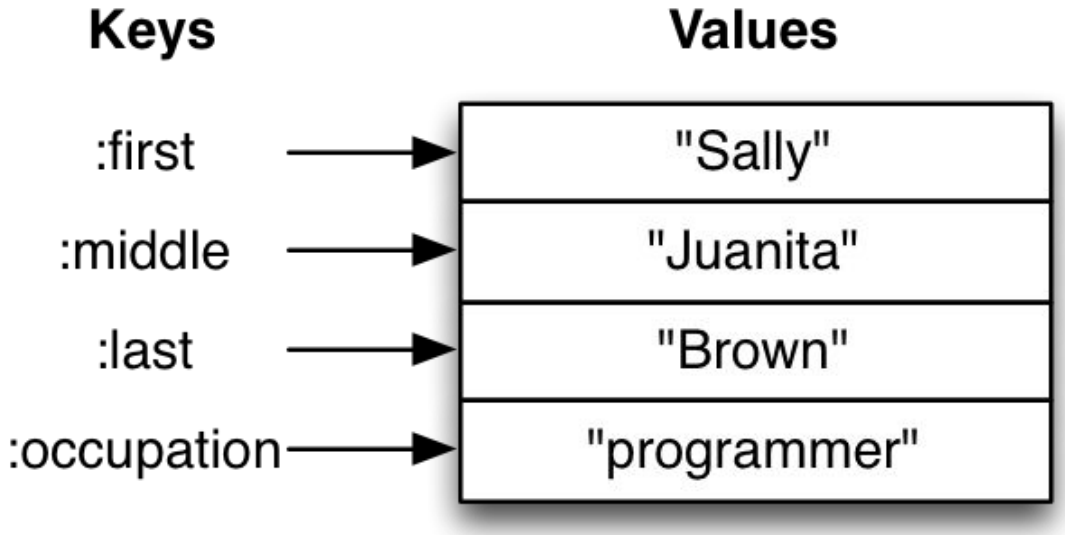
Maps



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Maps

```
{:first "Sally" :last "Brown"}
{:a 1 :b "two"}
{}
```

Usage

```
(count {:first "Sally" :last "Brown"})
;=> 2

(get {:first "Sally" :last "Brown"} :first)
;=> "Sally"
(get {:first "Sally"} :last)
;=> nil
```

Usage

```
(assoc {:first "Sally"} :last "Brown")
;=> {:first "Sally", :last "Brown"}

(dissoc {:first "Sally" :last "Brown"} :last)
;=> {:first "Sally"}

(merge {:first "Sally"} {:last "Brown"})
;=> {:first "Sally", :last "Brown"}
```

Usage

```
(keys {:first "Sally" :last "Brown"})
;=> (:first :last)

(vals {:first "Sally" :last "Brown"})
;=> ("Sally" "Brown")
```

More on Turtles

Exercise 7 - **See turtles states**

Exercise 8 - **Modeling yourself**

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Flow control

if

```
(if (= traffic-light :red)
  (stop)
  (go))
```

Y value within a frame (part 1)

Exercise 9

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cond

```
(cond
  (= traffic-light :red) (stop)
  (= traffic-light :yellow) (slow-down)
  :else (go))
```

Y value within a frame (part 2)

Exercise 10

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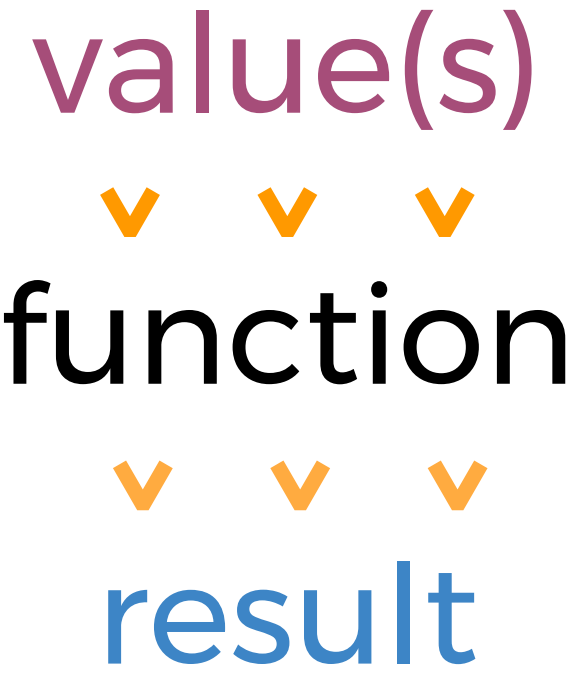
and, or, not

```
(and true false)  ;=> false
(or true false)  ;=> true
(not true)  ;=> false
```


Functions


value(s)
function
result

Definition

```
(defn forward-right
  "Moves specified turtle forward and tilts its head"
  [turtle]
  (forward turtle 60)
  (right turtle 135))
```

Usage

```
(forward-right :trinity)  ;=> {:trinity {:angle 135}}
(forward-right :neo)  ;=> {:neo {:angle 135}}
```

Multiple arguments

```
(defn forward-right-with-len
  "Given turtle and length, forward the turtle and tilts its head"
  [turtle len]
  (forward turtle len)
  (right turtle 135))

(forward-right-with-len :trinity 90) ;=> {:trinity {:angle 135}}
(forward-right-with-len :neo 80)  ;=> {:neo {:angle 135}}
```

Move turtles using function

Exercise 11

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Move turtles using function with parameters

Exercise 12

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Your Turn!
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j.mp/2qLQKIM

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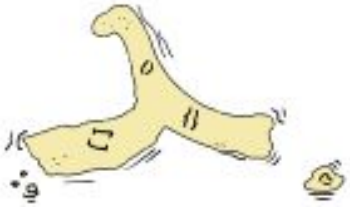
PurelyFunctional.tv

https://purelyfunctional.tv/register/

Discount code:

cbstockholm2017



Lambda Island

https://lambdaisland.com/workshop/clojurebridge-stockholm

Turtles Walk

(more function study) **http://j.mp/2pkMR60**

Snowflakes

(animation) **http://j.mp/2pMs7qM**

Twinkle Twinkle Little Star -

(making sounds) **http://bit.ly/2pgEvvi**

Global Growth

(web app with REST api) **http://bit.ly/2qNPRs9**

Caesar Cipher

(mini exercise of Strings and Characters) **http://bit.ly/2pMHiQE**