Scheme and Clojure are in the lisp-1 family, which use the same namespace for functions and variables.

Common Lisp is in the lisp-2 family, which uses separate namespaces.

## With the leiningen build automation tool.

lein new MyProj

(funchame arg1 arg2 ...)

- It uses the normal function prefix notation.
- / results in a Ratio.

## Using mod.

- It's easier to support higher-arity versions of the function.
- There's no ambiguity and no need for consideration of

operator precedence.

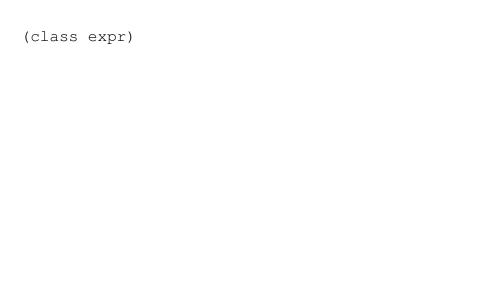
#### Using the equivalent of Java's toString.

(str obj1 obj2 ... objn)

#### Use \s:

```
user=> (str \h \i)
"hi"
```

Back slashes actually create characters, which are not strings in Clojure.



Using an if function. Its first argument is a Boolean expression, the second

argument is the code to run if the Boolean expression is true. The third argument is optional and is the else code.

#### Everything except nil and false.

o and "" do evaluate to "true" in conditionals.

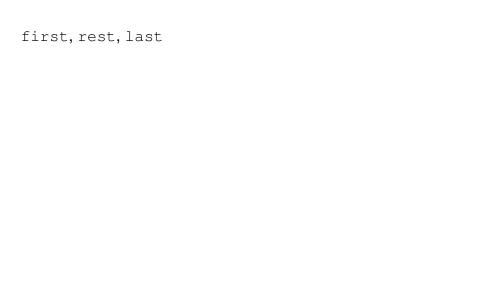
Lists are for code, while vectors are used to store data.

Vectors support fast random access.

With the list function or by quoting:

'("my" "favorite" "list")

Or with the cons function.



user=> (nth ["a", "b", "c"] 2)
"c"

Use concat.

Vectors use [], sets use #{}, maps use {}.

(def VarName expr)

Yes, reassignments are allowed.

#### Use count.

user=> (["a" "b" "c"] 1)
"b"

user=> (#{"a" "b" "c"} "a")

"a"

Commas as whitespace, to prevent mixing up keys/values, or putting an odd number of elements.

Keywords (beginning with:) stand for themselves, like atoms in other languages. Symbols refer to something else.

```
(:key map)
```

or

(map :key)

Both the map and the keyword are functions.

merge and merge-with combine maps.

assoc map newElement adds to a map.

(defn	funcName	[params]	body)		

# Add a docstring after the function name and before the

parameter vector. To retrieve use:

(doc funcName)

It can be used in an argument list or in a let statement.

Unlike pattern matching, destructuring does not require you

match the entire data structure being destructured.

```
(let [bindings* ] exprs*)
```

The expressions are evaluated in the lexical context of the bindings, sequentially applied.

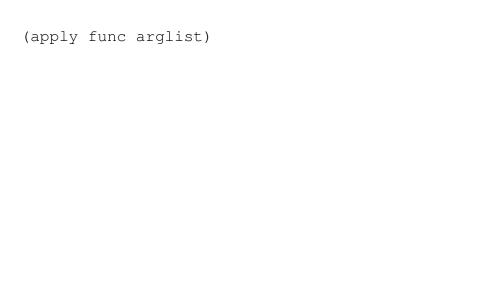
The even numbered elements in bindings are bound to the odd symbols.

Unlike in a def, those bindings are not active outside the let.

## Because functions are really just lists.

Use fn instead of defn and don't put a name.

Or, put a # before the list containing the body of the function with % being bound to each argument.



#### Using loop/recur.

The loop function takes a vector whose odd number elements are variables and even number elements are initial variables to those arguments. Its second argument is the body of the function which can use recur to go back to loop.

```
(every? func list)
(some func list)
not-every and not-any are the opposite.
```

(nil? list)

(for [ell in list1 ... el2 in list2] body)

x?

word1-word2 type function names.

- Erlang foldl - Ruby - inject
- Clojure reduce - Haskell - foldl

user=> (range -5 5 2) (-5 -3 -1 1 3)