elixir cheat sheet

elixir-lang.org
v1.0
Updated 10/15/2014

Command line

elixir [options] file.ex/file.exs
iex
iex -S script (e.g., iex -S mix)
iex --name local
iex --sname fully.qualified.name
--cookie cookie.value or use $HOME/.erlang.cookie

mix *new / run / test / deps / etc.*
mix.exs specifies build details

iex Commands

#iex:break	— back to prompt
c "filename.exs"	— compile
r Module	— reload
h function_name	— help
v [n]	— session history

Operators

=== !== and or not xor	(strict)
== != && || !	(relaxed)
>, >=, <, <=	
+, -, *, /	(float)
div, rem	(integer)
binary1 <> binary2	(concat)
list1 ++ list2	(concat)
list1 -- list2	(set diff)
a in enum	(membership)
^term	(no reassign)

Types

Integer 1234 0xcafe 0177 0b100 10_000
Float 1.0 3.1415 6.02e23
Atom :foo :me@home :"with spaces"
Tuple { 1, 2, :ok, "xy" } *(like array)*
List [1, 2, 3] (*like linked list)*
[head | tail]
'abc'
''' here doc '''
(see Enum and List modules)
Keyword List (can duplicate keys)
[a: "Foo", b: 123]
Map (no duplicate keys)
%{ key => value, key => value }
Binary << 1, 2 >> or "abc"
""" here doc """
"#{interpolated}"
<< name::prop-prop-prop … >>
binary, bits, bitstring, bytes, float, integer, utf8, utf16, utf32, size(n), signed/unsigned, big/little native
Truth true, false, nil
Range a..b

Anonymous Functions

```
fn parms [guard]-> body
   parms [guard] -> body
end
```

call with func.()
Shortcut: &(...)
&1,&2 as parameters

Named Functions

(Only in modules, records, etc)

```
def name(parms) [guard] do
  expression
end
```

def name(parms) [guard], do: expr
Default params: parameter \\ default
defp for private functions
Multiple heads with different params and/or guards allowed.
Capture a function with:
&mod_name.func_name/arity
(Can omit mod_name)

Modules

```
defmodule mod_name do
 @moduledoc "description"
 @doc "description"
 function/macro
end
```

require Module *(used for macros)*
use Module
calls Module.__using__
import Module [,only:|except:]
alias mod_path [, as: Name]
@attribute_name value
Call Erlang:
:module.function_name

Guard Clause

Part of pattern match
when expr
where operators in expr are limited to:
==, !=, ===, !==, >, <, <=, >=,
or, and, not, !, +, -, *, /, in,
is_atom is_binary is_bitstring is_boolean
is_exception is_float is_function is_integer
is_nil is_list is_number is_pid is_port
is_reference is_tuple,
abs(num), bit_size(bits), byte_size(bits),
div(num,num), elem(tuple, n), float(term),
hd(list), length(list), node(),
node(pid|ref|port), rem(num,num),
round(num), self(), tl(list), trunc(num),
tuple_size(tuple)
<> and ++ `(left side literal)`

Comprehensions

for generator/filter [, into: value], do: expr
Generators are:
pattern <- list
With binaries as:
for << ch <- "hello" >>, do: expr

do: vs do/end

```
something do
 expr
end
```

```
something, do: expr
```

else, rescue, try, ensure also generate keyword args, and are then compiled

Maps

```
%{ key => value, key => value }
value = map[key]
value = map.key (if key is an atom)
newmap = %{ oldmap | key => newval}
Dict.put_new/3 to add a key
```

Protocols

```
defprotocol module.name do
 @moduledoc description
  @only [list of types] (optional)
 def name(parms)
end

defimpl mod.name, for: type do
   @moduledoc description
   def name(type, value) do
      expr
   end
end
```

Allowed types:
Any Atom BitString Function List Number
PID Port Record Reference Tuple

Regexp

```
~r{pattern}opts
```

f	match beg of ml string
g	use named groups
i	case insensitive
m	^ and $ match each line in ml
r	reluctant (not greedy)
s	. matches newline
u	unicode patterns
x	ignore whitespace and comments

Processes

```
pid = spawn(anon_function)
pid = spawn(mod, func, args)
(also spawn_link)

receive do
 {sender, msg, … } ->
   send sender { :ok, value }
 after timeout ->
   …
end
```

Predefined Names

```
__MODULE__ __FILE__ __DIR__ __ENV__
__CALLER__ (macros only)
```

Pipelines

```
expr |> f1 |> f2(a,b) |> f3(c)
```

(same as)

```
f3(f2(f1(expr), a, b), c)
```

Control Flow

```
if expr do
   exp
else
   exp
end

case expr do
 match [guard] -> exp
 match [guard]  -> exp
 …
end
```

```
unless expr do
   exp
else
   exp
end

cond do
   bool -> exp
   bool -> exp
end
```

Metaprogramming

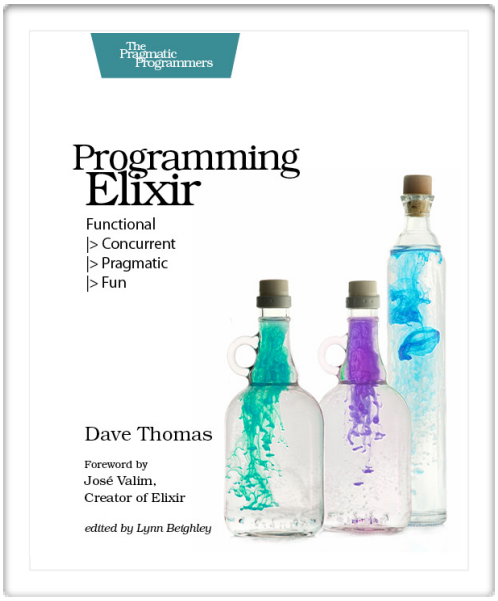
```
defmacro macroname(parms) do
          parms are quoted args
          return quoted code which
          is inserted at call site
end

quote do: …  returns internal rep.
quote bind_quoted: [name: name]
do: …

unquote do:  … only inside quote, injects
code fragment without evaluation
```

Sigils

~type{ content }

Delimiter: { }, [ ], ( ), / /, | |, " ", or ' '

%S	string (no interpolation)
%s	string (with interpolation)
%C	character list (no interpolation)
%c	character list (with interpolation)
%R	regexp
%r	regexp w/interpolation
%W	words (white space delim)
%w	words w/interpolation



pragprog.com/books/elixir

Structs

```
defmodule Name do
   defstruct field: default, …
end

%Name{field: value, field: value, …}

new_struct = %{ var | field: new_value }
```

Pragmatic Bookshelf