

Elixir Exercises for Beginners

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Chapter 1

Installation

To use the Elixir programming language, first thing you need to do is to install it.

You can go to elixir-lang.org¹

Click install. Then choose the system you have (Windows, Mac, Unix, Raspberry) and copy and paste the command to install.

It really depends on your operating system, but once installed they all work the same.

So that's elixir-lang.org/install.html²

Interactive shell

Let's take a look at the elixir interactive shell. You can verify Elixir is installed by typing **iex**

That will open the interactive elixir shell, and you can type expressions here

```
1 iex> "hello world"
2 "hello world"
```

To exit, press Ctrl+c twice.

Start the interactive shell again by typing **iex**. You can type mathematical expressions like

```
1 iex> 6*6
2 36
3 iex> 5+3
4 8
```

You can also get the length of a sentence by calling **String.length**

```
1 iex> String.length("Hello world")
2 11
```

This will return the number of characters in the string (text). This is a function call.

¹<https://elixir-lang.org>

²elixir-lang.org/install.html

```
1 iex> String.length("some other text here")
2 28
```

It's longer now because there are more characters in the string.

You can use the interactive shell to evaluate expressions.

Variables

You can define variables in the interactive shell

```
1 iex> a = 3
2 iex> b = "hello"
```

To output a variable, call **IO.puts**

```
1 iex> IO.puts a
2 3
3 iex> IO.puts b
4 "hello"
```

Variables always have a data type. In the above code you can see type number (integer) and type text (string).

There's a function in Elixir to test if a variable is of the data type integer **is_integer()**

```
1 iex> is_integer(a)
2 true
3
4 iex> is_integer(b)
5 false
```

Integers are only natural numbers (1,2,3...n). If you want pi, 1.25 etc you need to use the float data type.

```
1 iex> c = 1.25
2 iex> is_float(c)
3 true
```

Elixir figures out the data type automatically, similar to Python. You can use the functions **is_integer**, **is_float**, **is_booleans** to test if a data type is used. A boolean can only contain the values true or false.

Hello World

You can use any text editor or program to create Elixir program. This can be vim, emacs, visual studio code, sublime text or whatever you want.

Save your file with the extension `.exs`

Inside the file type the code:

```
1 IO.puts "Hello world from Elixir"
```

To run the code, type the command

```
1 elixir hello.exs
```

Be sure the file is in the same directory as you are. You can test with the command `pwd`

It outputs the hello world message.

Basic operators

You can use all kinds of operators in the Elxiir shell.

```
1 iex>
```

You can define a list like this

```
1 iex> [1,2,3]
2 [1,2,3]
```

To add two lists together

```
1 iex> [1,2,3]++[4,5,6]
2 [1,2,3,4,5,6]
```

To combine two strings, there's another operator you can use

```
1 iex> "hello" <> "world"
2 "helloworld"
```

Elixir has comparison operators. To check for equality, you can do this

```
1 iex> 6 == 6
2 true
```

You can use the smaller than operator

```
1 iex> 6 < 6
2 false
```

The greater than operators is also supported

```
1 iex> 6 > 3
2 true
```

The is not operator is supported too

```
1 iex> 6 != 4
2 true
```

You can combine conditions with the keywords **and** and **or**

```
1 iex> 5 == 5 and 4 == 5
2 false
3
4 iex> 1 == 1 and 2 == 2
5 true
```

You can do that for function calls too

```
1 iex> is_integer(3) and is_integer(2)
2 true
3
4 iex> is_integer(2) and is_integer(1.5)
5 false
```

Exercises

1. What is the Elixir programming website?
2. True or False: Mac can be used for Elixir programming
3. Can Elixir be used on an embedded system?
4. Which command start the Elixir interactive shell?

5. Which keyboard shortcut ends the interactive shell?
6. Create a program that calculates the length of the word “Elixir”
7. How can you output variable contents in Elixir?
8. If a function is named sum with parameters a and b, how would you call it?
9. What is the difference between an integer and a float?
10. What is a boolean and what real life object represents it?
11. Define a list of numbers
12. Which operator is used to add two lists?
13. Which operator is used to add two strings?
14. Which operator checks for equality?
15. Can you use operators on function calls?

Chapter 2

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IO

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Keyboard input

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Standard output, error

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Anonymous functions

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Case and cond

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Cond

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If statements

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Numeric input

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Exercises

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Keywords and maps

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Key-value store

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Modules and functions

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Define module

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Exercises

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Chapter 8

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Recursion

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Intermediate features

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Files

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Alias, require, import

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Alias

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Require

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Import

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Processes

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Process ids

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Message passing

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Testing custom errors

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Structs

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