EVERYTHING IS reduce

THIS PRESENTATION IS ABOUT

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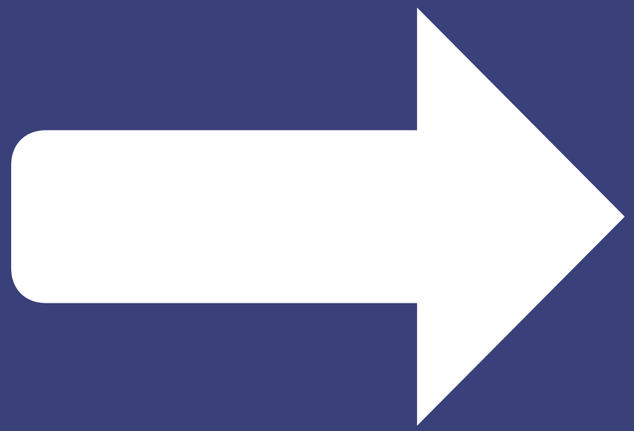
reduce

TRANSFORM SOMETHING

TRANSFORM
TO A *DIFFERENT* FORM

TRANSFORM

TO A MORE *BASIC* FORM



```
def pulp(🍊) do
  🍹
end
```

```
def pulp([🍊,🍊,🍊]) do
  🍹
end
```

```
def reduce([🍊,🍊,🍊]) do
  🍹
end
```

Enum

Lists

```
[1, 2, 3]
```

Maps

```
%{apple: "🍏", banana: "🍌"}
```

So...

```
Enum.sum([1, 2, 3])
#=>
```

```
Enum.sum([1, 2, 3])
#=> 6
```

```
Enum.join(["Elixir", "is", "awesome!"], " ")
#=>
```

```
Enum.join(["Elixir", "is", "awesome!"], " ")
#=> "Elixir is awesome!"
```

```
[1, 2, 3]
```

PERFORM OPERATION

DERIVE INFORMATION

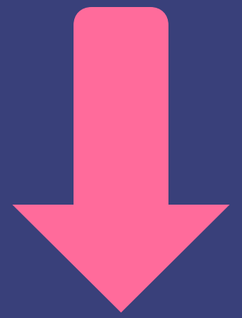
CREATE NEW INFORMATION

```
[1, 2, 3]
```

```elixir
Enum.each([1, 2, 3], fn number ->
  IO.puts("Current number is #{number}")
end)
#=>
```

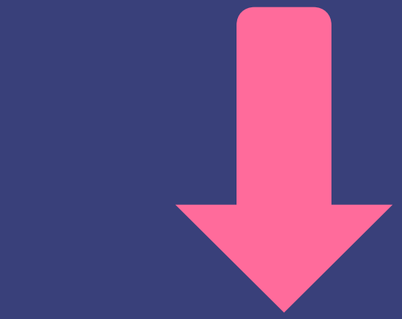
```
Enum.each([1, 2, 3], fn number ->
  IO.puts("Current number is #{number}")
end)
Current number is 1
Current number is 2
Current number is 3
#=> :ok
```

```
[1, 2, 3]
```



```
:ok
```

[1, 2, 3]



~~÷ok~~

[1, 2, 3]

[2, 4, 6]

```
Enum.map([1, 2, 3], fn number ->
  number * 2
end)
#=>
```

```elixir
Enum.map([1, 2, 3], fn number ->
  number * 2
end)
#=> [2, 4, 6]
```

```
[1, 2, 3]
```

```
["a","b","c"]
```

```
["a","a","a","b","c","c"]
```

```
["a","a","a","b","c","c"]
```

```
%{"a" => 3,"b" => 1,"c" => 2}
```

Requirements

→ Take in a list

→ Return a map

→ Loop over each element in list

→ Add letter key to map if it doesn't exist

→ If letter key exists, increment its value

```
["a","a","a","b","c","c"]
```

```
%{"a" => 3,"b" => 1,"c" => 2}
```

reduce

```
Enum.reduce(enumerable, acc, fun)
```

```
Enum.reduce(["a", "a", "a", "b", "c", "c"], acc, fun)
```

```
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, acc, fun)
```

```
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, accumulator, fun)
```

```
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, acc, fun)
```

```
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, acc, fun)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fun)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```elixir
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{"a" => 10}, fun)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fun)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```elixir
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fn char, map ->
  # ...
  # ...
  # ...
end)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```elixir
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fn char, map ->
  Map.update(map, char, 1, fn value ->
    value + 1
  end)
end)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```elixir
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fn char, map ->
  Map.update(map, char, 1, fn value ->
    value + 1
  end)
end)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```elixir
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fn char, map ->
  Map.update(map, char, 1, fn value ->
    value + 1
  end)
end)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```elixir
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fn char, map ->
  Map.update(map, char, 1, fn value ->
    value + 1
  end)
end)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fn char, map ->
  Map.update(map, char, 1, fn value ->
    value + 1
  end)
end)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

```elixir
list = ["a", "a", "a", "b", "c", "c"]

Enum.reduce(list, %{}, fn char, map ->
  Map.update(map, char, 1, fn value ->
    value + 1
  end)
end)

#=> %{"a" => 3, "b" => 1, "c" => 2}
```

EVERY

Enum **FUNCTION IS**

reduce

```elixir
Enum.map([1, 2, 3], fn number ->
  number * 2
end)
#=> [2, 4, 6]
```

```
Enum.reduce([1, 2, 3], [], fn number, list  ->
  [number * 2 | list]
end)
#=>
```

```elixir
Enum.reduce([1, 2, 3], [], fn number, list ->
  [number * 2 | list]
end)
#=> [6, 4, 2]
```

```elixir
Enum.reduce([1, 2, 3], [], fn number, list ->
  [number * 2 | list]
end)
|> Enum.reverse()
#=> [2, 4, 6]
```

```elixir
Enum.map([1, 2, 3], fn number  ->
  number * 2
end)
#=> [2, 4, 6]

Enum.reduce([1, 2, 3], [], fn number, list  ->
  [number * 2 | list]
end)
|> Enum.reverse()
#=> [2, 4, 6]
```

SAME

```
Enum.each([1, 2, 3], fn number  ->
  IO.puts("Current number is #{number}")
end)
Current number is 1
Current number is 2
Current number is 3
#=> :ok
```

```
Enum.reduce([1, 2, 3], nil, fn number, _acc  ->
  IO.puts("Current number is #{number}")
end)
Current number is 1
Current number is 2
Current number is 3
#=> :ok
```

```elixir
Enum.reduce([1, 2, 3], nil, fn number, _acc ->
  IO.puts("Current number is #{number}")
end)
Current number is 1
Current number is 2
Current number is 3
#=> :ok
```

```elixir
Enum.reduce([1, 2, 3], nil, fn number, _acc ->
  IO.puts("Current number is #{number}")
end)
Current number is 1
Current number is 2
Current number is 3
#=> :ok
```

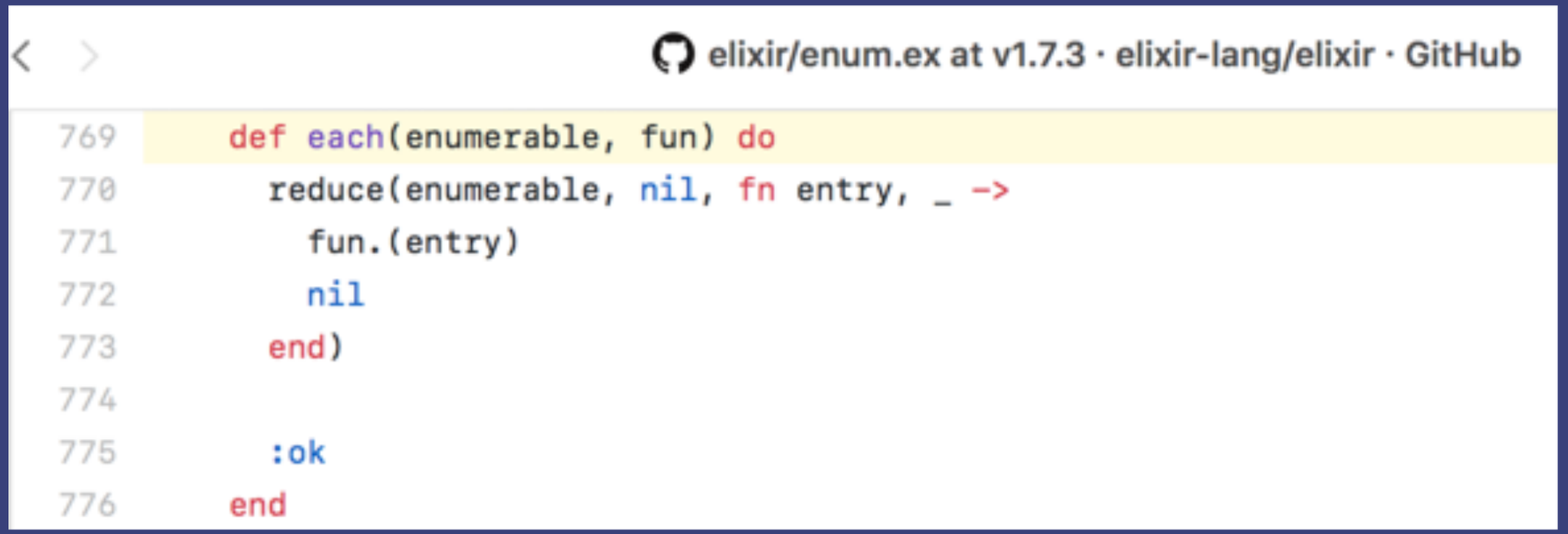
```
Enum.reduce([1, 2, 3], nil, fn number, _acc  ->
  IO.puts("Current number is #{number}")
end)
Current number is 1
Current number is 2
Current number is 3
#=> :ok
```

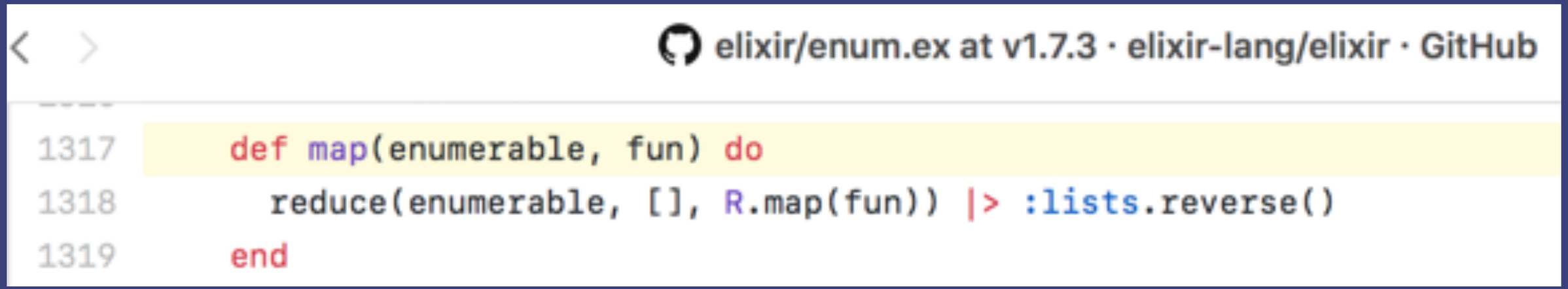
```
Enum.each([1, 2, 3], fn number  ->
  IO.puts("Current number is #{number}")
end)
Current number is 1
Current number is 2
Current number is 3
#=> :ok

Enum.reduce([1, 2, 3], nil, fn number, _acc  ->
  IO.puts("Current number is #{number}")
end)
Current number is 1
Current number is 2
Current number is 3
#=> :ok
```

SAME

ALL ARE  FOR

`reduce`


elixir/enum.ex at v1.7.3 · elixir-lang/elixir · GitHub
769 def each(enumerable, fun) do
770 reduce(enumerable, nil, fn entry, _ ->
771 fun.(entry)
772 nil
773 end)
774
775 :ok
776 end


elixir/enum.ex at v1.7.3 · elixir-lang/elixir · GitHub
1317 def map(enumerable, fun) do
1318 reduce(enumerable, [], R.map(fun)) |> :lists.reverse()
1319 end

Thanks!

@paulfioravanti