LESSON 8

app.rb

```ruby
nums.select(&:even?)
    .map { |n| n * n }
    .sum
```

Ruby

map · select · reduce

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RUBY PROGRAMMING

LESSON 8

Enumerable Power Tools

map, select, reject, reduce, sort_by, group_by, tally, each_slice and chaining

map, select and reject

map.rb

```ruby
nums = [1, 2, 3, 4, 5, 6]
nums.map { |n| n * n }        # [1, 4, 9, 16, 25, 36]
nums.select(&:even?)          # [2, 4, 6]
nums.reject(&:even?)          # [1, 3, 5]
nums.find { |n| n > 3 }       # 4
nums.any? { |n| n > 5 }       # true
```

- map transforms every element and returns a new array. select keeps the elements where the …
- These never change the original, so they are safe and easy to chain.

01

reduce, sum and minmax

reduce.rb

```ruby
[1, 2, 3, 4].reduce(0) { |acc, n| acc + n }   # 10
[1, 2, 3, 4].reduce(:*)                        # 24
scores.sum / scores.size.to_f                 # average
scores.minmax                                 # [62, 98]
scores.count { |s| s >= 90 }
```

- reduce combines all elements into one value, carrying an accumulator. sum, min, max and …
- count with a block counts matching items.

02

sort_by, min_by and max_by

sort.rb

```ruby
students.sort_by { |s| -s[:score] }            # highest first
students.sort_by { |s| [s[:city], s[:name]] }  # two keys
students.max_by { |s| s[:score] }[:name]       # "Mariam"
%w[pear fig banana].sort_by(&:length)         # ["fig", "pear", "banana"]
```

- sort_by sorts by the value the block returns. Use a negative number or reverse for …
- min_by and max_by find the element with the smallest or largest value, for example the top …

03

group_by, tally and partition

group.rb

```ruby
students.group_by { |s| s[:city] }
# {"Kabul"=>[...], "Herat"=>[...]}

%w[a b a c a].tally          # {"a"=>3, "b"=>1, "c"=>1}

pass, fail = scores.partition { |s| s >= 50 }
```

- group_by builds a hash of groups. tally counts how many times each value appears. partition …
- These replace many lines of loops in other languages.

04

Chaining It All

top_words.rb

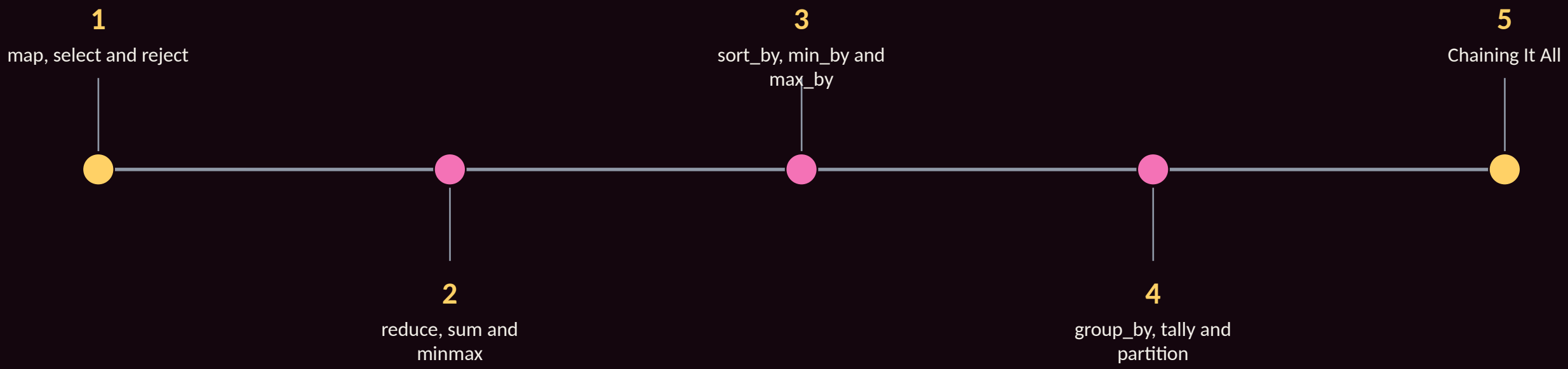
```ruby
File.read("story.txt")
    .downcase
    .scan(/[a-z']+/)
    .tally
    .sort_by { |_, n| -n }
    .first(5)
    .each { |w, n| puts "#{w.ljust(10)} #{n}" }

(1..).lazy.select(&:even?).first(3)     # [2, 4, 6]
```

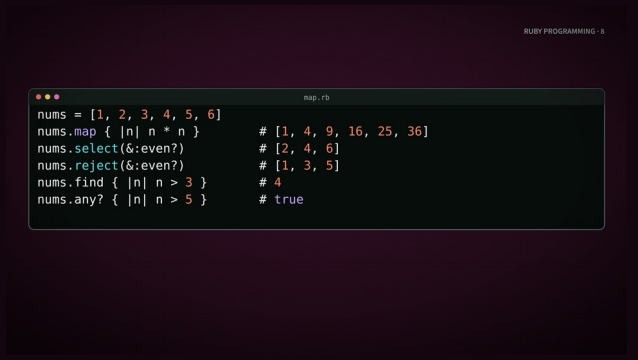
- Chain methods into a pipeline: read the words, normalize them, count, sort, and take the …
- each_slice and each_cons process items in groups, and lazy handles huge or infinite …

05

Lesson Map


1
map, select and reject
2
reduce, sum and minmax
3
sort_by, min_by and max_by
4
group_by, tally and partition
5
Chaining It All

Sources and Further Reading





Thank you for watching

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