LESSON 6

app.rb

```ruby
class Student
  attr_accessor :name
  def initialize(name)
    @name = name
  end
end
```

Ruby

Classes & Objects

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RUBY PROGRAMMING

LESSON 6

Classes and Objects

class, initialize, instance variables, attr_accessor, to_s, self and class methods

Defining a Class

student.rb

```ruby
class Student
  def initialize(name, score)
    @name = name
    @score = score
  end

  def grade
    @score >= 90 ? "A" : "B"
  end
end
s = Student.new("Mariam", 95)
s.grade        # "A"
```

- class starts a class definition. initialize is the constructor, called by new. Instance ...
- Instance variables are always private: outside code can only reach them through methods.

01

attr_accessor

student.rb

```ruby
class Student
  attr_reader :name
  attr_accessor :city

  def score=(value)
    raise ArgumentError, "0-100" unless (0..100).cover?(value)
    @score = value
  end
end
s.city = "Herat"
s.score = 120      # ArgumentError
```

- attr_reader creates getter methods, attr_writer creates setters, and attr_accessor creates ...
- Write your own setter when you need to validate a value before saving it.

02

to_s, inspect and Comparison

student.rb

```ruby
class Student
  include Comparable
  def to_s = "#{@name} (#{@score})"
  def <=>(other) = score <=> other.score
end

puts s                    # Mariam (95)
a > b                     # compares scores
students.sort; students.max
```

- Define to_s to control how puts shows your object, and inspect for how p shows it.
- Define the spaceship operator, less-equal-greater, and include Comparable to get less than, ...

03

self and Class Methods

account.rb

```ruby
class Account
  @count = 0
  class << self
    attr_accessor :count
  end

  def self.open(owner)
    self.count += 1
    new(owner)
  end
end
Account.open("Zahra"); Account.count   # 1
```

- self is the current object. Inside a class body, def self dot name defines a class method, …
- Class variables with two at signs are shared by all instances, but a class-level instance …

04

Struct and Data

point.rb

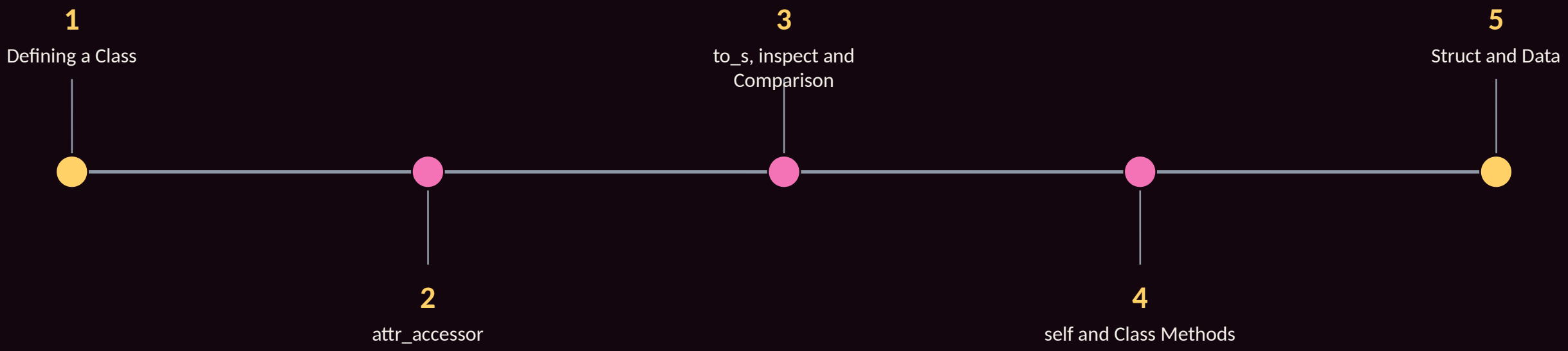
```ruby
Point = Struct.new(:x, :y)
p1 = Point.new(3, 4)
p1.x = 5                  # mutable

Coord = Data.define(:lat, :lng)
kabul = Coord.new(lat: 34.53, lng: 69.17)
kabul.lat                 # 34.53
kabul == Coord.new(lat: 34.53, lng: 69.17)   # true
```

- For simple value objects, Struct dot new builds a class with accessors in one line. Ruby …
- They give you equality, to_s and keyword constructors for free.

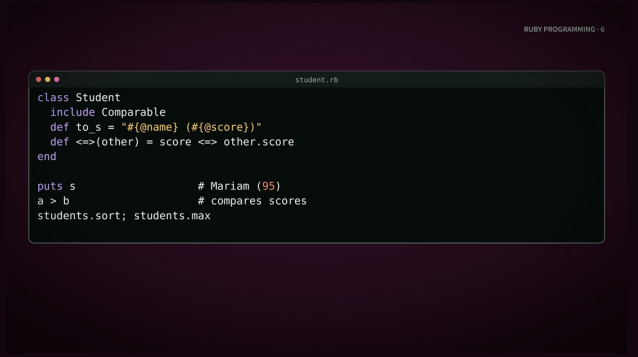
05

Lesson Map


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Defining a Class
2
attr_accessor
3
to_s, inspect and Comparison
4
self and Class Methods
5
Struct and Data

Sources and Further Reading





Thank you for watching

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