

# The Ruby Masterclass

## Contents:

### **SECTION 1: Getting Started**

1. Introduction to Ruby.
  - About Dynamically Typed Nature.
  - About Interpreted Nature.
  - Pure Object Oriented Nature.
  - Comparison with C.
  - A bit about Ruby vs. Perl vs. Python vs. C++ and their similarities.
  - Philosophy.
  - introducing ruby-lang.org.
2. Installation of the latest version of Ruby on GNU/Linux, Windows and Android:
  - Arch / Arch Based systems, Fedora / CentOS / OpenSUSE systems, Debian / Debian based systems.
  - Installation of Ruby on Windows based systems – with Devkit.
  - Running Ruby on Android with Termux.

### **SECTION 2: Introduction to Standard Output and Interactive Ruby (REPL)**

1. Printing A simple 'Hello World' to the standard output with ``puts`` method.
2. Introducing the ``p`` method.
3. Introducing the ``print`` and ``printf`` and ``sprintf`` method in short.
4. Introduction to basic loops: times and while loop.

### **SECTION 3: Intro to Open Source Atom Editor**

1. Customizing the editor.
2. Installing atom runner.
3. Using Atom runner and atom for convenience.

### **SECTION 4: Familiarize Yourself with Ruby**

1. Intro to numbers
2. Intro to `=` and `||=` assignment operators.
3. Intro to variables:
  - local variables
  - global variables.
4. Intro to constants.
5. Intro to object methods.
6. Intro to the ``methods`` method.
7. Intro to the ``class`` method.
8. Intro to single line comments.
9. Intro to multi-line comments.
10. Intro to String objects.
11. Intro to the `gets` method.
12. Intro to method chaining.
13. Intro to syntactical sugars / syntactic shorthand.

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### **SECTION 5: Basic Arithmetic I**

1. Intro to Integer class and Float class.
2. +, -, \*, /, % and other methods of Integer class.
3. `next` / `succ` methods.
4. `odd?`, `even?` methods.
5. Integer / Float to String, String to Integer / Float conversion.
6. More methods on Float class: truncate, to\_i, round, next\_float, ceil, floor, zero? and more.
7. The nil? method on objects.
8. The object\_id methods on objects.
9. The is\_a? method.
10. The Spaceship operator (<=>).
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### **SECTION 6: Booleans**

[We will be using String and Integer / Float class for demonstration.]

1. Equality Operator (==)
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3. Greater Than Operator (>)
4. Lesser Than Operator (<)
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6. Lesser Than Equal (<=)
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8. Intro to the TrueClass, FalseClass and NilClass.
9. The respond\_to? Method.
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### **SECTION 7: Strings I**

1. Creating strings: ' ', "", %q(), %Q() practices.
2. Escape Characters.
3. Using the ==, ===, casecmp, eql? And equal? Methods
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5. Using the upcase, downcase, capitalize and swapcase and complementary bang methods.
6. The reverse method on a string object.
7. String concatenation:
  - + and += Operators.
  - concat method.
  - Shovel operator (<<).
  - Efficient practices.
8. Using the String interpolation Operator.
9. The empty? Method on a string object.
10. Extract character(s) from string using Bracket Syntax [].
11. The slice method with various arguments.
12. Introduction to bang methods on string.

13. Intro to chomp, chop, strip, lstrip, rstrip methods.
14. Intro to index, rindex methods.
15. Intro to squeeze, squeeze! methods.
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## **SECTION 8: Methods I**

1. Introduction to the def keyword.
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4. Parameters and Arguments.
5. Default Return Values.
6. More on Returning Booleans.

## **SECTION 9: Conditions**

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2. Intro to inline modifiers.
3. Reviewing truthiness and falsiness.
4. Intro to if, elsif, and nested if conditions.
5. The unless keyword.
6. The &&, &, and Operators.
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12. The case subsumption operator (===).
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## **SECTION 12: Range Objects**

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### **SECTION 14: Accessing Ruby Interpreters Online.**

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6. Accessing Array Items with Bracket Syntax.
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#### **SECTION 16: Array II**

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5. The flat\_map method.
6. The clear method.
7. The permutation and combination methods.
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### **SECTION 18: Symbol**

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4. The store method.
5. The merge and merge! methods.
6. The clear method.
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9. The each method for iteration.
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3. Reading Linux's /dev/urandom for a custom random generator.
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8. Loading gems into Ruby:
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  - The require method.
  - The Kernel#require method.
9. Introduction to the standard library.
10. Using the prime gem from the standard library.

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13. Intro to [www.rubygems.org](http://www.rubygems.org)

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4. Replicating the `clear` command with ANSI Escape Sequence!
5. Looking at STDIN, STDOUT, STDERR classes.
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5. Using loops to create thousands of Ruby2D objects and animating them in lesser than 15 lines of code.
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##### **[Demonstration Only]**

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