Intro To Ruby

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AGENDA

Prog Paradigms

Feature Comparison

Code Demo

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Programming Paradigms

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What is a Programming Paradigm

- Programming paradigms are a way of organizing and describing languages based upon philosophical or ideological design decisions
- At the highest level, all programming languages fall into one of two umbrella categories
  a. Imperative
  b. Declarative
- In Imperative programming, our focus is in telling the computer “how” to do some work
- In Declarative programming, our focus is in telling the computer “what” a solution to a problem is, and allowing the computer to create potential solutions

Imperative Programming

- Includes
  1. Procedural languages
  2. Object Oriented languages
- i.e.
  1. Java
  2. Ruby
  3. Python
  4. C++
  5. C#
  6. Rust

Declarative Programming

- Includes
  a. Functional
  b. Logical
- i.e.
  a. Lisp
  b. Haskell
  c. CSS
  d. SQL
  e. Prolog

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Type Safety

- Type safety is the extent to which type errors are discouraged or prevented by the language
- Very few languages are strict about type safe
  a. Strict type safety fails at the edges (libraries written in other languages for example)
  b. Strict type safety is onerous for developers
- Type safety is largely a trade off between developer ease of use and correctness guarantees
- High level languages favour developer ease of use, and are thus more weakly typed
- Most low level languages are more strongly typed
- Most object oriented languages are somewhat strongly typed

Type Checking

- The process of verifying that the **types** of values stored in variables are consistent
- Type checking systems are one of the useful ways that we organize languages
    a. Static Type Checking
        - Compile time type checking
    b. Dynamic Type Checking
        - Run Time type checking
- As with Paradigms, some languages use a hybrid approach, statically type checking things that are easy to validate, while letting the remainder by dynamically checked

Some languages we know

- JavaScript is non type checked weakly typed language
- SQL is a statically type checked strongly typed language
- CSS is a statically typed checked strongly typed language
- Ruby is a dynamically type checked strongly typed language

Some languages we know

- JavaScript is non type checked weakly typed language
- Ruby is a dynamically type checked strongly typed language

- JavaScript makes no effort to protect you from type errors, and generally we rarely think about types in JavaScript at all
- While Ruby looks like a lot like JavaScript, it actually cares about types, and will make an effort to show you type mistakes at compile time
  - Ruby variables are strongly typed, but can change types throughout your program
  - Little type checking is done statically in ruby

Code Demo

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Questions?

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