

Julia for Beginners

1 Introduction and Setting Up Your Julia Environment

- Programming and Its Impacts
- Why Julia?
- Rationale Behind Learning Julia
- What Does This Book Aim to Cover?
- Setting Up to Work with Julia

2 Variables and Input

- What Are Variables?
- Using Simple Variables in Julia to Store Information
- Taking, Storing, and Using Input from a User
- Operators and Syntax
- Types of Variables
- Converting Between Variables

3 Conditions and Iterations

- What Is a Condition?
- What Are Conditional Operators?
- How Computers Make Decisions Using *if/elseif/else* Statements
 - Practice 1
- What Are Iterations?
- How to Iterate Using *for* Loops
 - Exercise
- How to Iterate Using *while* Loops

4 Arrays and Dictionaries

- What Are Arrays and Why Are They Required?
- How to Create, Go Through, and Modify Arrays
- Some Operations on Arrays
- What Are Dictionaries and What Are Their Advantages Over Arrays?
- Creating and Using Dictionaries
- Building the Lending App Using Dictionaries
- Some Useful Functions Available in Julia
 - `split()` Function
 - `join()` Function
 - `collect()` Function

5 Functions

- Functions and How to Use Them
- Functions Help in Reducing Errors and Easy Maintenance of Code
- Declaring and Calling Functions
- Functions That Return Values
- Functions with Optional Keyword Arguments
- Applying Functions on Arrays
- Generic Functions
- Using Functions Recursively

6 Handling Errors and Exceptions

- Bugs and Debugging
- What Are Errors?
- What Are Exceptions?
- Tricks to Find and Eradicate Bugs

7 Package Management

- What Are REST APIs?
- How to Install and Use Packages
- Multiprocessing and How It's Used in Julia
- Calling Code from Other Languages

8 Reading and Writing Files

- Why Are Files Useful?
- How Do You Read a File in Julia?
- How Do You Write to Files in Julia?
- Creating a Caesar Cipher in Julia

9 How Machines Learn

- What Is Machine Learning?
- How Does Machine Learning Work?
- Style Transfer Using Flux
- A Primer on the Calculus Behind Machine Learning
- Using Flux's Automatic Differentiation to Train a Simple Perceptron