

Lecture III - Packages and Data Management

Applied Optimization with Julia

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Quick Recap from last Week

Variables and Data Types

- Variables are used to store values
- Assign a value to a variable using the `=` operator
- You can use **different data types** for variables
- You can change the value of a variable

Vectors and Matrices

- Vectors and matrices are used to store multiple values
- You can create a them using the `[` and `]` operators
- Access their elements using square brackets

Comparisons and Logic

- Comparisons are **used to compare values**
- **==** checks if two values are equal
- **!=** checks if two values are not equal
- **<** checks if one value is smaller than the other
- **>=** checks if one value is greater than or equal to the other
- **&&** checks if two values are true
- **||** checks if at least one of two values is true

Loops

- Loops are used to repeat code
- `for` loop repeats code for a fixed number of times
- `while` loop repeats code until a condition is met
- `if` statement checks if a condition is true
- `else` executes code if a condition is false
- `elseif` checks if a condition is true and executes if it is

Scope

- Scope determines where a variable is defined and lives
- `global` keyword defines a global variable
- `local` keyword defines a local variable
- `let` keyword defines a local variable

Solutions from last Week

- The tutorials from last week will be **available on Friday**
- You can access them in the project folder on Github
- Click on the little cat icon on the bottom right

Five Tutorials for this Week

Topics of the Tutorials

- **Functions:** Learn how to define and use functions
- **Packages:** Learn how to install and use packages
- **DataFrames:** Learn how to work with tabular data in Julia
- **IO:** Learn how to read and write data in Julia
- **Plots:** Learn how to create plots in Julia

Get started with the tutorials

- Download this weeks tutorials and start with the first one
- **Remember, you can ask questions anytime!**

Literature

Literature

- Lauwens, B., & Downey, A. B. (2019). Think Julia: How to think like a computer scientist (First edition). O'Reilly®. [Link to the free book website.](#)
- [Julia Documentation](#)

For more interesting literature to learn more about Julia, take a look at the [literature list](#) of this course.