

R PROGRAMMING FOR DATA SCIENCE

PLATFORM:

Completed my virtual Course of “R for Data Science” through Great Learning under the site <https://olympus.mygreatlearning.com/courses/64181>.



COURSE OVERVIEW DESCRIPTION:

The agenda of the course has included the below topics:

1. Installing R (1m)
2. Basics of R (13m)
3. Data Structures -1(16m)
4. Data Structures -2 (8m)
5. In-built functions (6m)
6. Flow control statements (10m)
7. User defined Functions (1m)
8. Factor and Dataframe in R (4m)
9. Data Manipulation in R (14m)
10. Data Visualisation in R (19m)

1. Installing R

This is the first step in your R journey. You'll need to download and install R from the official CRAN (Comprehensive R Archive Network) website. Once installed, you can use R through its base console or with a user-friendly interface like RStudio.

2. Basics of R

This covers the foundational elements of R programming. The course explained about:

- **Data Types:** These define the kind of data a variable can hold. Common data types in R include:
 - ❖ **Numeric:** Represents numbers, such as integers (whole numbers) and floating-point numbers (numbers with decimals).
 - ❖ **Character:** Represents text or a sequence of characters.

- ❖ **Logical:** Represents Boolean values, either TRUE or FALSE.
- ❖ **Complex:** Represents complex numbers.
- **Operators:** These are symbols that perform specific operations on data.
 - ❖ **Assignment:** Assigns values to variables (e.g., `<-` or `=`).
 - ❖ **Arithmetic:** Perform mathematical calculations (e.g., `+`, `-`, `*`, `/`, `^`).
 - ❖ **Relational:** Compare values and return a Boolean result (e.g., `>`, `<`, `==`, `!=`).
 - ❖ **Logical:** Combine Boolean values (e.g., `&`, `|`, `!`).

3. Data Structures – 1

Data structures are essential for organizing and storing data efficiently. Here are a few key data structures in R:

- **Vector:** A one-dimensional array that can hold elements of the same data type. It's a homogenous data structure.
- **List:** A versatile, one-dimensional data structure that can hold elements of different data types. It's a heterogeneous data structure.
- **Matrix:** A two-dimensional array with rows and columns, typically used for storing and manipulating tabular data. It's a homogenous data structure.

4. Data Structures - 2

This section likely delves into more advanced data structures like:

- **Data Frames:** Two-dimensional data structures similar to matrices, but they can hold columns of different data types.
- **Factors:** Categorical variables that are often used to represent groups or levels.
- **Arrays:** Multi-dimensional arrays that can store data of the same data type.

5. In-built Functions

R has a vast library of built-in functions that perform various tasks, such as:

- **Mathematical functions:** `sqrt()`, `log()`, `sin()`, `cos()`
- **Statistical functions:** `mean()`, `median()`, `sd()`, `var()`
- **String manipulation functions:** `paste()`, `substr()`, `toupper()`, `tolower()`
- **Vectorized functions:** Functions that can operate on entire vectors or matrices efficiently.

6. Flow Control Statements

These statements control the order in which code is executed:

- **Conditional statements:** `if`, `else if`, `else` - execute code based on conditions.
- **Loops:** `for`, `while` - repeat a block of code multiple times.

7. User-defined Functions

You can create your own functions to perform specific tasks repeatedly. This helps in code reusability and modularity.

8. Factor and Dataframe in R

This section likely delves deeper into factors and data frames, including:

- Creating and manipulating factors.
- Working with data frames: subsetting, sorting, merging, and reshaping.

9. Data Manipulation in R

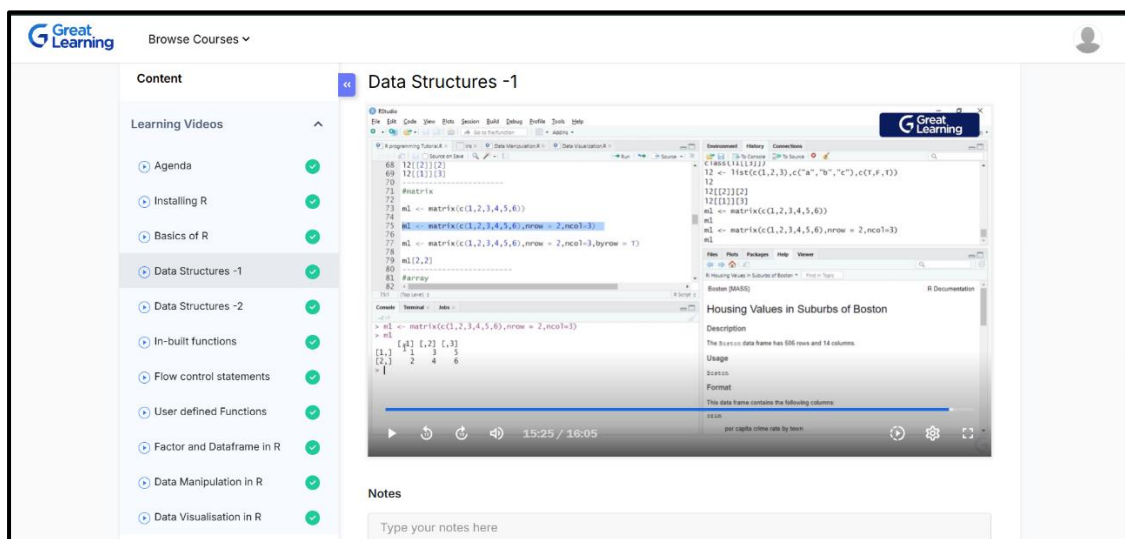
This is a crucial aspect of data analysis in R. You'll learn about techniques for:

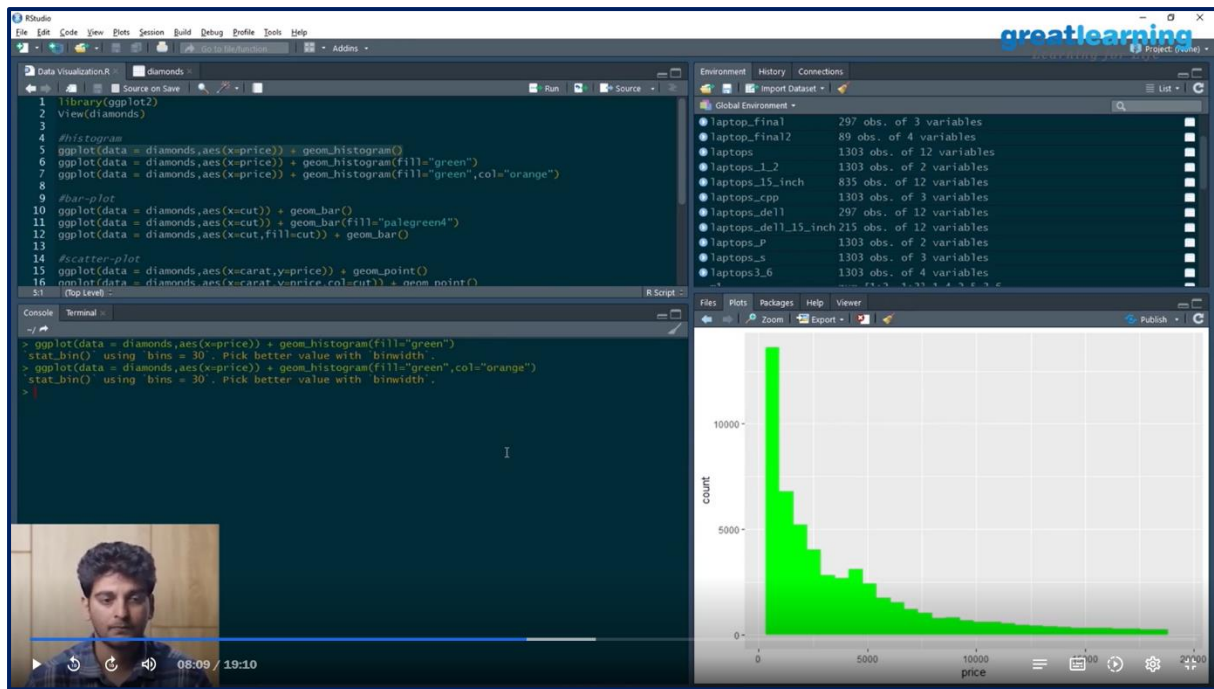
- **Data cleaning:** Handling missing values, removing duplicates, and correcting errors.
- **Data transformation:** Creating new variables, aggregating data, and reshaping datasets.

10. Data Visualization in R

R provides powerful tools for creating informative and visually appealing plots. You'll learn about libraries like `ggplot2` and how to:

- **Create various plot types:** scatter plots, histograms, bar charts, line graphs, and more.
- **Customize plots:** Add titles, labels, colors, and legends.





QUIZ:

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Scoring Policy : Highest Score

Your Marks : 5/5 Passed Passing Score : 3/5

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Attempt History

Attempt #1	Marks: 5
Jan 12, 3:28 PM	

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Attempt History

Attempt #1
Jan 12, 3:28 PMMarks: 5

Q No: 1Correct AnswerMarks: 1/1

Which of the following is not a part of Data structures

○ Vectors

○ Data WiringYou Selected

○ List

○ Matrix

Q No: 2Correct AnswerMarks: 1/1

Which window is used to execute code in Rstudio

○ Script Window

○ Console WindowYou Selected

○ History terminal

○ None of these

Q No: 3Correct AnswerMarks: 1/1

What are variables?

○ Temporary storage SpaceYou Selected

○ Permanent storage space

○ both of the options

○ None of the options

Q No: 4Correct AnswerMarks: 1/1

Which of the following is not an operator in R

○ Assignment operator

○ Custom operatorYou Selected

○ Relational operator

○ Logical operator

Q No: 5Correct AnswerMarks: 1/1

How would you glance a particular data frame

○ view()You Selected

○ paste()

○ copy()

○ None of the options

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