

# Python

## Core



matplotlib



mongoDB



git



GitHub

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# **The Roadmap is divided into 30 Sections**

- 1. Introduction and Basics of Python**
- 2. Operators**
- 3. Conditional Statements**
- 4. While Loops**
- 5. Lists**
- 6. Strings**
- 7. For Loop**
- 8. Functions**
- 9. Dictionary**
- 10. Tuples**
- 11. Set**
- 12. Object-Oriented Programming**
- 13. File Handling**
- 14. Exception Handling**
- 15. Regular Expression**
- 16. Modules and Packages**
- 17. Data Structures**
- 18. Higher-Order Functions**
- 19. Python Web Scrapping**
- 20. Virtual Environment**
- 21. Web Application Project**
- 22. Git and GitHub**
- 23. Deployment**
- 24. Python Package Manager**
- 25. Python with MongoDB Database**
- 26. Building API**
- 27. Statistics with NumPy**
- 28. Data Analysis with Pandas**
- 29. Data Visualization with Matplotlib**
- 30. What to do Now?**

## **1 | Introduction and Basics**

1. Installation
2. Python Org, Python 3
3. Variables
4. Print function
5. Input from user
6. Data Types
7. Type Conversion
8. First Program

## **2 | Operators**

1. Arithmetic Operators
2. Relational Operators
3. Bitwise Operators
4. Logical Operators
5. Assignment Operators
6. Compound Operators
7. Membership Operators
8. Identity Operators

## **3 | Conditional Statements**

1. If Else
2. If
3. Else
4. El If (else if)
5. If Else Ternary Expression

## 4 | While Loop

1. While loop logic building
2. Series based Questions
3. Break
4. Continue
5. Nested While Loops
6. Pattern-Based Questions
7. pass
8. Loop else

## 5 | Lists

1. List Basics
2. List Operations
3. List Comprehensions / Slicing
4. List Methods

## 6 | Strings

1. String Basics
2. String Literals
1. String Operations
2. String Comprehensions / Slicing
3. String Methods

## **7 | For Loops**

1. Range function
2. For loop
3. Nested For Loops
4. Pattern-Based Questions
5. Break
6. Continue
7. Pass
8. Loop else

## **8 | Functions**

1. Definition
2. Call
3. Function Arguments
4. Default Arguments
5. Docstrings
6. Scope
7. Special functions Lambda, Map, and Filter
8. Recursion
9. Functional Programming and Reference Functions

## 9 | Dictionary

1. Dictionaries Basics
2. Operations
3. Comprehensions
4. Dictionaries Methods

## 10 | Tuple

1. Tuples Basics
2. Tuples Comprehensions / Slicing
3. Tuple Functions
4. Tuple Methods

## 11 | Set

1. Sets Basics
2. Sets Operations
3. Union
4. Intersection
5. Difference and Symmetric Difference

## **12 | Object-Oriented Programming**

1. Classes
2. Objects
3. Method Calls
4. Inheritance and Its Types
5. Overloading
6. Overriding
7. Data Hiding
8. Operator Overloading

## **13 | File Handling**

1. File Basics
2. Opening Files
3. Reading Files
4. Writing Files
5. Editing Files
6. Working with different extensions of file
7. With Statements

## **14 | Exception Handling**

1. Common Exceptions
2. Exception Handling
  - a. Try
  - b. Except
  - c. Try except else
  - d. Finally
  - e. Raising exceptions
  - f. Assertion

## **15 | Regular Expression**

1. Basic RE functions
2. Patterns
3. Meta Characters
4. Character Classes

## **16 | Modules & Packages**

1. Different types of modules
2. Inbuilt modules
  - a. OS
  - b. Sys
  - c. Statistics
  - d. Math
  - e. String
  - f. Random



3. Create your own module
4. Building Packages
5. Build your own python module and deploy it on pip

## **17 | Data Structures**

1. Stack
2. Queue
3. Linked Lists
4. Sorting
5. Searching
  - a. Linear Search
  - b. Binary Search

## **18 | Higher-Order Functions**

1. Function as a parameter
2. Function as a return value
3. Closures
4. Decorators
5. Map, Filter, Reduce Functions

## **19 | Python Web Scrapping**

1. Understanding BeautifulSoup
2. Extracting Data from websites
3. Extracting Tables
4. Data in JSON format

## **20 | Virtual Environment**

1. Virtual Environment Setup

## **21 | Web Application Project**

1. Flask
2. Project Structure
3. Routes
4. Templates
5. Navigations

## **22 | Git and GitHub**

1. Git - Version Control System
2. GitHub Profile building
3. Manage your work on GitHub

## **23 | Deployment**

1. Heroku Deployment
2. Flask Integration

## **24 | Python Package Manager**

1. What is PIP?
2. Installation
3. PIP Freeze
4. Creating Your Own Package
5. Upload it on PIP

## **25 | Python with MongoDB Database**

1. SQL and NoSQL
2. Connecting to MongoDB URI
3. Flask application and MongoDB integration
4. CRUD Operations
5. Find
6. Delete
7. Drop

## **26 | Building API**

1. API (Application Programming Interface)
2. Building API
3. Structure of an API
4. PUT
5. POST
6. DELETE
7. Using Postman

## **27 | Statistics with NumPy**

1. Statistics
2. NumPy basics
3. Working with Matrix
4. Linear Algebra operations
5. Descriptive Statistics

## **28 | Data Analysis with Pandas**

1. Data Analysis basics
2. Dataframe operations
3. Working with 2-dimensional data
4. Data Cleaning
5. Data Grouping

## **29 | Data Visualization with Matplotlib**

1. Matplotlib Basics
2. Working with plots
3. Plot
4. Pie Chart
5. Histogram

## **30 | What to do Now?**

Discussions on how to process further with this knowledge.

**Join the Python 2022  
WhatsApp Group here:**

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