

Python

Core



mongoDB

matplotlib



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.

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