

# Python Developer Roadmap (2025)

## 1. Basics of Python

- Installation & Setup
- Syntax & Indentation
- Variables & Data Types
- Operators, I/O, Loops, Functions
- Error Handling, List Comprehensions

## 2. Core Python Concepts

- Strings, Lists, Tuples, Sets, Dictionaries
- File Handling, Modules, Packages
- Virtual Environments, OOP

## 3. Intermediate Topics

- Iterators, Generators, Decorators
- Context Managers, Regex
- Lambda, map(), filter(), reduce()
- Type Hinting

## 4. Version Control

- Git Basics, Branching, GitHub

## 5. Development Tools

- VSCode, PyCharm
- Linters, Formatters, Debugging

## 6. Web Development (Optional)

- Flask, Django, FastAPI
- REST APIs, Authentication
- Databases & ORMs

## 7. Data Science & AI (Optional)

- NumPy, Pandas, Matplotlib
- Scikit-learn, TensorFlow, PyTorch

## 8. Automation & Scripting

- OS, Web Scraping, APIs

## 9. Testing & Deployment

- Unit Testing, Docker, CI/CD
- Cloud Services Basics

## 10. Advanced Topics (Optional)

- Async IO, Concurrency, Design Patterns
- Security Best Practices

## 11. Practice & Projects

- Build Real Projects, Open Source Contributions