

# ■ Important Python Topics for DevOps

Python is one of the most important languages for DevOps engineers. It is widely used for automation, scripting, configuration management, monitoring, and integrating various tools. Below are the essential Python topics you should learn for DevOps.

- 1. Basics of Python - Syntax, variables, data types - Input/output, type casting, operators
- 2. Control Structures - if/else statements - for and while loops - break, continue, pass
- 3. Functions - Defining and calling functions - Arguments, \*args, \*\*kwargs - Lambda functions
- 4. Data Structures - Lists, tuples, sets, dictionaries - List comprehensions - Iterators & generators
- 5. Modules and Packages - Importing modules - Creating your own modules - Virtual environments
- 6. File Handling - Reading/writing files - Working with JSON, YAML, CSV - Log file parsing
- 7. Exception Handling - try, except, finally - Custom exceptions
- 8. Object-Oriented Programming (OOP) - Classes, objects, inheritance - Encapsulation, polymorphism
- 9. Python for Automation - OS module, subprocess - Working with environment variables - Automating system tasks
- 10. Networking with Python - Working with sockets - Requests module for APIs - Paramiko for SSH automation
- 11. Working with Databases - SQLite, PostgreSQL, MySQL connectors - CRUD operations - ORMs like SQLAlchemy
- 12. Python for Cloud & DevOps Tools - Boto3 for AWS - Azure & GCP SDKs - Terraform/Pulumi automation
- 13. CI/CD with Python - Writing Python scripts for Jenkins, GitLab CI, GitHub Actions - Automating build & deploy pipelines
- 14. Infrastructure as Code (IaC) - Ansible modules in Python - Writing custom Ansible modules - Integrating with Kubernetes (Python client)
- 15. Monitoring & Logging - Using Python with Prometheus/Grafana - Log parsing & alerting - Writing health-check scripts
- 16. Testing in Python - Unit testing with unittest & pytest - Mocking & test automation
- 17. Best Practices - Code style (PEP8) - Virtual environments & requirements.txt - Error handling & logging