

Python Curriculum for FAANG Tech (100-Day Intensive Program)

1. Python Foundations

- Python installation and setup
 - Variables, data types, and type conversion
 - Input/output operations
 - String operations and methods
 - Lists, tuples, sets, and dictionaries
 - Conditional statements and loops
 - Functions, arguments, and return values
 - Recursion and lambda functions
 - Error handling with try/except
 - File handling (text and CSV files)
 - Introduction to modules and packages
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2. Problem Solving & DSA using Python

- Pattern printing and basic math problems
- Recursion and divide & conquer techniques
- Arrays and strings – traversal, search, manipulation
- Sorting algorithms: bubble, selection, merge, quick sort
- Searching algorithms: linear and binary search
- Hashing techniques using sets and dictionaries
- Two-pointer techniques and sliding window problems
- Prefix sum and frequency maps
- Daily problem-solving sessions using coding platforms

3. Object-Oriented Programming & Intermediate Python

- Introduction to classes and objects
- Inheritance, encapsulation, and polymorphism
- Special (dunder) methods
- Structuring projects using OOP concepts
- Decorators and generators
- List, set, and dictionary comprehensions
- Regular expressions and JSON handling
- Working with external APIs using requests
- Project: Personal Finance Tracker with OOP

4. Capstone & Interview Preparation

- Version control using Git and GitHub
- Resume preparation and portfolio building
- Writing and running tests using unittest and pytest
- Introduction to deployment platforms (Heroku basics)
- Coding challenges and mock interviews
- Final capstone project with presentation
- Certification and program closure