30-Day Python Learning Roadmap

Day 1: Python Basics

Install Python, set up IDE (VS Code or PyCharm). Learn print, variables, input, basic data types.

Day 2: Operators & Expressions

Arithmetic, comparison, logical, assignment, and bitwise operators.

Day 3: Control Flow

if-else, elif, nested conditions.

Day 4: Loops

for loops, while loops, break, continue, nested loops.

Day 5: Functions

Define functions, parameters, return values, recursion.

Day 6: Lists

Create, modify, slice, loop through lists.

Day 7: Tuples and Sets

Understand immutability, uniqueness, and use cases.

Day 8: Dictionaries

Key-value pairs, nesting, looping through dicts.

Day 9: String Handling

String methods, formatting, slicing, f-strings.

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Day 10: Project: Simple Calculator

Make a command-line calculator using functions and loops.

Day 11: File I/O

Read/write text files, working with CSV, JSON.

Day 12: Exception Handling

Try-except, finally, raising custom errors.

Day 13: List Comprehensions

One-liners for loops, conditionals in list generation.

Day 14: Modules and Packages

Import standard and custom modules, pip basics.

Day 15: Project: Quiz App

Command-line multiple-choice quiz with scoring system.

Day 16: Object-Oriented Programming I

Classes, objects, __init__, instance variables.

Day 17: OOP II

Inheritance, polymorphism, classmethods, staticmethods.

Day 18: OOP III

Encapsulation, dunder methods, custom classes.

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Day 19: Virtual Environments

venv, pipenv, managing dependencies.

Day 20: Unit Testing

unittest module, writing test cases, test-driven development.

Day 21: Decorators & Generators

Understanding @decorators, yield, generator expressions.

Day 22: Lambda & Functional Tools

lambda, map, filter, reduce.

Day 23: Working with APIs

HTTP requests using requests, parsing JSON.

Day 24: Project: Weather App (API)

Build a CLI app that fetches and displays weather using an API.

Day 25: Intro to Databases

SQLite with sqlite3, CRUD operations.

Day 26: Python with Pandas

DataFrames, reading/writing CSV, basic analysis.

Day 27: Project: Data Analyzer

Build a small CLI data viewer using Pandas and CSV files.

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Day 28: Basic Web Dev with Flask

Create a simple Flask web app with routes, templates, and forms.

Day 29: Python for Automation

Automate tasks using os, shutil, schedule, and datetime.

Day 30: Final Project

Build a personal portfolio or task manager using Flask and all concepts learned.