Python Programming Course Curriculum
Duration: 2 Months (~50 Hours) | Format: Online | Level: Beginner to Advanced

Module 1: Python Fundamentals (Week 1-2)
Basics: Syntax, Variables, Data Types (int, str, list, dict, tuple, set)
Operators & Control Flow: if-else, loops (for, while), break/continue
Functions: Parameters, *args, **kwargs, Lambda, Scope
File Handling: Read/Write files (txt, csv, json)
Mini-Project: Based on the learning outcomes

Module 2: Object-Oriented Programming (Week 3)
OOP Concepts: Classes, Objects, Inheritance, Polymorphism
Magic Methods: __init__, __str__, __len__
Error Handling: try-except, Custom Exceptions
Project: Based on the learning outcomes

Module 3: Data Structures & Algorithms (Week 4)
Advanced Data Structures: Stacks, Queues, Linked Lists (Optional)
Sorting & Searching: Bubble Sort, Binary Search
Algorithmic Thinking: Time Complexity (O(n))
Project: Based on the learning outcomes

Module 4: Databases & SQL (Week 5)
SQL Basics: SELECT, INSERT, UPDATE, DELETE
Python + SQLite: sqlite3 module
Project: Based on the learning outcomes

Module 5: Web Scraping & APIs (Week 6)
BeautifulSoup/Scrapy: Extract data from websites
REST APIs: requests library, JSON parsing
Project: Based on the learning outcomes

Module 6: Data Visualization (Week 7)
Matplotlib/Seaborn: Line plots, Bar charts, Histograms
Project: Based on the learning outcomes

Module 7: Networking & Automation (Week 8)
Sockets: Basic client-server communication
Automation: os, shutil, schedule modules
Final Project: Based on the learning outcomes

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