Code Yatra: Python Roadmap (Beginner to Pro)

Phase 1: Beginner – Python Foundations

■	Topic
■	Installing Python & IDE (VS Code, PyCharm)
■	Python Syntax & First Program
■	Variables & Data Types
■	Strings and String Methods
■	Numbers (int, float, complex)
■	Booleans & None
■	Input and Output
■	Type Casting
■	Comments & Code Readability

Phase 2: Core Programming Concepts

■	Topic
■	Conditional Statements (if, elif, else)
■	Loops (for, while)
■	Loop Control (break, continue, pass)
■	Functions (def, return)
■	Function Arguments & Keyword Args
■	Recursion
■	Lambda Functions
■	*args and **kwargs

Phase 3: Data Structures & OOP

■	Topic
■	Lists & List Comprehensions
■	Tuples
■	Sets
■	Dictionaries
■	Nested Data Structures
■	OOP Intro (Classes and Objects)
■	__init__, self, Class Attributes
■	Inheritance

■	Encapsulation & Abstraction
■	Polymorphism
■	@classmethod, @staticmethod, @property

Phase 4: Advanced Python

■	Topic
■	Modules and Packages
■	File Handling (open, with, read/write)
■	Error Handling (try, except, finally)
■	List, Set, Dict Comprehensions
■	Iterators and Generators
■	Decorators
■	Context Managers
■	Regular Expressions
■	Date and Time (datetime)
■	Virtual Environments
■	Type Hinting & Static Typing
■	Logging
■	Unit Testing (unittest, pytest)

Phase 5: Pro-Level Topics & Projects

■	Topic
■	Working with APIs (requests, httpx)
■	Web Scraping (BeautifulSoup, Scrapy)
■	Multithreading vs Multiprocessing
■	Asynchronous Programming (async/await)
■	Data Analysis with pandas
■	Plotting with matplotlib / seaborn
■	Web Development with Flask / Django
■	CLI Tools with argparse / click
■	Python Packaging (setup.py, PyPI)
■	Build a Python Project (Todo App, Blog, API)
■	Create a Portfolio for Jobs/Freelancing
■	Contribute to Open Source