Python Learning TODO List (From Basics to Advanced)

■ Basic Python

■ Understanding Python syntax and indentation
■ Variables and Data Types
■ Strings and String Operations
■ Lists, Tuples, Sets, and Dictionaries
■ Conditional Statements (if, elif, else)
■ Loops (for, while)
■ Functions and Return Statements
■ Modules and Importing
■ File Handling (open, read, write)
■ Exception Handling (try, except)
■ List Comprehensions
■ Working with Dates and Time
■ Command Line Arguments
■ Working with JSON files

■ Intermediate Python

■ Lambda Functions and Map/Filter/Reduce
■ Decorators and Generators
■ OOP Concepts (Classes, Objects, Inheritance, Polymorphism)
■ Regular Expressions (re module)
■ Working with CSV files
■ Virtual Environments (venv)
■ Python Packages and pip
■ Logging and Debugging
■ Error and Exception Customization
■ Reading and Writing Excel files

■ Data Libraries

■ NumPy Basics (Arrays, Operations, Indexing)
■ NumPy Broadcasting and Vectorization
■ Pandas Basics (Series and DataFrames)
■ Importing CSV/Excel/JSON data
■ Data Cleaning (Missing Values, Duplicates)
■ GroupBy, Merge, and Joins in Pandas
■ Pivot Tables and Aggregations
■ Time Series in Pandas
■ Data Visualization with Matplotlib
■ Statistical Visualization with Seaborn

■ Data Analysis & Advanced Tools

■ Exploratory Data Analysis (EDA) with Pandas
■ Correlation and Covariance

■ Outlier Detection and Handling
■ Feature Engineering Basics
■ Automating Data Cleaning Tasks
■ Working with APIs (requests library)
■ Web Scraping (BeautifulSoup, requests)
■ Working with Databases (SQLite, MySQL)
■ Connecting Python with SQL
■ Introduction to Power BI and Excel Integration

■ Advanced Python

■ Multithreading and Multiprocessing
■ Asynchronous Programming (asyncio)
■ Design Patterns in Python
■ Unit Testing (unittest, pytest)
■ Logging and Configuration Management
■ Working with Environment Variables
■ Packaging and Distribution
■ Working with APIs and JSON
■ Introduction to Machine Learning Libraries (sklearn)
■ Deploying Python Scripts and Projects