PYTHON ROADMAP FROM ZERO TO HERO

REQUIREMENTS

- o Start learning Python with this 100 Days of Code playlist. Learn the basics of Python. Download my Hand Written Python Notes from here
  - o Basic Syntax
  - o Modules & PIP
  - o Variables & Datatypes
  - o Conditionals and Loops
  - o Functions & Recursion
  - o List, Tuple, Sets, Dictionaries
  - o File I/O
  - o If you prefer to learn in English, there is this awesome course on Udemy
  - o Also, you can check this 12 hour one shot video in English.
- Advanced Python
  - o Iterators
  - o Regex
  - o Decorators
  - o Lambdas
  - o List Comprehensions
  - o Exception Handling
- Object Oriented Programming
  - o Classes & Objects
  - o Methods
  - o Inheritance
  - o Projects based on Oops.
- Data Structures & Algorithms – You don't have to master DSA in the beginning, just have some basic idea of:
  - o Time Complexity
  - o Arrays
  - o Linked lists
  - o Stacks
  - o Queues
  - o Binary Search Trees
  - o Sorting Algorithms
- ML/DS – If you want to transition to Data Science and AI/ML, focus on these topics once you have some good hold of Python:
  - o Start learning Data Science from this book Python for Data Analysis by Wes MC Kinny. This book also has a Python refresher chapter.
  - o Grab a copy of this book: Hands on ML with Scikit-learn and Tensorflow (Author of this book also maintains constantly updating Github Repo)
  - o Watch this project video I created on an End-to-End ML Project
  - o For learning basics of ML this playlist will help you out.
  - o TensorFlow

- - Scikit Learn
  - NumPy. Learn it from Numpy Quickstart guide here.
  - Pandas. Learn it from 10 Minutes of Pandas.
  - Matplotlib / Seaborn from the official guide here.
- Web Dev Frameworks
  - Flask – Checkout this video.
  - Django – Checkout this video.
  - Fast API – Checkout this video.
- Game Libraries & GUI [Optional]
  - Learn Tkinter for making GUIs
  - Learn PyGame for making games in Python
- If you want to get into Web Scraping, learn:
  - Requests
  - BS4/ BeautifulSoup – Watch this video
  - Selenium
  - PyAutoGUI
- Tools to speedup your workflow
  - Git & GitHub – Checkout this video.
  - Ollama – Check this video out.
  - GitHub Copilot – Get it for free here.

PROJECTS

Create some real-world projects like these and spend some time on these Python Practice Programs.
- - 5 Python projects in one video.
  - JARVIS AI Agent.
  - Flappy Bird.
  - Indian Railway Announcement System.
  - End to End ML Project.
  - Umpire Decision Review System (DRS).

RESOURCES

- These are some comprehensive resources that I recommend you are learning Python.
  - Python Documentation.
  - Learning Python – O'Reily.
  - Python Course by Dr. Angela Yu on Udemy