

The Self Taught Developer Checklist

Video

<https://www.youtube.com/watch?v=wS058nq0APU>

Notes

General Programming

- ☐ Programming fundamentals
- ☐ OOP
- ☐ Static typing
- ☐ Programming paradigms
- ☐ Asynchronous programming
- ☐ Concurrency
- ☐ Parallelism

Data Structures and Algorithms

1. Time Complexity Analysis

- ☐ Big O
- ☐ Big Theta
- ☐ Big Omega
- ☐ Formula and math to determine time complexity

2. Data Structures and Their Implementation (some examples)

- ☐ Arrays
- ☐ Stacks
- ☐ Queues
- ☐ Priority Queue
- ☐ Linked Lists
- ☐ Hash-tables
- ☐ Hash function
- ☐ AVL trees
- ☐ Binary trees
- ☐ Binary search tree
- ☐ B- Tree
- ☐ B+ Tree
- ☐ Heaps
- ☐ Min heap
- ☐ Max heap
- ☐ Heap implementation
- ☐ Graphs and Graph theory
- ☐ Sets and set theory

3. Algorithm Analysis and Design (some examples)

- ☐ Binary Search
- ☐ Bubble Sort
- ☐ Selection Sort
- ☐ Insertion Sort
- ☐ Merge Sort
- ☐ Quick Sort

- ☐ Depth-First Search (DFS)
- ☐ Breadth-First Search (BFS)
- ☐ Dijkstra's Algorithm
- ☐ Dynamic Programming
- ☐ Greedy Algorithm
- ☐ Hashing
- ☐ Linked List Manipulation
- ☐ Tree Traversal (In-order, Pre-order, Post-order)
- ☐ Graph Representation (Adjacency List, Adjacency Matrix)
- ☐ Binary Tree Algorithms
- ☐ Floyd-Warshall Algorithm
- ☐ Knapsack Problem
- ☐ Topological Sorting
- ☐ Radix Sort

Design

- ☐ Program design
- ☐ System design
- ☐ UML modelling
- ☐ Activity diagram
- ☐ State diagram
- ☐ User flow diagram
- ☐ Class diagram
- ☐ Design principles
- ☐ Design patterns
- ☐ Observer pattern

- ☐ Subscriber pattern
- ☐ Singleton
- ☐ Decorator

Tools

- ☐ Git
- ☐ Version control types
- ☐ Basic Linux commands
- ☐ IDEs

Databases

- ☐ SQL
- ☐ Database design

Web Technologies

- ☐ HTTP
- ☐ HTTP Methods (POST, GET, PUT, etc)
- ☐ API's & JSON
- ☐ Client-server model
- ☐ Networking (IP address, local IP, public IP, routers, etc)

Resources

General Programming

- Python Full Course - <https://www.youtube.com/watch?v=sxTmJE4k0ho>
- Python Object Oriented Programming - https://www.youtube.com/watch?v=JeznW_7DIB0

- Asynchronous Programming in Python - <https://www.youtube.com/watch?v=t5Bo1Je9EmE>
- Threading, Concurrency & Parallelism - <https://www.youtube.com/watch?v=olYdb0DdGtM>

Design

- 10 Design Principles For Software Engineers - <https://www.youtube.com/watch?v=XQzEo1qag4A>
- Software Design Tutorial - <https://www.youtube.com/watch?v=FLtqAi7WNBYY>

Tools

- Git/Git Fundamentals - <https://www.youtube.com/watch?v=DVRQoVRzMIY>
- VSCode Tutorial - <https://www.youtube.com/watch?v=ORrELERGIHs>
- How to use a Debugger - <https://www.youtube.com/watch?v=7qZBwhSlfOo>
- Linux for Programmers - https://www.youtube.com/watch?v=ebHX9c75H8l&list=PLzMcbGfZo4-nUIIMsz040W_X-03QH5c5h&index=2

Databases

- Python MySQL Tutorial - <https://www.youtube.com/watch?v=3vsC05rxZ8c>

Web Technologies

- Flask REST API - <https://www.youtube.com/watch?v=GMppyAPbLYk>