backend roadmap 2022 .. خريطة طريق تعلم البرمجة

Backend Roadmap

Reading List

Phase 1

Your First Programming Language

- Beginner level [syntax, statements], working with files & directories

Code tools

- Git & gitflow
- Unit Test
- Build for different operating systems

Linux

- Basics

- Computer Hardware Architecture
- How Memory works
- How CPU works
- Operating system Architecture
- How Operating system manage processes

Phase 2

Object Oriented

- Encapsulation
- Inheritance
- Abstraction
- Polymorphism

Data Structures

- Arrays, Linked Lists, Stacks, Queues, Hash Tables, Trees, Heaps, Graphs

- SOLID
- KISS
- DRY

Phase 3

Problem Solving

- Algorithms Analysis and Design

Design Patterns 01

- Creational
- Structural

- Critical Thinking

Phase 4

Network

- Network basics
- HTTP(s) [advanced]
- TCP [basics]

Concurrency

- threads
- non blocking I/O

API

- HTTP RESTful
- HTTP interceptor
- Web Socket
- gRPC
- Nginx web server & API gateway

- OSI
- TCP
- SSH
- Network socket

Phase 5

DataBase

- Normalization
- MySQL
- MongoDB
- RabbitMQ

Design Patterns 02

- Behavioral

Architecture

- Microservices

- Graph Database
- Time Series Database
- Reactive Programming

Phase 6

Containers

- Docker

Cloud

- AWS

Security

- Secure Code
- Secure APIs

- Virtualization
- chroot
- CGroups

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INFO@METWALLYLABS.COM

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