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{ CLOUD NATIVE ARTISANS }

backend roadmap 2022 .. خريطة طريق تعلم البرمجة

Backend Roadmap

Reading List

Phase 1				
Your First Programming Language	**Code tools**	**Linux**		- Computer Hardware Architecture
- Beginner level [syntax, statements]	- Git & gitflow	- Basics		- How Memory works
- working with files & directories	- Unit Test			- How CPU works
	- Build for different operating systems			- Operating system Architecture
				- How Operating system manage processes

Phase 2				
Object Oriented	**Data Structure 01**	**Data Structure 02**		- SOLID
- Encapsulation	- Arrays	- Hash Tables		- KISS
- Inheritance	- Linked Lists	- Trees		- DRY
- Abstraction	- Stacks	- Heaps		
- Polymorphism	- Queues	- Graphs		

Phase 3

Problem Solving
- Algorithms design
- Algorithms analysis
- Known Algorithms

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
- 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 Basics

Security
- Secure Code
- Secure APIs

- Virtualization
- chroot
- CGroups

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INFO@METWALLYLABS.COM