Intern Web Developer Training Plan

📋 Overview

Training time	3 months (~500 hours)
Title	Intern Web Developer Training Plan
Goals	Interns should have basic knowledge about web development with designed topics in training courses.
Facilitator	@ Jonathan Le @ Cuong Ly @ Trong Lu @ Martin Hoang
Participants	Intern Web Developers & Facilitators
Resources	Online documents or online courses.

* **Common + Insurance + Soft skills Training Plan:** Applying for both front-end and back-end interns

🕐 Common Training Plan

Introduction

Facilitator: @ Cuong Ly @ Jonathan Le

Details		Priority	Hours
Teams			
Training plan			

Linux

Details	Priority	Hours	Facilitator
Basic file and directory management & permission commands	2	1	Self- learning
Package install/remove commands	2	1	@ Jonathan Le
Setup working environment: - PhpStorm - Git - Composer - Node with nvm, npm - Docker & docker compose - DB management tool if needed (Dbeaver Free) - PHP 8 - Postman - Skype	2	6	@ Jonathan Le @ Cuong Ly

Reference:

- https://www.codementor.io/linux/tutorial/10-things-every-linux-beginner-should-know
- https://www.howtogeek.com/412055/37-important-linux-commands-you-should-know
- https://www.tecmint.com/useful-basic-commands-of-apt-get-and-apt-cache-for-package-management

Web technologies

Details	Priority	Hours	Facilitator
Web protocols: TCP, HTTP, TLS/SSL, SSH, Websocket	2	2	@ Jonathan Le

Details	Priority	Hours	Facilitator
HTTP Protocol: • Request headers and methods • Response headers and status • CORS • Authentication • Cookie, Cache	1	4	@ Jonathan Le
Web server and proxy: • Nginx • Reverse proxy / Forward Proxy • PHP-FPM / Node • Log	1	8	@ Jonathan Le
Programming: • Processes and threads • Error handling • Async programming • Memory management	2	8	@ Cuong Ly @ Martin Hoang
Supervisor and workers management	2	1	@ Jonathan Le
RESTful • Concept • Methods and Api design best practice • Api document (Swagger)	1	4	@ Trong Lu @ Jonathan Le
Authentication: • Oauth2 • JWT	1	8	@ Jonathan Le
Review session		8	

https://www.geeksforgeeks.org/difference-between-process-and-thread/

https://www.makeuseof.com/synchronous-asynchronous-programming-different/

Source Version Control (Git)

Details	Priority	Hours	Facilitator
Concepts: repository, registry, ssh	1	4	@ Martin Hoang @ Trong Lu
File states, workflow, .gitignore and .gitkeep	1		
Basic commands: clone, checkout, add, commit, push, pull, merge, revert, reset, log… Using git features on PHPStorm	1		
Git flow	1		
Review session		1	

Reference:

- https://git-scm.com/book/en/v2
- https://www.atlassian.com/git/tutorials/comparing-workflows/gitflow-workflow

Package management

Details	Priority	Hours	Facilitator
Composer: • Install/remove package • Package version constrains & composer.lock • Auto loading	1	4	@ Martin Hoang @ Trong Lu
Npm: • Install/remove library package • Package version constrains & package.lock	1		

Review session		1	

Reference:

- https://getcomposer.org/doc/
- https://docs.npmjs.com/

Docker

Details	Priority	Hours	Facilitator
Docker architecture: client, daemon, registry	1	12	@ Jonathan Le @ Cuong Ly
Docker objects: images, containers	1		
Volumes, persistent data	1		
Network, port	1		
Environments	1		
Docker compose	1		
Practice with docker images: build, pull, push, tag	1		
Practice with docker containers: run, exec, view logs	1		
Review session		4	

Reference:

- https://docs.docker.com/get-started/overview/
- https://docs.docker.com/compose/

Redis

Details	Priority	Hours	Facilitator
What is it? Why uses it?	1	4	@ Martin Hoang @ Jonathan Le
Redis data types	1		
Clusters	3		
Pub/Sub	2		
Practice Redis commands with Redis docker	2		
Review session		2	

Reference:

- https://redis.io/documentation
- https://try.redis.io/

Message Brokers

Details	Priority	Hours	Facilitator
What is it? Why uses it?	1	16	@ Jonathan Le @ Trong Lu @ Cuong Ly
RabbitMQ	1		
SNS/SQS	2		
Work Queues	2		
Publish/Subscribe	1		
Routing	2		
Topics, Exchange, Channel	2		
Practice RabbitMQ with docker, using RabbitMQ management	2		

Review session		4	

Reference:

- https://www.rabbitmq.com/tutorials/amqp-concepts.html
- https://www.rabbitmq.com/getstarted.html

OOP

Details	Priority	Hours	Facilitator
Four Principles - Inheritance - Encapsulation - Polymorphism - Abstraction	1	4	@ Martin Hoang @ Trong Lu
Constructor / Destructor	1		
Overloading / Overriding	1		
Objects and Classes, Properties and Methods	1		
SOLID / DRY	2	2	
Review session		2	

Database

Details	Priority	Hours	Facilitator
Relationship, Primary/Foreign keys, Cascade	1	8	@ Cuong Ly @ Jonathan Le @ Trong Lu
Data types	1		
Index, Constraints, Unique	1		
Queries	1		
Transactions	1		
Schema	1		
ACID	2	16	
Deadlock	2		
Locking / Isolation Level	2		
Time stamp	2		
Review session		8	

ORM

Details	Priority	Hours	Facilitator
Concept	1	8	@ Cuong Ly @ Jonathan Le @ Trong Lu
Transactions	1		
Migrations / Seeder	1		
Relations	1		
Annotation and decorator	1		
Lazy / eager loading	1		
Cascade	1		
Doctrine ORM	1	16	
TypeOrm	1	16	

		8	
Review session			

Elasticsearch

Details	Priority	Hours	Facilitator
Concept? What is it? Why uses it?	1	24	@ Cuong Ly @ Jonathan Le
Index, Document Type, Document	1		
Data types	1		
Mapping	1		
Analyzer	2		
Queries / Sort	1		
Aggregation	2		
Using Postman to practice basic queries	2		
Review session		8	

Testing

Details	Priority	Hours	Facilitator
Unit test	1	8	@ Cuong Ly @ Trong Lu
Functional test	1	8	
Test coverage	2	8	
Review session		4	

Architecture

Details	Priority	Hours	Facilitator
Monolith	2	2	@ Jonathan Le @ Cuong Ly
Micro-services	2		
Saga pattern	2	3	
CQRS pattern	2	3	
Review session		1	

🕒 Back-end Training Plan

NestJs

Details	Priority	Hours	Facilitator
Configuration	1	40	@ Trong Lu @ Jonathan Le
MVC	1		
Providers, Custom providers, Asynchronous providers	1		
Modules, Dynamic modules, Lazy-loading modules	1		
Dependency Injection / Service provider	1		
Middleware, Interceptors	1		
Exception filters	1		
Pipes	1		

Guards	1		
Decorator & Custom decorators	1		
Lifecycle Events	1		
Validation	1		
Task schedule / Cron Job	2		
TypeORM	1		
Mongo DB	2		
Debugger, Logging	1		
Testing	1		
Practice: • Setup monorepo NodeJs project with Postgres DB, using Docker compose • Build a sample booking service API • Migration / Seeder • Authentication • Add Swagger documentation • Mapped Types • Queues • Events • CQRS • Unit test	1	40	
Review session		8	

Laravel / Lumen

Facilitator: @ Jonathan Le

Details	Priority	Hours	Facilitator
Setup & Config	1	40	@ Jonathan Le @ Cuong Ly
Routing	1		
Controllers, Model, Views	1		
Provider, Service Container	1		
Middleware	1		
Request Lifecycle	1		
Facade	1		
Validation	1		
Task schedule / Cron Job	2		
Migration / Seeder	1		
Queues	2		
Commands	2		
Events	1		
PHP Unit	1		
Practice: • Setup Lumen application with Postgres DB, using Docker compose • Build a sample service api • Using middlewares • Migration / Seeder (Doctrine ORM) • Queues • Events • Commands • Write unit test	1	40	
Review session		8	

🕐 Front-end Training Plan

Angular

Details	Priority	Hours	Facilitator
Module / Component	1	40	@ Martin Hoang @ Trong Lu
Service	1		
Template	1		
Bindings	1		
Directive	1		
Event Lifecycle	1		
Routing	1		
Pipe	1		
Change Detector	1		
Form	1		
RXjs / Observable	1		
Testing	1		
Code standard	1		
Local / Session storage	1		
Task runner	1		
Practice: • Setup • Integration with Back-end APIs	1	40	
Review session		8	

🕐 Insurance Training Plan

🕐 Soft skills Training Plan

🚀 Outcomes

List of feedback or issues in training period which should be improved.

Issue	Assignee	To-dos
Example issue	@ Jonathan Le	☐ Task 1 ☐ Task 2