PoleIT-VAL

Date de rendu	@May 26, 2024
Module	⚾ 3FAP
Type	Projet

Introduction

You work for an astronomy center called PoleIt based in Orléans. Newly established, it wishes to make itself known to the public.

It is calling on you to refresh its image with its future customers by highlighting its astronomical pole, in particular its giant radio telescope.

PoleIt benefits from several elements to be promoted:

- A planetarium

- An observatory
- Daytime exhibitions
- Night exhibitions
- Daily activities for young and old

Subject

Website (7 points)

> 💡 The site must be as attractive as possible! You can embed videos, interactions, etc.

Homepage & Blog (7 points)

The site must be composed of these different elements:

- A home page presenting the center with its main assets (observatory, planetarium, etc.)

The home page must be able to display the last 4 articles in the form of a carousel. Articles can only be read if you are a member **and** logged in.

- A page presenting day and night activities
- A page presenting the different activities.

Exemples :

- https://saf-astronomie.fr/activites/
- https://www.nasa.gov/
- A contact page feeding a database. All requests sent must be processed in an administration interface.
- Posts : Users will be able to connect to the site and access a specific page presenting the latest news from the center (like a blog).

Infrastructure & Deployment (8 points)

Infrastructure (2.5 points)

Your infrastructure is a “beautiful” Kubernetes cluster including an Ingress controller (such Nginx or Traefik).

The storage must be highly available and you must think it as “hyperconverged infrastructure” (cf Annexes) to simplify the architecture and the maintainnability.

> ⚠ The kubernetes cluster should contain at least 3 nodes and the infrastructure is considered as “hyper-converged”.

PHP session are stored locally in only ONE php docker instance. So you will need to move php session to an other backend such as Redis or MySQL session

DevOPS (2.5 points)

You must deploy your website automatically to your Kubernetes cluster using a CI/CD pipeline.

This pipeline must ensure the following:

- the HTML code respect the best practices
- All files must be validated with a linter.
- A docker image including the code must be built and push into a private docker registry.
- If a merge request is merged into `main` branch, you must automatically create the tag (ex: `1.2.0` using semantic release
- When a tag is created, you must deploy your applications to your Kubernetes cluster (You website, MariaDB, etc...

Backup & Monitoring (3 points)

All your services must be backuped into a s3 storage with a retention of 1 months.

You must save files and also, Database .

All services must be monitored.

You can use Prometheus / Centreon to monitor your infrastructure.

Monitoring will ensure the quality of your platform !

Bonus (5 points)

`Feel free to add any additional features you want!`

Technology

You can use these technologies:

HTML / CSS / JS / PHP / MYSQL

Authorized PHP framework

Any Framework other than a PHP Framework is prohibited

Rules

This project must be your creation and done by your own. Plagiarism or copy / past are forbidden and will result of a 0.

This is project can be done in group of 3 students maximum.

Resources

- https://en.wikipedia.org/wiki/Hyper-converged_infrastructure
- https://github.com/semantic-release/semantic-release
- https://github.com/phpredis/phpredis

Delivery

You must deliver a `ZIP` containing:

- Technical Documentation (.pdf)
- Projects files (.zip).
- Link to website

> ⚠ File extension should be strictly respected. If you deliver file in a different format than expected, the file will be entirely discarded.