AWS Frontier

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Introduction

- AWS (Amazon Web Services) provides a wide range of resources but sorting through all the resources can be a bit overwhelming

- Keeping track of active resources is important as some resources can be left running and result increased unnecessary costs.

- AWS Frontier team main goal was to build a centralized platform to host all the different AWS resources in one place

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Approach

- The Centralized platform we chose was Nextcloud and was also mandatory requirement for this project

- Our main concerns was security of AWS users and their respective data being exposed or leaked

- To overcome this obstacle, we decided to build our program from the ground up ensuring there would be no gaps in security

- Our secondary goal was to make the interface as simple as possible and avoid cluttering and bloatware

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Solution

- Our team developed an AWS monitoring panel using Nextcloud as a host

- The panel contains all the active AWS resources for the user in one place

- The panel ensures the users security by requiring an access key and secret access key provided by AWS

Solution

- For our second objective we wanted to keep a clean interface

- The example shown is our current system which provides a user-friendly interface with simplified layout

- Each resource is contained in its own custom container for visibility and ease of access
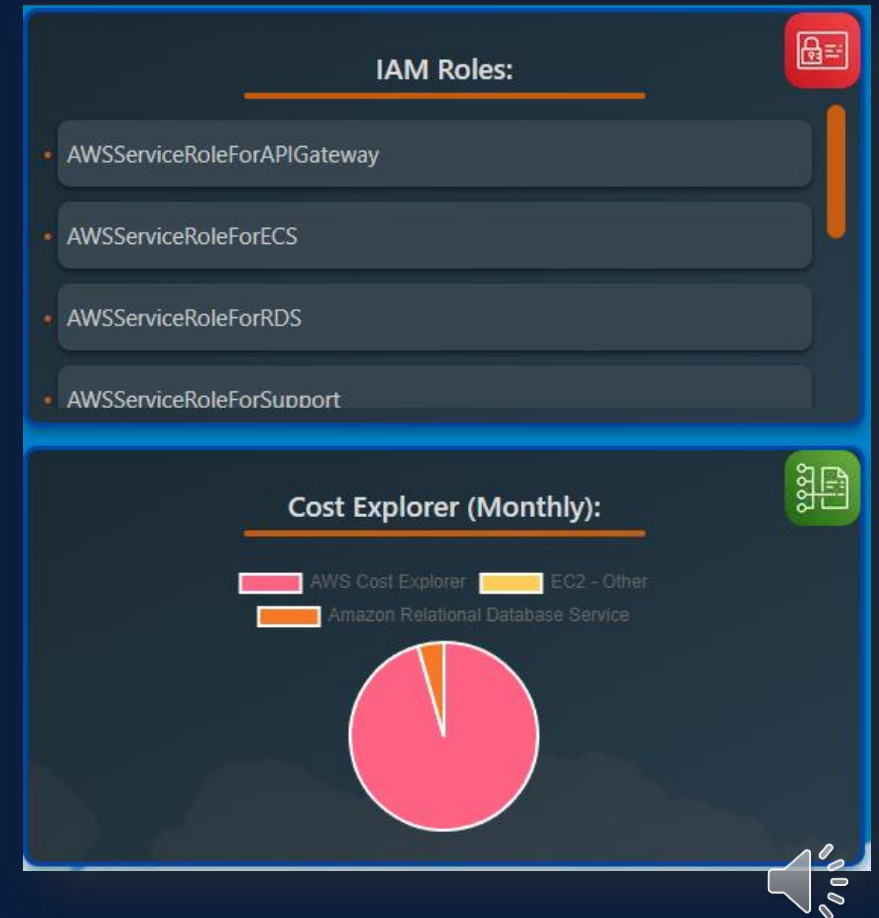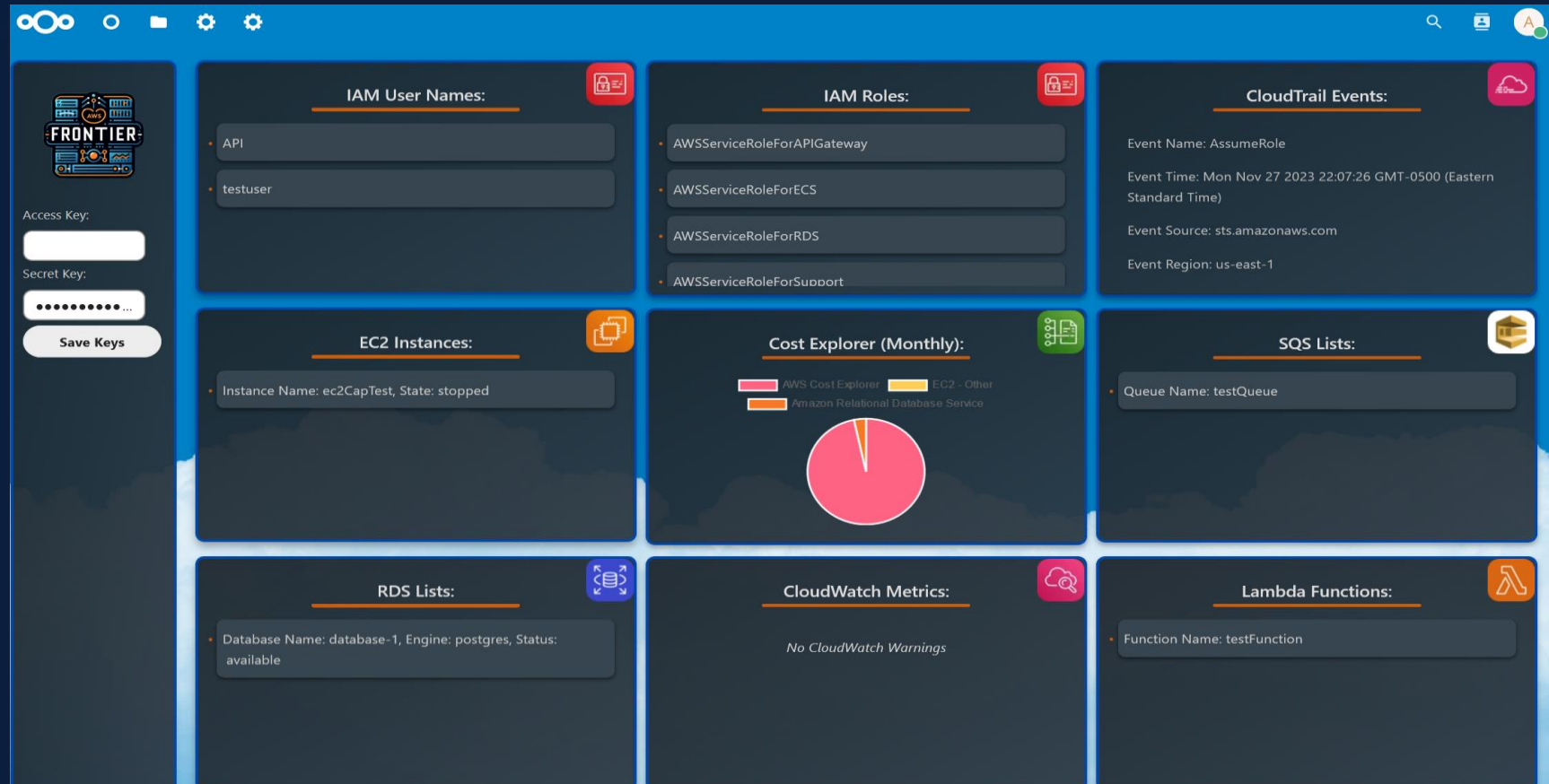
- AWS users securely can use their access key and secret access key to load all their currently active resources

- Access keys are crucial for connecting users AWS accounts and they have been encrypted using AES, IV and CBC

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Access Key:

Secret Key:

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Save Keys

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Completed panel which is hosted by Nextcloud

Resources

The software used in this project include:

- AWS (Amazon Web Services)
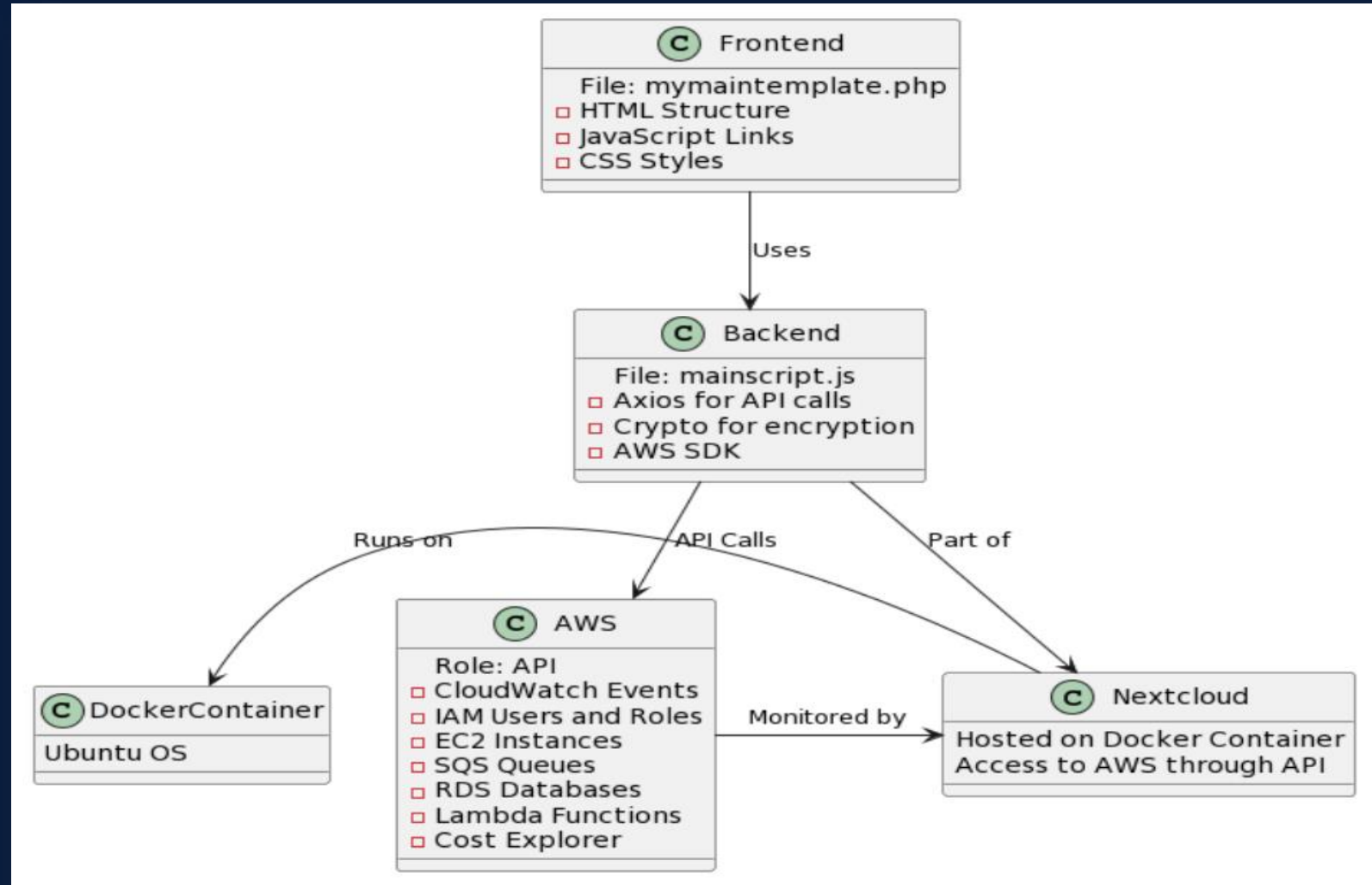- Nextcloud
- Docker
- Github
- Visual Studio Code
- Ubuntu

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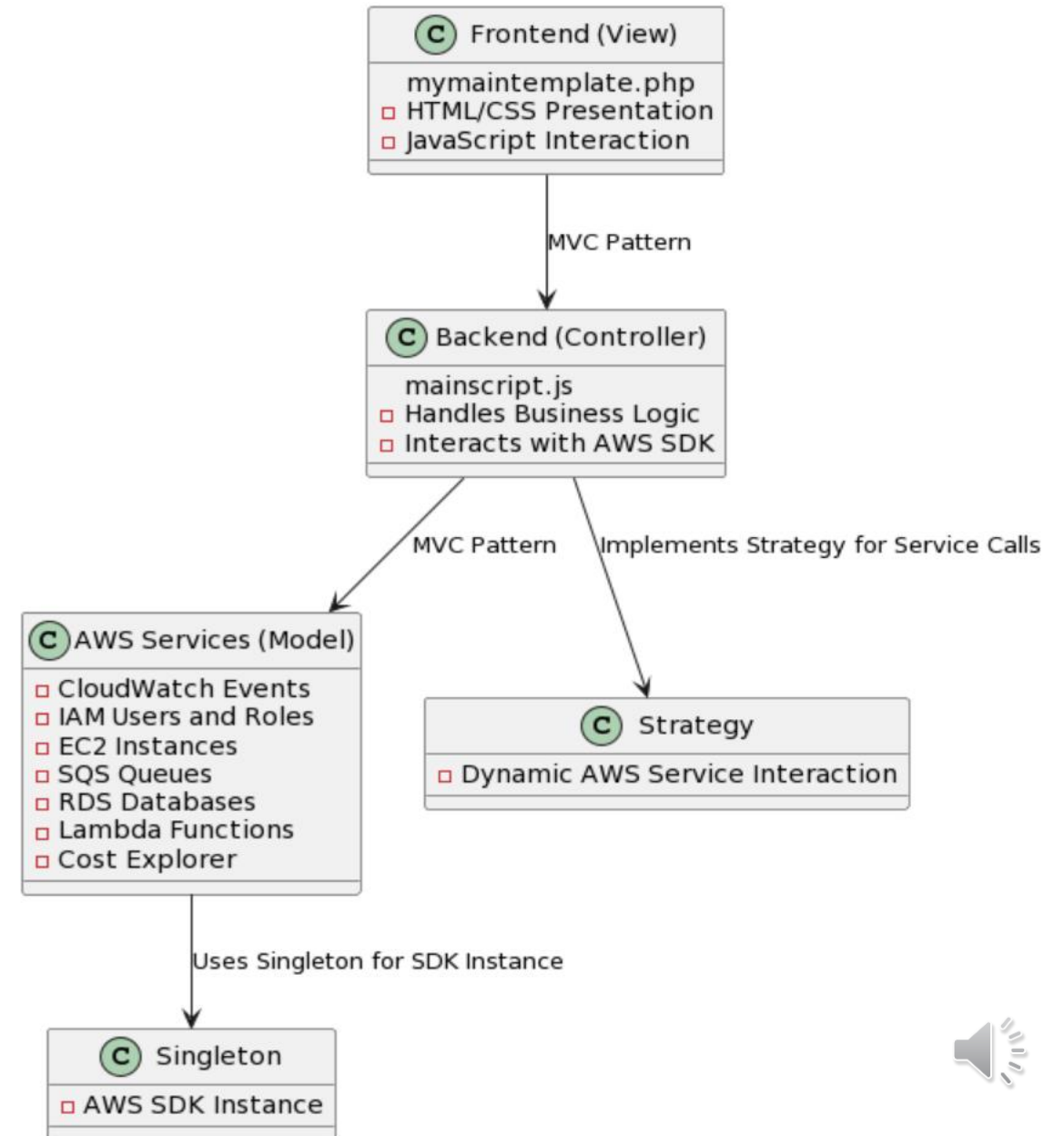& Computing

Resources

The languages used include:

- HTML
- JavaScript
- PHP
- CSS

Architectural Patterns

Design Patterns

Project Development

Sprint 1:
- Review documents related to project
- Develop an understanding
- Plan our approach

Sprint 2:
- Create AWS accounts for user testing
- Focus on developing the environment
- Gather necessary related documents

Sprint 3:
- Finished setting up the environment
- Deploy an EC2 instance on AWS
- Work on integrating AWS API with Nextcloud

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Project Development

Sprint 4:
- Research several AWS resources
- Focused on integrating AWS resources with our Nextcloud monitoring application
- Add API key fields to application for security

Sprint 5:
- Improve our application interface for Nextcloud
- Implement additional AWS resources
- Improve front-end interface
- Researched and improved security features for the application

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Project Development

Sprint 6:
- Focused on modernizing and enhancing user interface
- Design a more user-friendly interface
- Focused on file containers displaying AWS resources
- Added a few functional upgrades
- Improved UI

Sprint 7:
- Finished improvements
- Work on documents
- Finalized logos and titles for the application
- Demo videos and presentation slides
- Installation guides

Summary

- Our team Developed an AWS monitoring panel which is hosted by Nextcloud which shows active AWS resources. This monitoring panel ensures the users safety by using access keys and secret access key.

- Extensive research was done by the team to build the application from scratch and have the compatibility of our code to seamlessly integrate with the Nextcloud framework

- It was a great learning experience for the whole team working on the project and our Instructor/Product Owner Dr. Masoud Sadjadi guided us through the project. With the ground-work our team have laid for the project, there are plenty of opportunities for future development and innovations.

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