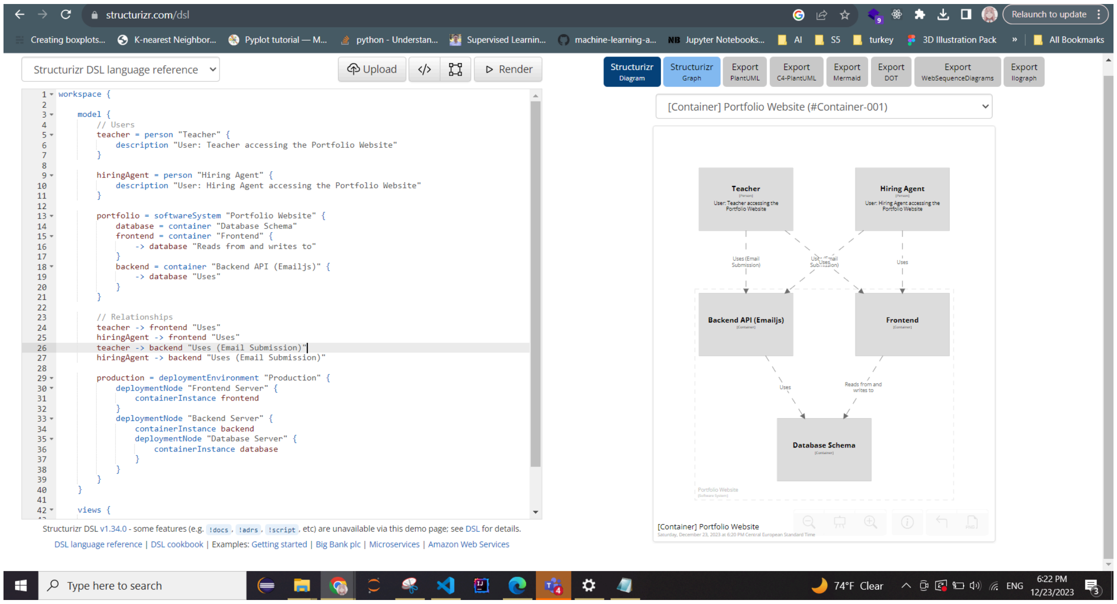
C4 Software Codes Document

Portfolio

23 December 2023



```
workspace {

    model {
        // Users
        teacher = person "Teacher" {
            description "User: Teacher accessing the Portfolio Website"
        }

        hiringAgent = person "Hiring Agent" {
            description "User: Hiring Agent accessing the Portfolio Website"
        }

        portfolio = softwareSystem "Portfolio Website" {
            database = container "Database Schema"
            frontend = container "Frontend" {
                -> database "Reads from and writes to"
            }
            backend = container "Backend API (Emailjs)" {
                -> database "Uses"
            }
        }

        // Relationships
        teacher -> frontend "Uses"
        hiringAgent -> frontend "Uses"
        teacher -> backend "Uses (Email Submission)"
        hiringAgent -> backend "Uses (Email Submission)"

        production = deploymentEnvironment "Production" {
            deploymentNode "Frontend Server" {
                containerInstance frontend
            }
            deploymentNode "Backend Server" {
                containerInstance backend
                deploymentNode "Database Server" {
                    containerInstance database
                }
            }
        }
    }

    views {
```

Structurizr DSL v1.34.0 - some features (e.g. !docs, !adrs, !script, etc) are unavailable via this demo page; see DSL for details.

DSL language reference | DSL cookbook | Examples: Getting started | Big Bank plc | Microservices | Amazon Web Services

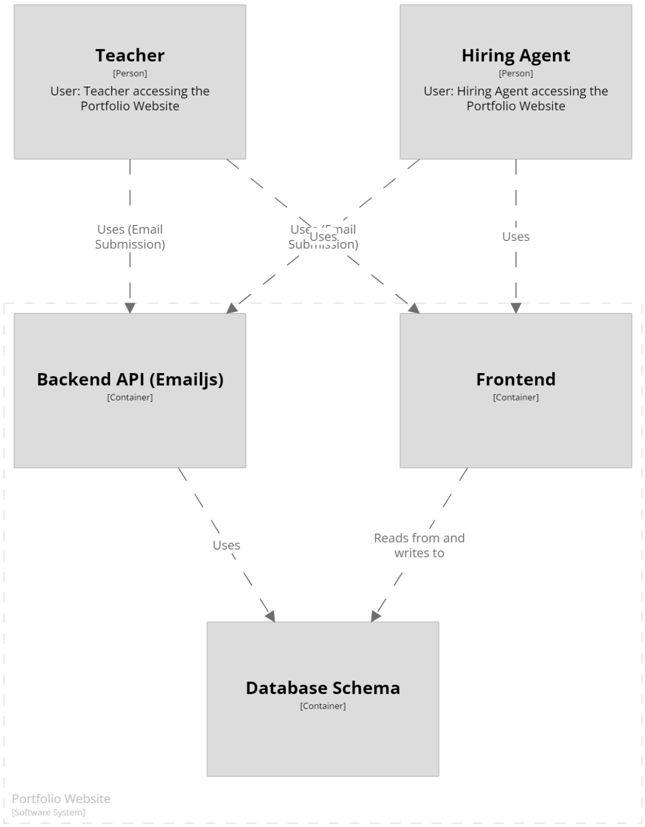
OVERVIEW

I have created this document to show the used codes for creating the C4 diagrams level 2 and level 3, Container and Components respectively. I have used the Structurizr website to generate the software architecture diagrams and to read the coding documentation to get to the shown results below (Structurizr, n.d.). Furthermore, I also looked at an article called the Software Diagrams - C4 Models with Structurizr in order to understand how to write some codes like the relationships (Haywood, D., n.d.).

The Structurizr website use the Structurizr DSL language. It is a text-based wrapper around the Structurizr for Java library. It closely aligns with the Structurizr for Java library. While it is not Java, its association with the Structurizr for Java library makes it easy to understand. Of course, I do not know what is Structurizr, but I have worked before with Java language last semester on my minor in Turkey, which makes this beneficial to work with for me.

0I have tried to use ChatGPT to help me in drawing it, but unfortunately all I got was errors and no possibilities of making the relationships. Therefore, I had to read the docusations on both of the provided websites on the reference.

Container



[Container] Portfolio Website
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The software architecture is defined in this part utilising the Structurizr DSL codes. It provides an overview of the frontend, backend, database, Portfolio Website, and users (Hiring Agents and Teachers) inside the system. Users and system components are mapped out into relationships that show how they are used and interact.

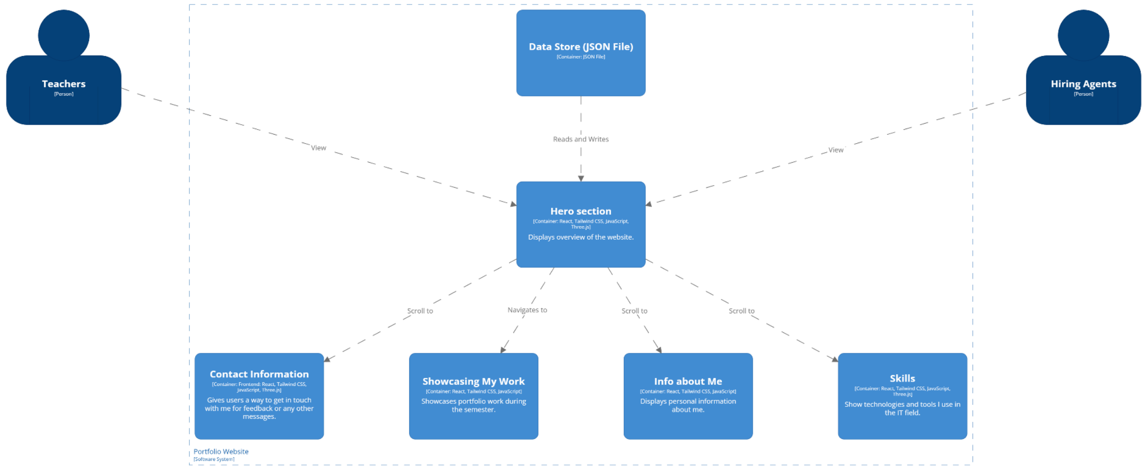
Codes

```
workspace {
    model {
        // Users
        teacher = person "Teacher" {
            description "User: Teacher accessing the Portfolio Website"
        }
        hiringAgent = person "Hiring Agent" {
            description "User: Hiring Agent accessing the Portfolio
Website"
        }
        portfolio = softwareSystem "Portfolio Website" {
            database = container "Database Schema"
            frontend = container "Frontend" {
                -> database "Reads from and writes to"
            }
            backend = container "Backend API (Emailjs)" {
                -> database "Uses"
            }
        }
        // Relationships
        teacher -> frontend "Uses"
        hiringAgent -> frontend "Uses"
        teacher -> backend "Uses (Email Submission)"
        hiringAgent -> backend "Uses (Email Submission)"

        production = deploymentEnvironment "Production" {
            deploymentNode "Frontend Server" {
                containerInstance frontend
            }
            deploymentNode "Backend Server" {
                containerInstance backend
                deploymentNode "Database Server" {
                    containerInstance database
                }
            }
        }
    }
    views {
   }
}
```

Container and Components

By describing individual containers and the parts of the Portfolio Website that go along with them, this section expands on the architecture. Sections such as Contact Information, Skills, Hero section, Info about Me, and Showcasing My Work are examples of containers. These containers include components with descriptions and technologies employed, such as Header Component, Bio Component, Skills Component, and so on. Where this can be seen in the first figure. With the second figure in this section shows it with the Data Store (JSON File) and the Backend.


Teachers
[Person]
Data Store (JSON File)
[Container: JSON File]
Hiring Agents
[Person]
View
Reads and Writes
View
Hero section
[Container: React, Tailwind CSS, JavaScript, Three.js]
Displays overview of the website.
Scroll to
Navigates to
Scroll to
Scroll to
Contact Information
[Container: Frontend: React, Tailwind CSS, JavaScript, Three.js]
Gives users a way to get in touch with me for feedback or any other messages.
Showcasing My Work
[Container: React, Tailwind CSS, JavaScript]
Showcases portfolio work during the semester.
Info about Me
[Container: React, Tailwind CSS, JavaScript]
Displays personal information about me.
Skills
[Container: React, Tailwind CSS, JavaScript, Three.js]
Show technologies and tools I use in the IT field.
Portfolio Website
[Software System]

[Container] Portfolio Website

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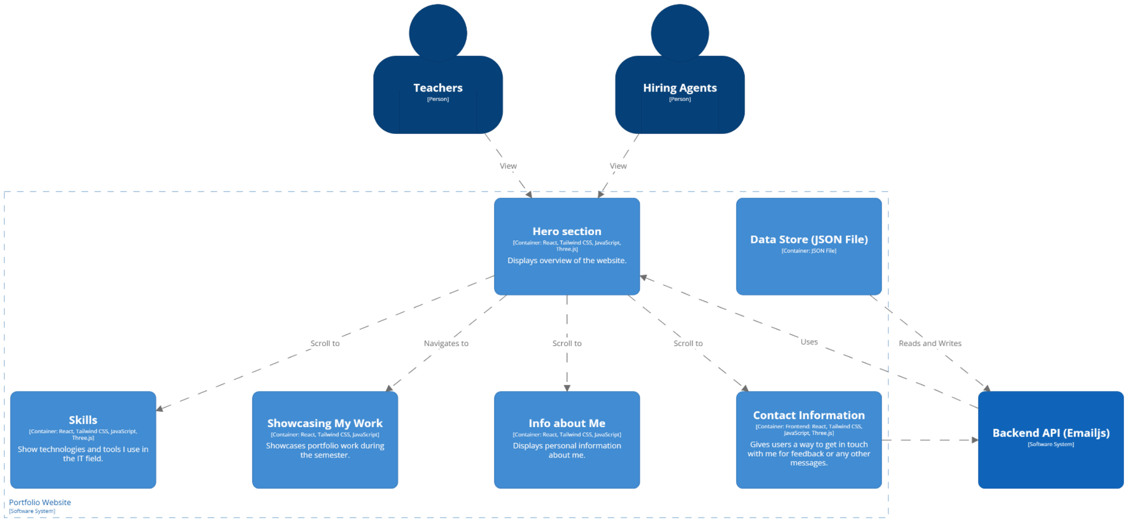
Teachers
[Person]
Hiring Agents
[Person]
View
View
Hero section
[Container: React, Tailwind CSS, JavaScript, Three.js]
Displays overview of the website.
Data Store (JSON File)
[Container: JSON File]
Scroll to
Navigates to
Scroll to
Scroll to
Uses
Reads and Writes
Skills
[Container: React, Tailwind CSS, JavaScript, Three.js]
Show technologies and tools I use in the IT field.
Showcasing My Work
[Container: React, Tailwind CSS, JavaScript]
Showcases portfolio work during the semester.
Info about Me
[Container: React, Tailwind CSS, JavaScript]
Displays personal information about me.
Contact Information
[Container: Frontend: React, Tailwind CSS, JavaScript, Three.js]
Gives users a way to get in touch with me for feedback or any other messages.
Backend API (Emailjs)
[Software System]
Portfolio Website
[Software System]

[Container] Portfolio Website

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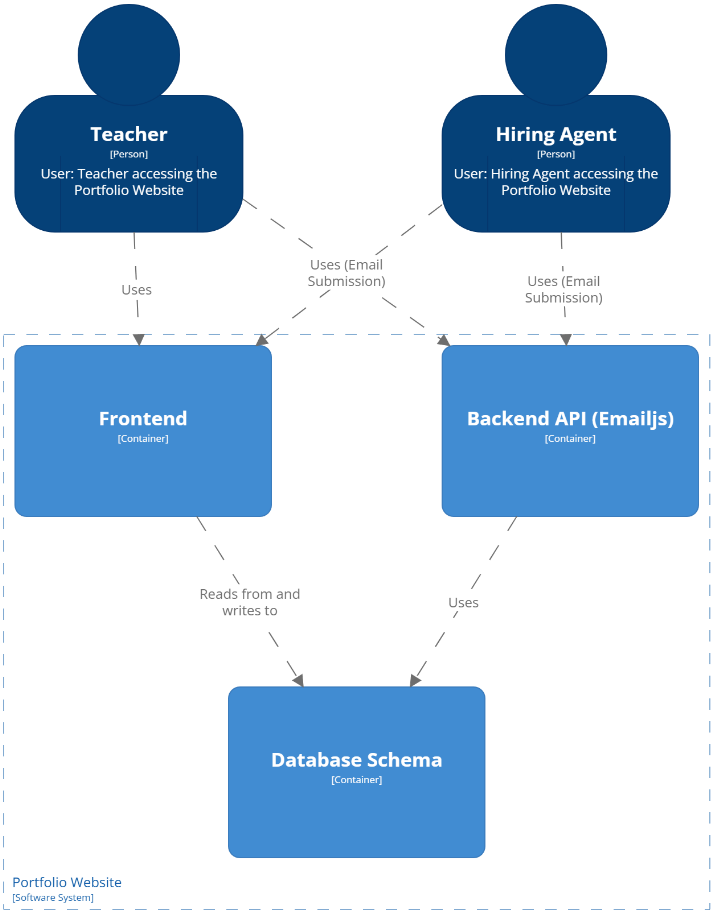
Codes

```
workspace "Portfolio Website Architecture" {
    model {
        teachers = person "Teachers"
        hiringAgents = person "Hiring Agents"
         Frontend = softwareSystem "Portfolio Website" {
            HeroSection = container "Hero section" {
                description "Displays overview of the website."
                technology "React, Tailwind CSS, JavaScript, Three.js"
                HeaderComponent = component "Header Component" {
interaction elements." description "Manages top navigation and user
Three.js"          technology "React, Tailwind CSS, JavaScript,
                    tags "Element", "Component"
                }

                SliderComponent = component "Slider Component" {
content."           description "Displays a slider for featured
                    technology "React, Tailwind CSS, JavaScript"
                    tags "Element", "Component"
                }
            }
            InfoAboutMe = container "Info about Me" {
                description "Displays personal information about me."
                technology "React, Tailwind CSS, JavaScript"
                    BioComponent = component "Bio Component" {
my expertise."          description "Displays information about me and
                        technology "React, Tailwind CSS, JavaScript"
                        tags "Element", "Component"
                    }
            }
            ContactInformation = container "Contact Information" {
for feedback or any other messages." description "Gives users a way to get in touch with me
Three.js"      technology "Frontend: React, Tailwind CSS, JavaScript,
            }
            Skills =  container "Skills" {
IT field."      description "Show technologies and tools I use in the
                technology "React, Tailwind CSS, JavaScript, Three.js"
                SkillsComponent = component "Skills Component" {
in the IT field."       description "Displays languages and tools I use
Three.js"               technology "React, Tailwind CSS, JavaScript,
                        tags "Element", "Component"
                    }
            }
            ShowcasingMyWork = container "Showcasing My Work" {
semester."      description "Showcases portfolio work during the
                technology "React, Tailwind CSS, JavaScript"
            }
            dataStore = container "Data Store (JSON File)" {
                technology "JSON File"
            }
        }
        backend = softwareSystem "Backend API (Emailjs)" {
                -> HeroSection "Uses"
Component" {    EmailSubmission = container "Email Submission
                    technology "Integration with Emailjs API"
                }
        }
        // Users relationships
        teachers -> Frontend "Uses"
        hiringAgents -> Frontend "Uses"
        teachers -> HeroSection "View"
        hiringAgents -> HeroSection "View"
        // Container relationships
        dataStore -> backend "Reads and Writes"
        HeroSection -> InfoAboutMe "Scroll to"
        HeroSection -> Skills "Scroll to"
        HeroSection -> ContactInformation "Scroll to"
        HeroSection -> ShowcasingMyWork "Navigates to"
// Container relationships to another system
        ContactInformation  ->  EmailSubmission ""
    }
    views {
        theme default
    }}
```

Users with the Frontend, the Backend and Datastore



[Container] Portfolio Website

Saturday, December 23, 2023 at 6:26 PM Central European Standard Time

REFERENCE

- Structurizr. (n.d.). Deployment groups. Structurizr DSL Cookbook. Retrieved from https://docs.structurizr.com/dsl/cookbook/deployment-groups/
- Haywood, D. (n.d.). C4 models with Structurizr. DanDoesCode - Blog. Retrieved from https://www.dandoescode.com/blog/c4-models-with-structurizr