

Vote System

Distributed System Project 2023

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Outline

- Vote Sytem

- Architecture

 - Overview

- Components

 - Entity Framework

 - Cookie Authentication

 - YARP

 - Vuetify

 - Diagram

- Containerization

 - .NET Dockerfile

 - Makefile

- Demo

Vote Sytem

DSy Vote

+ CREATE VOTE

Red or Blue

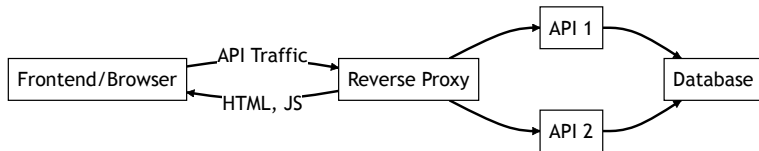
Which one is your favorite?

Menu of the Week

Vote for your favourite menu served in the canteen last week.

Architecture

Overview



- Vue.js Frontend
- YARP Reverse Proxy / Load Balancer
- ASP.NET Service
- PostgreSQL Database

Components

Entity Framework

Entity Framework



- ORM mapper with automatic DB migrations
- Microsoft Supported and Open-Source
- Full Integration into ASP.NET Core

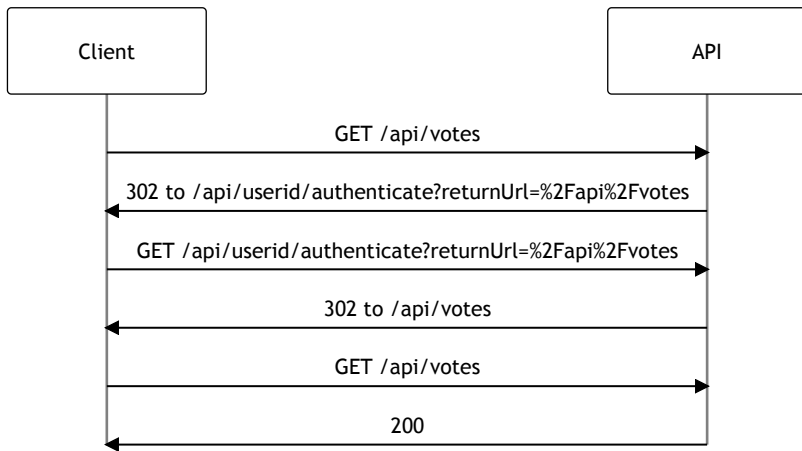
Components

Cookie Authentication

- Authentication is used only to differentiate whether a user sees the poll or the results.
Security is not an issue.
- Thus, authentication is done using randomly generated user-ids set as cookies.
- Every API endpoint consumed by the endpoint requires such an authentication.

Components

Cookie Authentication



Components

YARP



- *Yet Another Reverse Proxy*
- Microsoft Supported and Open-Source
- Production Ready
- Highly Configurable
- Full Integration into ASP.NET Core

Components

Vuetify



- UI Component Library for Vue.js
- Replicates Google's Material Design
- Gives UI consistent design & basic structure

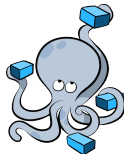
Components

Diagram



- *vue-chartjs* is a wrapper for Chart.js
- Used to generate bar chart for submitted votes

Containerization



- Docker Compose
 - built-in duplication
- Standard PostgreSQL Image
- Customized .NET Image

Containerization

.NET Dockerfile

```
ARG dll_name
```

```
FROM mcr.microsoft.com/dotnet/runtime:7.0
```

```
RUN apt-get update ; \  
    apt-get install -y curl gnupg ; \  
    curl -sSL ... | apt-key add - ; \  
    curl -sSL ... | tee ... ; \  
    apt-get update ; \  
    apt-get install -y libmsquic
```

```
ADD ./ /app
```

Containerization

Makefile



- `make build`
 - `make frontend_build`
 - `make api_build`
 - `make reverseproxy_build`
- `make clean`
 - `make frontend_clean`
 - `make backend_clean`
- `make start`
 - `make down`
 - `make up`
 - `make db_up`

Demo