Design Document

“LEVEL UP”

**Design Document**

FONTYS UNIVERSITY OF APPLIED SCIENCES

**HBO-ICT: English Stream**

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| Project Plan | |
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| Version | **1.0** |

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# Version Table

|  |  |  |
| --- | --- | --- |
| Date | Version | Changes |
| 26.03.2021 | 0.1 | justification for the front-end framework of choice: Entity Relation Diagram / Database design, UML class diagram, Design decisions |
| 16.04.2021 | 0.2 | justification for the back-end system, quality assurance metrics, demonstrating connectivity with backend database, including unit-tests |
| 19.05.2021 | 0.3 | Include a diagram of how your CI is setup. DOT framework. Sonarqube screenshot/report pre-post. |
| 04.06.2021 | 0.4 | Create a movie.  Authentication/Authorization. |
| 20.06.2021 | 0.5 | Final Report, Final Release(Docker integration) |

# 1.General

# 1.1 Description

This document contains the architectural design of Level Up website developed by Aleks Petrov. This project is part of individual assignment organized by Fontys University of Applied Science.

# 1.2 Goal

The goal of the project is to help young people get more familiar with the gaming world. For this reason we are going to develop a gaming blog website that will help people for that purpose.

# 1.3 Outcome

The outcome of this project is expected to be a fully-developed gaming blog website.

# 2 Design Decisions

# 2.1 BackEnd

I will use Spring Boot for my backend due to the fact it reduces overall development time and increase efficiency by having setup for a unit and integration tests. It has a lot of really useful libraries which could help you build your app a lot easier. Also it transforms how you approach Java programming, radically streamlining your experience. The main goal of the Spring Boot framework is to reduce overall development time and increase efficiency by having a default setup for unit and integration tests. If you want to get started quickly with your Java application, you can easily accept all defaults and avoid the XML configuration completely. One of the requirements of my project are to have login and register functionality which Spring Security easily helps with that purpose to access specific links and have better security overall. For my CRUD functionality I’ll make use of the JPA Repository Interface provided by Spring which reduces the writing of queries and improve my working flow significantly.

# 2.2 FrontEnd

I will be using React since it is building reusable components which can be used in the future and it is used by famous developers over the world which makes it with more features. It is completely free and I chose it over Angular for example because of the parent-child architecture and the parent makes the state of all its child components. You can consider it as a decorative library. .What other options there are there available for the front-end are Vue and Angular. The advantages of React components maintain their own property and state. This makes it possible to create highly reusable components that can be dropped into any application.

# 2.3 Database

I will be using MySQL because it’s the most popular one nowadays. Many big companies prefer to use it because it’s open-source, reliable and compatible with all major hosting providers, cost-effective and easy to manage. The reason why I’ll use it to store the new members and also for my gaming blogs. Moreover I can always check if the information is stored correctly into the database. Finally it offers some build-in functions which reduces a lot of time. One of the reasons MySQL is the world's most popular open source database is that it provides comprehensive support for every application development need. Within the database, support can be found for stored procedures, triggers, functions, views, cursors, ANSI-standard SQL, and more. For embedded applications, plug-in libraries are available to embed MySQL database support into nearly any application. MySQL also provides connectors and drivers (ODBC, JDBC, etc.) that allow all forms of applications to make use of MySQL as a preferred data management server. It doesn't matter if it's PHP, Perl, Java, Visual Basic, or .NET, MySQL offers application developers everything they need to be successful in building database-driven information systems.

Types of functions

Built-in functions

MySQL comes bundled with a number of built in functions. Built in functions are simply functions come already implemented in the MySQL server. These functions allow us to perform different types of manipulations on the data. The built in functions can be basically categorized into the following most used categories.

• Strings functions - operate on string data types

• Numeric functions - operate on numeric data types

• Date functions - operate on date data types

• Aggregate functions - operate on all of the above data types and produce summarized result sets.

• Other functions - MySQL also supports other types of built in functions but we will limit our lesson to the above named functions only.

# 3.Multi-Tier Architecture Diagram

# 3.1 Diagram

Diagram

Description automatically generated

# 4.C4 Diagram

# 4.1 C1

Diagram

Description automatically generated

# 4.2 C2

Diagram

Description automatically generated

# 4.3 C3

Diagram

Description automatically generated

# 5. Database Design

# 5.1 Database

Graphical user interface, application, Teams

Description automatically generated

# 6. Quality Metrics

# 6.1 Explanation

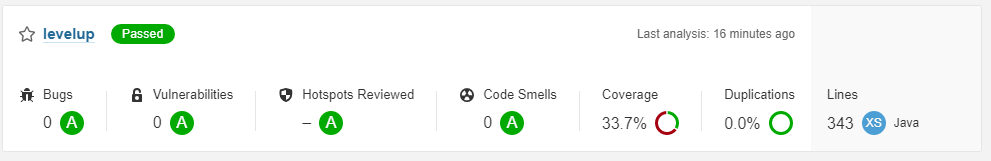
I’m using SonarQube for improving the quality of my code. After downloading and extracting the rar file from SonarQube Documentation. I simply have to run a command in my windows prompt to run start the SonarQube. After that I can log in to the website with my credentials and import my project from InteliJ. Finally in order to import the project you need to put all the necessary dependencies and then run gradlew sonarqube in the terminal.

# 6.2 Before

Graphical user interface, application

Description automatically generated

# 6.2 After



# 7. UML Diagram

# 7.1 UML

Table

Description automatically generated with medium confidence

# 8. CI/CD Config

# 8.1 CI

I have yml file in the root of my gitlab and in the directory of the backend. I have edited the environment variables for the JDK to run it successfully and also few dependencies, properties and plugins in order to run the gradle CI.

# 8.2 CD

# 8.3 Diagram

Diagram

Description automatically generated

# 9. DOT Framework

# 9.1 What:

* Application Domain:

The Project is a web application that will help people get more knowledge of different games.

* Available Work:

Front-End: React

Back-End: Spring Boot

Unit Testing and Documentation

* Innovation Domain:

What I have done in this project is to help people get more insight about different kind of games.

# 9.2 Why:

Before developing my project I need to make sure “why” I’m doing that project and then find every resource available that will suit best for my project.

# 9.3 How:

|  |
| --- |
| **Library** |
| Since I’m developing a Full-Stack Web Application. I’m aiming for techniques that are already proved easy to work with. If any problems appear in the meantime I can always find solution. |
|  |

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| --- |
| **Field** |
|  |
| The application I made is to help people get more insight about different kind of games around the world. |

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| --- |
| **Lab** |
| There are used multiple testing during my development of the application. |

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| --- |
| **Workshop** |
| Designing is an essential part of a web-developer. First we have a target group and then we create wireframes for the UI , then we start coding to see if it really fits the needs of the group. Then finally if something is not right we could change it. |