Project Plan Quiz Webapp

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# Versioning Table

|  |  |  |  |
| --- | --- | --- | --- |
| Author | Version | Changes | Date |
| Ante | 1.0 | Created the document and 6 chapters | 9.9.2022 |
| Ante | 1.1 | Added database schema and constraints | 13.09.2022 |
| Ante | 1.2 | Refined the scope, phases of the project and improved the risk table | 22.09.2022 |

# Project assignment

## Context

This webapp will be developed as a part of semester 3 software engineering course based programme.

## Goal

The goal of this project is to develop a full stack web application. The application will allow its users to create and play quizzes on various custom topics. There would also be functionality to compare your score to other users, add friends and send messages to other users.

## Scope

|  |  |
| --- | --- |
| Inside scope | Outside Scope |
| 1 Creating the backend | Hosting the website |
| 2 Creating the database | Adapting the webapp for mobile phones |
| 3 Creating the frontend |  |
| 4 Enabling users to play a quiz game |  |
| 5 Enabling users to communicate |  |
| 6 Having the aggregate user score stored |  |
| 7 Having an admin user that can CRUD any quiz |  |

## Strategy

The project will be conducted over the course of the semester, using the agile scrum methodology. It will be split in 6 sprints of around 3 weeks each. I will be using Jira to plan and organize my sprints , each task will be graded with points depending on how many hours I assume it will take. The testing will be partially automated and I will also manually test the application according to the test plan document. Version control will be done using gitlab with a main branch and a development branch.

## Research questions and methodology

1. Should Angular or React be used for the front end?

This question will be answered firstly by doing a literature study and seeing what is recommended for smaller projects, Furthermore I will do available product analysis to see what other developers are using for similar projects. Finally I will do community research to gather more opinions on the topic.

1. What are the common features of online quiz games that I should also include and how would I further improve this?

For this question I will focus mainly on available product analysis in order to see what other web apps are offering. After that I will explore user requirements by browsing related forums and perhaps asking friends for an opinion in order to improve and implement wanted features that other quiz webapps do not have.

1. Should I use MySql or a MongoDB for my database?

I will answer this question mainly by literature study. Reading the documentation and what each type of database is intended for in order to understand what would better suit my needs.

## End products

Diagram

Description automatically generated

# Project Organization

## General

As this is an individual project, the organization will be rather simple. The project is organized in 6 sprints of around 3 weeks each. At the end of every sprint there are certain deliverables that have to be finished and certain criteria to be met. I will also be consulting with at least 1 teach per week to show my progress and discuss the further direction of the project.

# Phases of the project

The project will be divided into 3 phases of 2 sprints each. The first phase is setup where I will create the basic documentation, setup the Jira board, create a GitLab repository with the CI/CD pipeline and create a first working prototype.

In the second phase I will mainly be developing the webapp (frontend, backend and the database), while also testing quality and getting some feedback about the UI.

In the third and final phase I will be finishing the documentation and the development. There will be a security report, a implemented chat functionality. Furthermore I will deliver all of the documentation and a finished webapp.

# Functional requirements

1. A user is able to make an account and login
2. A user is able to CRUD appropriate quizzes
3. A user is able to add friends
4. A user is able to message friends
5. A user can see his aggregate score
6. An admin can login
7. An admin can CRUD quizzes
8. A user can search quizzes with keywords
9. A user can play quizzes

# Testing strategy and configuration management

## Testing strategy

I will write unit tests for a part of the code and also include these in the CI/CD pipeline on gitlab so they are automatically ran every time something is pushed to git. I will manually configure a gitlab runner on my laptop for this purpose. Furthermore every time a new feature is implemented I will make sure to manually test the webapp before pushing it to gitlab and merging to the main branch.

## Configuration management

The version control that will be used is gitlab with a main branch and a dev branch. Since it is a project done by a single person I believe that having main, dev and a separate branch for each feature is not needed and it will be simpler to just work on dev and once it is working and tested to merge it to main.

# Risk

|  |  |  |
| --- | --- | --- |
| Risk | Impact | Mitigation activities |
| Not being done on time | Failure of the semester and the app will not be finished | Work harder once I realize I am behind |
| Time loss due to illness | Potential failure of the semester and the app not being finished | Work harder/more in the future after I fall behind |
| Not being able to understand and apply all the necessary functions | Potential failure of the semester and the app not being finished | Make sure to attend the lessons provided and contact the teachers for help if needed |
| Suboptimal design choices | Could be anywhere from creating a minor inconvenience to failure of the semester | Educate myself about the libraries and frameworks, ask for others opinions |
| Failure to communicate with teachers properly | Could affect the semester in many ways | Make sure to attend required lessons and schedule a weekly meeting |

# Constraints

The main constraint of this project is time. I have one semester to finish this full stack web application along with another group project while attending lessons. The second constraint is that I suggested to use java/springboot/react/mySql for the webapp. While this is not a hard constraint and I could use some other framework if I argument my reasoning it is recommended by the course teachers and also it will be easier since all the course materials are for these languages.