**Project plan**

***HeardIT***

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| **Date : 24/03/2024** |
| **Version : 0.3** |
| **Status : In progress** |
| **Author : Mihail Vasilev** |

#### Version

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| --- | --- | --- | --- | --- |
| **Version** | **Date** | **Author(s)** | **Amendments** | **Status** |
| 0.1 | 04/03/2024 | Mihail Vasilev | Initial project plan version | Complete |
| 0.2 | 15/03/2024 | Mihail Vasilev | Updated – 1.5, 1.6, 2.2, 2.3, 3.1 | Complete |
| 0.3 | 18/03/2024 | Mihail Vasilev | Updated – 1.5, 1.6, 2.2, 3.3 | Complete |
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**Communication**

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| --- | --- | --- |
| **Version** | **Date** | **To** |
| 0.1 | 04/03/2024 | Mihail Vasilev |
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| 0.3 | 18/03/2024 | Mihail Vasilev |
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# Project Assignment

## Context

HeardIT is a music sharing platform where you will be able to discover, listen and learn how to play to your favorite songs from a plethora of indie bands. The website focuses on small to medium music creators and people interested in learning how to play the songs on their instruments. The application provides several features that allow users to have an interactive experience combining the listening and learning aspect in one easy-to-find place.

Songwriters will have the ability to upload their tracks, the chords/tabs, lyrics and any other information that will allow their fans to be able to not only listen to the songs but also learn to play them.

Fans will be able to experience these features easily through the interactive user interface and will be able to leave comments, likes and make playlists with their favorite songs.

This way HeardIT will be a place where music creators and fans will have the opportunity to interact, share their experience, learn and get closer to the art of music together.

## Goal of the project

The goal of the HeardIT music sharing application is to provide its users with a place where they can share, enjoy and learn their favorite music. The application will occupy the niche of being a music sharing platform where users can not only find the tracks from their favorite artists but also the chords and lyrics that they can learn so that they can play/sing along with the songs.

In technical terms, the main goal of the project is to create a scalable, reliable and user-friendly web-application that follows the established enterprise standards for developing mainstream software services. The project will focus on delivering a working solution capable of passing the modern requirements for software solutions. The application will follow the modern principals of software developing, utilizing the most suitable technologies, software architecture principles, the best practices and methods of testing. HeardIT will be a modern application that lives up to the high standards of the modern IT world.

## Scope

|  |  |
| --- | --- |
| **The project includes:** | **The project does not include:** |
| 1. Back-end services and database structure | 1. External hardware |
| 1. Front-end web application | 1. Paid software |
| 1. Documentation |  |

## Conditions and technologies

In this paragraph I will state the technologies and working methodologies that I am going to be using and following during the creation of this project. These technologies have been chosen due to my expertise, proficiency and previous experience with them. The working strategy that I am going to use is also chosen based on the assignment’s requirements and my previous experience.

These technologies include:

* Back-end and services
  + Java SpringBoot
* Front-end
  + ReactJs
* Git
* Database
  + MySQL
* Deployment
  + Docker
  + Kubernetes

Work strategies include:

* Agile
* Scrum

## Finished products

The finished products are divided into two main parts:

* HeardIT Documentation – contains all documentation created during and for the HeardIT application
* HeardIT Application – contains the different parts that together form the actual application

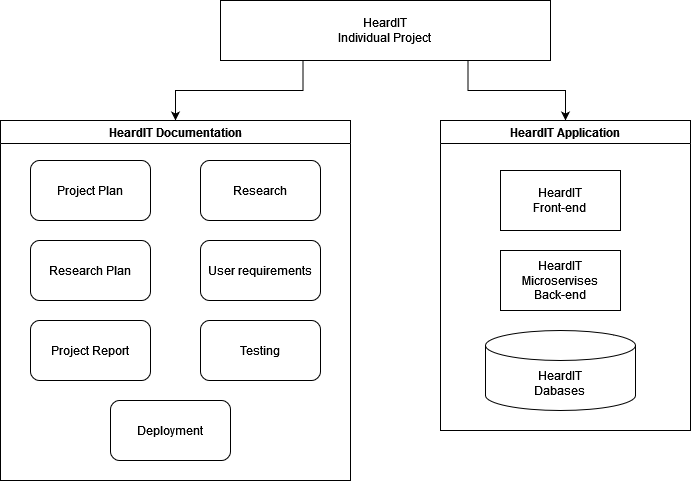


Figure 1 - Finished Products

## Research questions

**Project research question:**

* How can the HeardIT application be developed in alignment with the modern standards for software applications?

**Main questions:**

* What is the most suitable architecture type for the HeardIT web-application?
* What technologies are most suitable for developing HeardIT?
* What technologies are most suitable for deploying HeardIT?
* How can I test to ensure that HeardIT meets the standards of modern applications?

# Approach and Planning

## Approach

The approach that I am going to use during the development of the HeardIT application will follow the Agile working methodology. During my previous studies, internship and work experience I have acquired a significant amount of experience working Agile I believe that this will suit my project the best.

The tasks will be described in one or more large epics with specific research and user stories with their own acceptance criteria. These user stories will be then planned accordingly over the sprints. At the end of each sprint, the results of each sprint will be presented to the teachers and coaches. At the end of the assignment the results will be presented in more detail to the semester teachers and coaches. All work will be documented and reviewed according to the modern software development standards. The application will be version controlled in several Git repositories.

### Test approach

Testing will be performed to ensure the quality of the project and its components. To this end the testing strategy that will be performed will include: manual testing, unit testing, component testing, service testing, load and stress testing. These are the main outlines of the testing strategies that I am going to implore during the development of HeardIT.

## Research methods

The All parts of the DOT research methodology framework will be applied during the development of the project. These methods will be used, since it will require research in a wide range of different fields in order to find a suitable solution to the problem the main research question poses.

Since there are many aspects and topics that I will have to explore, I have decided to split them into several main questions. Each of these questions will be researched in greater detail in their own separate documents.

For the main questions these research methods will be applied:

* What is the most suitable architecture type for the HeardIT web-application? - Literature study, Expert interview, Design pattern research, Document analysis, Brainstorm, Problem analysis
* What technologies are most suitable for developing HeardIT? - Literature study, Expert interview, Document analysis, Problem analysis, Pitch
* What technologies are most suitable for deploying HeardIT? - Literature study, Expert interview, Available product analysis, Prototyping, Problem analysis, System test
* How can I test to ensure that HeardIT meets the standards of modern applications? - Literature study, Problem analysis, System test, Component Test, Expert Interview, Non-functional test, Security test

## Learning outcomes

**Learning outcome 1:**  
[Professional Standard] You take responsibility when solving ICT issues. You define and carry out your applied research using relevant selected methodologies and provide advice to your stakeholders in complex and uncertain contexts. You substantiate and validate future-oriented choices by use of law, ethical, intercultural, and sustainable arguments.

The deliverables of the project will be working products that are used by the testing engineers inside the testing environment. The final product will be a package of different features that all contribute to improving the automated build test environment. For more information about each of the specific features, check the *Products* folder inside the portfolio.

**Learning outcome 2:**  
[Personal Leadership] You independently formulate goals and actions that demonstrate leadership in your own long-term development as an ICT professional. You show that you have a professional attitude and can carry out these actions and achieve your goals, adjusting them as necessary.

The project is contained within the Technology OT testing department and Agile SAFe working methodology will be applied during the project. My previously acquired knowledge and skills are going to be applied in all aspects of the creation of the products, be it in planning the process, creating the research, implementing the solution to the issues and in the testing and final refinements of the products. Since the company uses some technologies that I have not worked with before, I need to study and learn the practices that are applied when using these technologies. I this context I will also acquire new knowledge and skills and will use them to deliver the required results.

**Learning outcome 3:**[Scalable Architectures] Besides functionality, you develop architecture of an enterprise software based on explicitly stated software quality requirements. You explicitly focus on quality requirements most relevant to your projects’ contexts. Quality requirements dictated by law (eg.GDPR) and ethics (eg. security) must always be addressed. You design your system with future adaptation in mind. You assess the extent in which the quality requirements are met by your software implementation.

The project plan will contain the relevant information about monitoring and managing all aspects of the execution of the project. It will contain the main plan that was established at the beginning of the internship assignment. During the whole duration of the assignment, new and additional documents will be created to monitor and keep track of progress. These documents will include, the planning of each product creation, sprint planning and sprint reports on what actually happened during them, weekly tasks in the form of FeedPulse, research documents for each product and product reports where an in-depth look is taken into each of the individual features.

**Learning outcome 4:**  
[Development and Operations (DevOps)] You set up environments, tools and processes which support your continuous software development process. Your deployment environment supports this by being able to deploy an integrated software system and monitor the running parts of your application for quality attributes.

The research document will contain the research process that was conducted in order to identify and solve the specific issues. Specific approaches, depending on the essence of the problem, will be used to find the best possible solution to each issue and deliver valuable working products. In the end, the goal is to deliver the best possible solutions to the issues. For this reason, extensive research will be conducted and different idea and approaches will be taken into consideration. This will be presented inside the research documents inside the folders of each product of the portfolio.

**Learning outcome 5:**  
[Cloud Native] You develop your software according to the best practices of cloud native development. You deploy (parts of) your application to a cloud platform. You integrate cloud services (for example: Serverless computing, cloud storage, container management) into your software, and can explain the added value of these cloud services for your software quality.

The main planning and splitting the project into specific tasks will be done and kept track inside the project plan. As the intern, I will be responsible for taking the initiative and leading the project forward. I will be responsible for contacting the relevant professionals in their field in order to learn and get feedback on his work. I will also be responsible for explaining and proposing my ideas and defending them when I am certain that my idea would result in a better product. My main goal from this internship is to gain valuable experience and insight into the possible professional developments and possible career options I can choose in the future. I believe that an assignment like this allows me to get a good understanding about some of the main processes that take place in a proper development environment.

**Learning outcome 6:**  
[Security by Design] You investigate how to minimize security risks for your application, and you incorporate best practices in your whole software development process.

The project plan will contain the relevant information about the stakeholders and the appropriate contact people. This way, the different parties will be able to communicate and collaborate so that the desired product is created and the desired impact is met. The communication between the company mentor and the university mentor will be through the student in general, however, contact details are provided to both mentors so that communication between then directly is also possible. Transparency will be kept in all aspects of the assignment and feedback will be provided from all sides.

**Learning outcome 7:**  
[Distributed Data] You apply best practices for handling and storing large amount of various data types in your software. You use the non-functional requirements of your enterprise software, especially legal and ethical considerations to guide your design choices in protecting and distributing data in your software without compromising other software qualities.

The project plan will contain the relevant information about the stakeholders and the appropriate contact people. This way, the different parties will be able to communicate and collaborate so that the desired product is created and the desired impact is met. The communication between the company mentor and the university mentor will be through the student in general, however, contact details are provided to both mentors so that communication between then directly is also possible. Transparency will be kept in all aspects of the assignment and feedback will be provided from all sides

## Breakdown of the project

The project will be split into 5 sprints each following the Agile methodology. At the beginning of each sprint the tasks will be split and planned accordingly. At the end of the sprint a short personal retrospective will be created. Each sprint will follow this approach.

## Time plan

|  |  |  |  |
| --- | --- | --- | --- |
| **Phasing** | **Delivered** | **Start** | **End** |
| Sprint 1 | Project Plan, Research Plan | 04/03/2024 | 24/03/2024 |
| Sprint 2 |  | 25/03/2024 | 14/04/2024 |
| Sprint 3 |  | 15/04/2024 | 12/05/2024 |
| Sprint 4 |  | 13/05/2024 | 02/06/2024 |
| Sprint 5 |  | 07/06/2024 | 23/06/2024 |

# Project Organization

## Team members

|  |  |  |  |
| --- | --- | --- | --- |
| **Name + Phone + e-mail** | **Abbr.** | **Role/tasks** | **Availability** |
| Mihail Vasilev, +359884921350,  m.vasilev@student.fontys.nl | *Student* | *Implementer* | *Available 5 days a week* |
| Erik van der Schriek  [e.vanderschriek@fontys.nl](mailto:e.vanderschriek@fontys.nl) | *Technical teacher Fontys* | *Monday afternoon*  *Thursday afternoon* | *Erik van der Schriek*  [*e.vanderschriek@fontys.nl*](mailto:e.vanderschriek@fontys.nl) |
| Onno Marsman  [0.marsman@fontys.nl](mailto:0.marsman@fontys.nl) | *Technical teacher Fontys* | *Monday afternoon*  *Thursday afternoon* | *Onno Marsman*  [*0.marsman@fontys.nl*](mailto:0.marsman@fontys.nl) |
| Robbert Pas  [r.pas@fontys.nl](mailto:r.pas@fontys.nl) | *Group project tutor Fontys* | *Monday morning*  *Wednesday morning* | *Robbert Pas*  [*r.pas@fontys.nl*](mailto:r.pas@fontys.nl) |

## Communication

* Technical supervisors:
  + Weekly meetings
  + Reports in FeedPulse
* Semester coach:
  + Bi-Weekly meetings
  + Reports in FeedPulse

## Configuration and Test environment

GitHub actions CI/CD development and test environment will be used in order to test and deliver the HeardIT application. A pipeline that automatically builds, tests, checks for vulnerabilities, ensures the code quality meets the required standards and at a later stage, deploys the application will be created.

The pipeline will be split into several stages, each of them focusing on a different part of the CI/CD process. The build and test stages will determine if the application is being built properly and if the current functionality is still operational. The checking for vulnerabilities and code quality will be created in order to find any potential issues that might have been created. If the pipeline succeeds and there are no detected issues with the code, the application will be automatically be deployed.

This process is illustrated in Figure 2.



Figure 2 - CI/CD Pipeline

## Architecture plan

# Finance and Risks

## Cost budget

For this project there are no specific costs expected. New work equipment and software investments into outside sources will not be required in order to complete the project.

## Risks and fallback activities

|  |  |  |
| --- | --- | --- |
| **Risk** | **Prevention activities included in plan** | **Fall-back Activities** |
| 1. Issue is outside of the project’s scope | Refine issue | Scale down issue requirements |
| 1. Inaccurate estimation of the complexity of an issue | Refine issue | Scale down and re-prioritize features |
| 1. Supervisors are not available | Arrange help | Coaching is redistributed |

# Other

The assignment’s main objectives are to show that I am capable of delivering a web-application that adheres to the modern standards of software development. For this reason, the main resources used during the development will be focused on satisfying the non-functional requirements that I have established in my *Project Pitch* document and \_\_\_\_\_\_\_\_. This means that the functionalities, design and visual aspects of the application (the UI for example) will not be the main focus points of this assignment. All implemented functionalities will be tested but I will not focus on creating every single one that I had proposed in my *Project Pitch*.

Since this project will follow the Agile way of working, the application will be flexible and continuously developed, with the possibility of change in the focus points during the duration.