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Music Player Project

Individual project for Semester 3, containing music  
 storing capabilities and online search integration

Requirements document

Music Player

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# Version Table

|  |  |  |
| --- | --- | --- |
| Version | Date | Info |
| 1.00 | 17.09.2021 | Initial Documentation |
| 1.10 | 03.10.2021 | Updated and Reformed the User Stories |
| 2.00 | 08.10.2021 | Added Architecture Diagrams, Report, Solid Guarantee, Software used |

# Product Description

This project is dedicated to making a Web Application with the goal of synchronized music storage. With a simple design the whole application is easy to navigate through requiring zero to no user configuration. The app saves your music online in a cloud storage so you will never need to worry about transferring your music again. All of your songs will be stored into your account and synchronized between all of your devices so you can enjoy your music on your computer or on the go. You can find new music within the app. All music available on Youtube and Spotify is available within the app through the use of API. The app will be usable from any devices’ browser with a minimalist design and all responsive frontend.

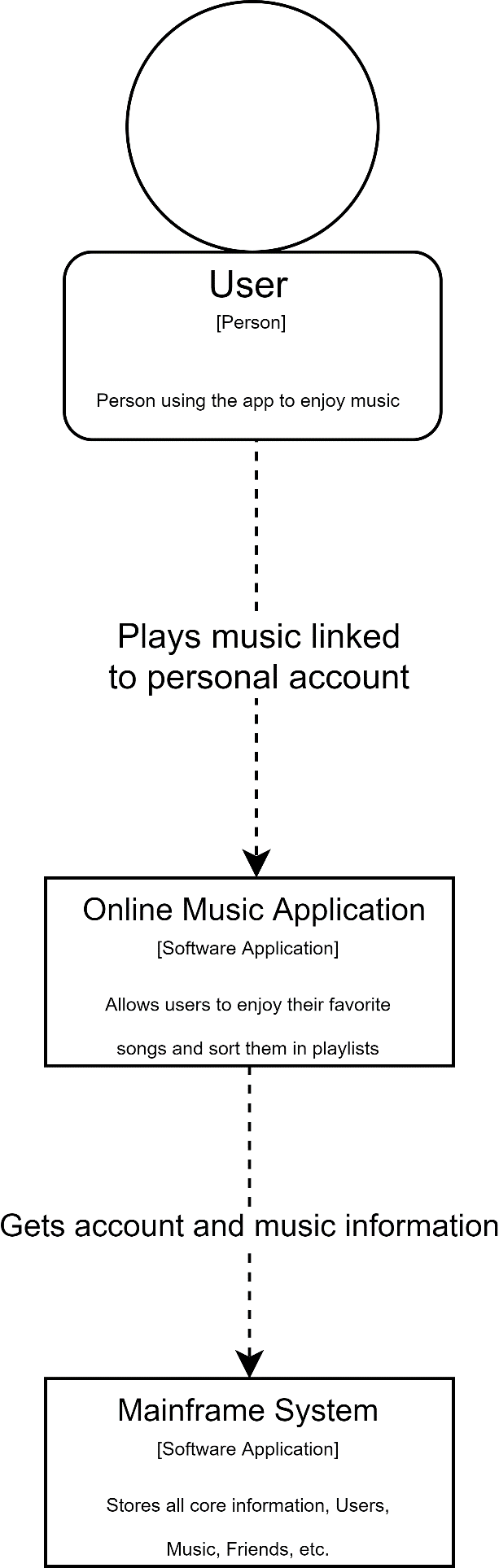
# Product Backlog

User story, Priority (User Story Count - 1), Estimation (Story Points), Acceptance criteria

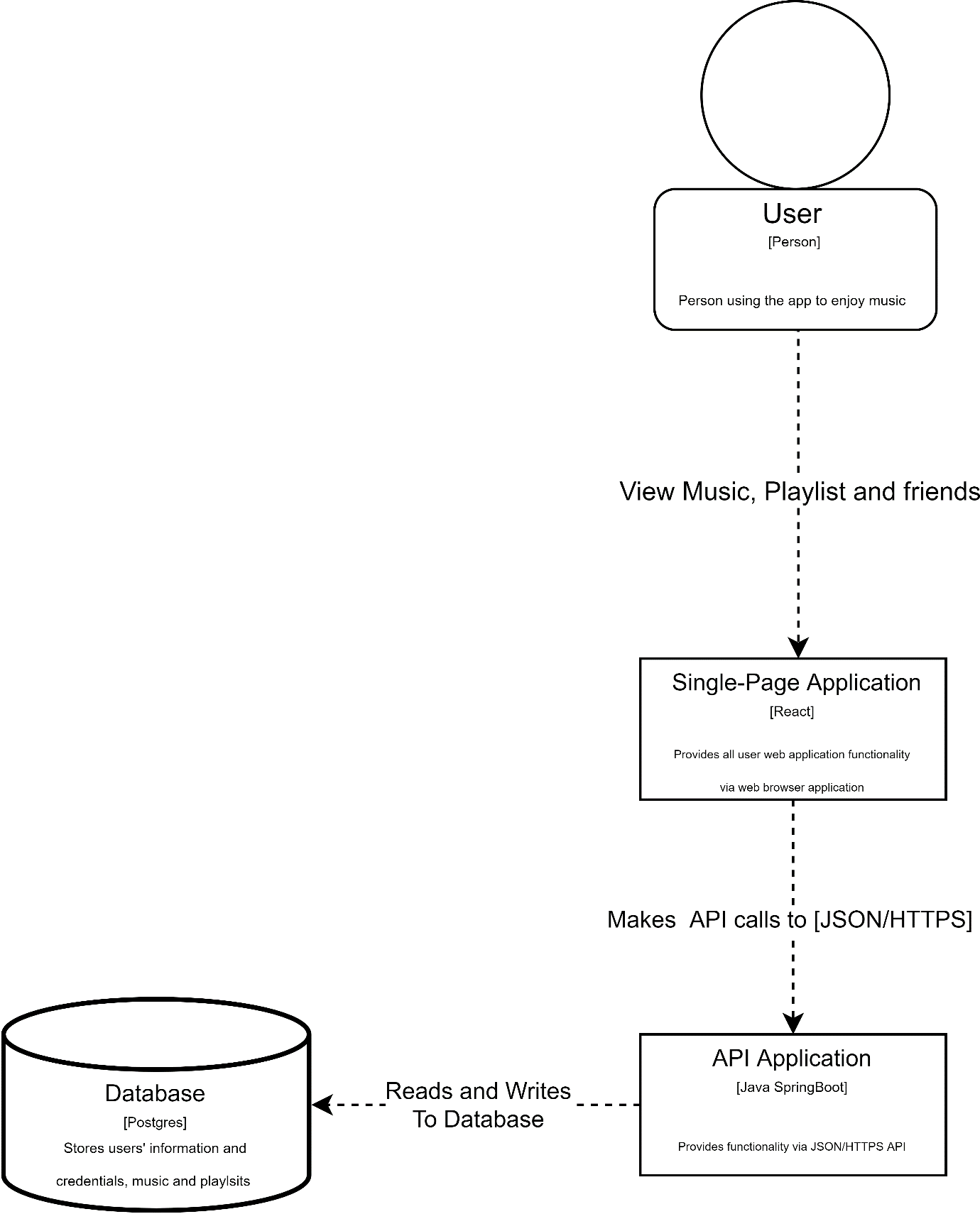
|  |  |  |  |
| --- | --- | --- | --- |
| **Task ID** | **User Story** | **Priority** | **Estimation** |
| 1 | *As a User I want to be able to have an account, so I can use additional features of the app*  **Acceptance Criteria:**   * In the login screen I should provide credentials (Email, Username, Password) * If the provided user credentials are valid I should be able to log in | **5** | **1** |
| 2 | *As a User I want to be able to play music from the app, so I can listen to my favourite songs*  **Acceptance Criteria:**   * I should be able to select a song from the application * When I click on a button I should be able to pause and resume the currently selected song | **1** | **5** |
| 3 | *As a User I want to have media controls, so I can skip, go back or pause certain songs*  **Acceptance Criteria:**   * A fast forward button that skips to the next queued song * A pause and play button that stops the currently playing music or resumes it if stopped * A rewind button that plays the previous song in the queue | **3** | **3** |
| 4 | *As a User I want a simple indicator of the current song, so I can check what is playing*  **Acceptance Criteria:**   * GUI indicator that displays all available metadata about the current playing song should be visible for me on the home screen | **4** | **1** |
| 5 | *As a User I want to be able to add my downloaded songs, so I can play them through the app*  **Acceptance Criteria:**   * When I click a button a menu to select a file should appear * Whenever I confirm my selection the song I selected should get added in the list of songs in the app | **2** | **5** |
| 6 | *As a User I want to be able to search through my music collection, so I can find my songs faster*  **Acceptance Criteria:**   * A search bar should be available for me to type information into * Whenever I type a song’s name into the search bar it should filter out the songs to that specific one | **6** | **1** |
| 7 | *As a User I want to be able to search for music within the app, so I can easily find more songs*  **Acceptance Criteria:**   * A search bar should be available for me to type information into * While having online connectivity, 3rd party services will find music based on the inputted data | **7** | **13** |
| 8 | *As a User I want to be able to create playlists, so I can sort my music collection*  **Acceptance Criteria:**   * I should be able to create multiple folder/directories containing different but not necessarily unique combination of music | **8** | **2** |
| 9 | *As a User I want to be able to delete playlists, so I can sort my music collection*  **Acceptance Criteria:**   * I should be able to delete folder/directories containing music | **9** | **2** |
| 10 | *As a User I want to be able to synchronize my music between my devices, so I can play my music on any device*  **Acceptance Criteria:**   * I want my uploaded content to be stored online * I should have the ability to access content to any logged in device of the account’s holder | **17** | **5** |
| 11 | *As a User I want to have a recommendation page, so I can find new music tailored to my taste*  **Acceptance Criteria:**   * A button that sends me to a different page * Specialized page that displays music that is not in my music collection yet * Recommendations will be based on similarity in genre | **14** | **21** |
| 12 | *As a User I want to be able to find other users on the app, so I can see my friend’s accounts*  **Acceptance Criteria:**   * A search bar should be available for me to type information into * After pressing Enter a list of users with matching names should appear | **15** | **2** |
| 13 | *As a User I want to be able to see other users playlists, so I can see what other people like listening to*  **Acceptance Criteria:**   * After clicking on a other people’s profiles their playlist should appear in a separate profile page | **16** | **3** |
| 14 | *As an Admin I want to be able to see all Users’ information, so I can navigate through user data easier*  **Acceptance Criteria:**   * After pressing a button, I should be redirected to a page only available to admins * Specialized GUI page with user list for admins to use | **10** | **1** |
| 15 | *As an Admin I want to be able to see all Users’ uploaded content, so I can make sure no inappropriate content is being uploaded*  **Acceptance Criteria:**   * Ability to filter out user uploaded content * Ability to preview user uploaded content | **11** | **2** |
| 16 | *As an Admin I want to be able to have Delete functionality for User content, so I can manage uploaded content easier*  **Acceptance Criteria:**   * Admin GUI option menu that allows removing of user content from the application | **12** | **5** |
| 17 | *As an Admin I want to be able to have Update functionality for User content, so I can manage uploaded content easier*  **Acceptance Criteria:**   * Admin GUI option menu that allows updating of user content from the application | **13** | **5** |

# Architecture diagrams

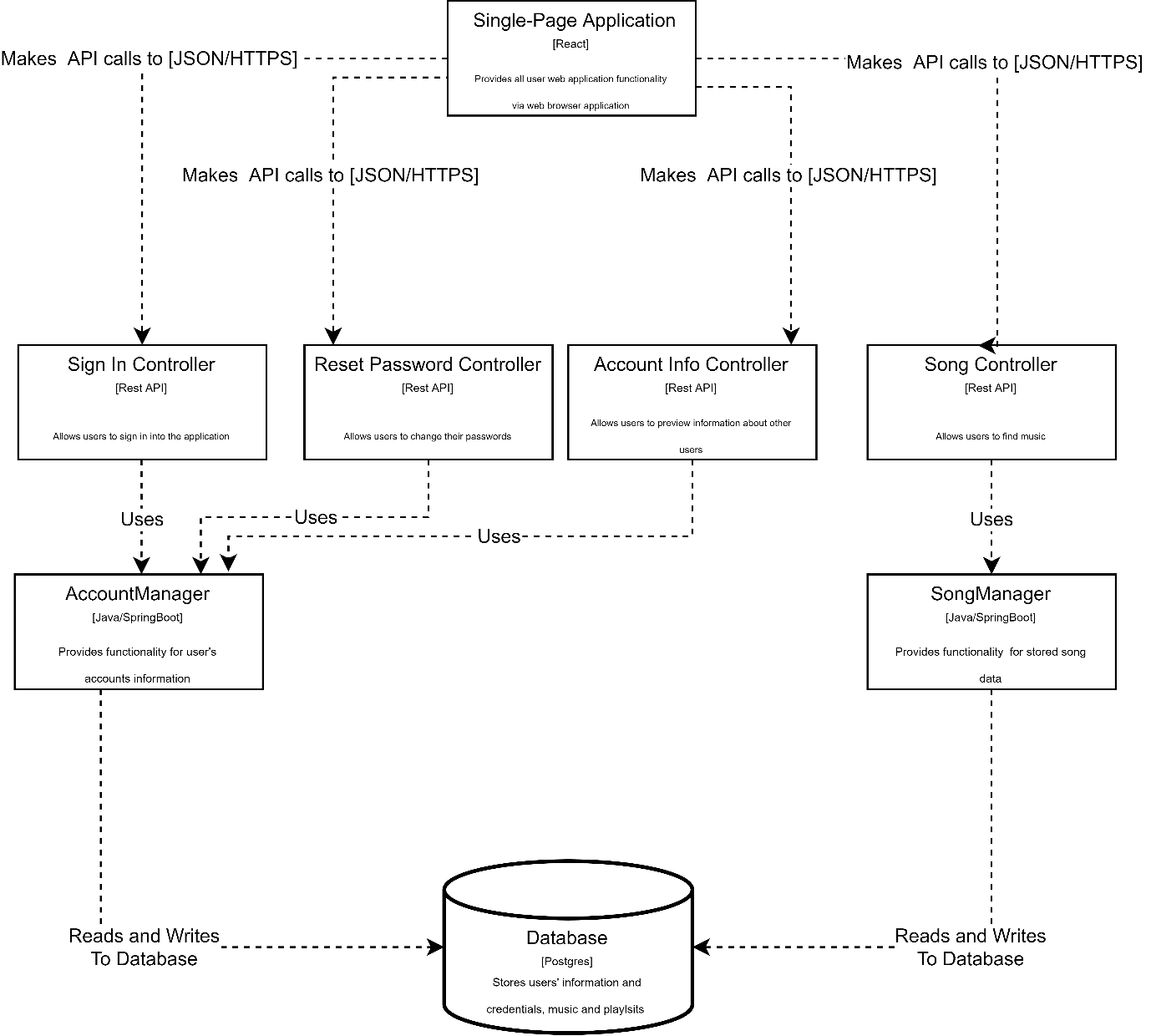
## C1 architecture diagram



## C2 Architecture diagram



## C3 Architecture diagram



## UML diagram

# Report

Duo to not finding the C4 architectural diagram particularly useful in the case of this project I have decided to not make one for now. Instead I will be using a UML diagram in which I will be better able to present the design for the application. The C4 diagram however will be later generated from the written code after the development of the application has ended.

# Solid Principles Guaranteed

## Single Responsibility

Classes are responsible for only one thing. This allows to have fewer unit tests and have less dependencies throughout my project. All classes are single-purpose, small and easy to understand.

## Open/Closed

I will ensure this by adding more to the base application instead of changing the base working code.

## Liskov Substitution

I will ensure this by making every class that implements an interface be able to substitute any reference throughout the code that implements that same interface.

## Interface Segregation

I will ensure this by splitting any interface that becomes too large within the project

## Dependency Inversion

I will ensure this by having implementations that would be easily changeable without altering any complex code.

# Software used

## Backend

For the backend I will use Spring Boot because it lets me create a standalone application that runs on it's own without relying on an external web server such as Tomcat into my app.

## Frontend

For the frontend I will use React because it allows me to create reusable UI components. React is xalso fast, scalable, and simple.

## Database Layer

The database layer will be a point of research and testing within my project duo to the uncertainty of reading, writing and storing big files, such as audio files, into a database.