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| CI601 – House Party |

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| Alexander wood - 22827042 |

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# Introduction

In this project I aim to create a website that will allow someone to link their Spotify account to a party that they create and then invite people to the party allowing them to search and add songs to the Spotify accounts queue without the need for an app or a Spotify account.

# Motivation:

I aim to do this as there are multiple music streaming services and each service has their own way of allowing people to share and control each other’s music, but these platforms do not support each other meaning at a party there is no way to invite someone who uses a different platform, so this gave me the idea to create a website to allow people to invite people to add songs to their queue while also removing the need for a platform specific account or app.

# literature review:

## Spotify API terms of service:

The Spotify API terms of service, I read through the terms of service to determine if my idea for the project would break any of the terms of service which would make the project illegal and unethical to make. The terms of service were very clear and made it very clear on what was possible to be made and what was not allowed to be done while using their API this was done by them breaking down their do and don’ts giving examples of what is not allowed for somethings to make it more clear and easier to understand.

## Spotify Web API documentation:

My next point of research was the API documentation to check to make sure that the project I wanted to do was going to possible. So, I started to by checking to see if the specific functions I needed for my project were present in their API and then followed this by reading through their API to find out how the Spotify login function works and how to handle the user’s authorisation tokens. I found certain parts of the documentation very useful, clear and easy to understand providing a sandbox playground which can be used to experiment with the API requests but there were certain parts of the documentation that required me to do more research outside of the documentation to find out how they work.

## Apple Music API documentation:

* Does not support the API functions required for the website
* Costs money to access to API to use it

## Soundcloud API documentation:

* Does not support the API functions required for the website

## YouTube documentation:

* Does not support the API functions required for the website

# Research

Before starting work on the project, the first step was research into the Spotify API and terms of service to make sure that the API offered the features required to build to the website and that the website would meet all the requirements of Spotify’s term of service.

I also followed this by doing research into other music streaming services APIs to see if it would be possible to add support for any other streaming platforms in the future, but the research proved that it would not be possible as they do not offer the required functions in their API’s preventing support from being added.

# Tools and software being used

## Visual Studio Code (VS Code):

For the coding and development of the project I have decided to use the programming Integrated development environment (IDE) VS Code. I chose to use this IDE as I have experience using it and it also allows for a lot of customization to your preferences allowing me to make it easier for me to use and understand.

## GitHub:

To store a backup of my code and also allows for version control this allows me to create a repository and upload all my code and files to it storing it securely and also allowing me to create interaction of the code when it comes to adding features or changing features that could cause major issues giving me the opportunity to undo the changes I have done.

By using GitHub, it allows me to control changes through branches allowing me to separate new changes from a working and functional build by having a stable branch and a dev branch once testing is done and I know all the changes pushed to the dev branch are functional I can then merge these changes into the stable branch.

## GitHub Projects:

To keep track of the project I decided to use GitHub projects I did this as it keeps both the code and the progress tracker together while also offering the same features as other project progress trackers.

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## Brighton Domains:

To Host the system, I have made I decided to use Brighton domains I did this as I already have access to Brighton domains allowing me to straight away start hosting my system including a database, database events, automatic PHP files, and HTML which meets all the requirements I needed.

# Planning

## Requirements:

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AI-generated content may be incorrect.To start the planning phase I decided to start by using a the MSCW method to help me prioritize the features and functionality that I will be adding to my project. This method is used to categorise the importance of each feature of the project into four different categories must have, should have, could have and won’t have.

## Design:

The next step in the planning process I took was to start designing what the website and user interface would look like I did this by first drawing small sketches of the website to design a layout of the website.

# Development

# Testing

While developing the system I used multiple different ways of performing tests to help find and fix bugs and improve the UI for the user’s experience the testing types that were used are white box, black box and automatic.

## White box testing:

White box testing was performed as development happened and was used to testing elements of the system as they were being implemented to make sure they were being implemented properly and worked as expected before the changes were pushed to the GitHub.

## Black box testing

Black box testing was performed by taking a small group of users and having them use the website this testing was done to furth identify bugs and issues that could arise while using the website. This testing also allowed for changes to the UI and new features to be discussed further helping to improve the website and its usability.

## Automatic testing:

In addition to all the tests that are being performed using human input I also put into place automatic testing of the pages that performs checks to make sure the page acts as it should depending on different variables, I built these tests using a package called playwright. An example of a test created can be seen in Appendix 2 and the results page that shows how the results of the tests on different platforms and browsers can be found in Appendix 3 this data is then further broken down so you can find where failures occur in the code which can be seen in Appendix 4.

Some tests have been disabled due to security put into place in the API preventing any external users from accessing the API this means the tests can’t be run locally and must be run on server.

# Limitations

## Brighton Domains:

There were plans to use a WebSocket made using Nodejs to handle requests between the user and Brighton domains. I decided to use this as it would improve the performance of the user’s device and put less strain on the servers. But as Nodejs is no longer present on Brighton domains I instead opted to use a polling system which has got some performance drawbacks, but it is a suitable replacement for the WebSocket as it can be used to perform the same action.

## Real World Testing:

I had the idea to perform real world testing but due to me only being able to do testing with people from within the same module doing testing in the real world would be unethical and break multiple rules that are imposed on the assignment due to this I have decided not to do this kind of testing.

# Design Decisions

## Languages Used:

When it came to the languages that I decided to use to build the system I decided to use JS, HTML, CSS and PHP I decided on these as Brighton domains supports hosting of these types of files, and I have knowledge in how to use these programming languages.

## Mobile First Design:

Due to the system mainly going to be used on mobile devices the decision was made to focus on a design which focuses on mobile devices mainly and does not have a separate view for larger screens instead it just scales to the screen size. By doing this it allowed for some time to be saved and used to focus on features that are more important.

## Minified Files:

To help improve performance of the website I decided to use minified JS and CSS files to help improve loading speeds and deliver a smoother user experience.

## Basic Design:

I decided to make a basic design for the website so it is easy for anyone to pickup and use this was also influenced by the environment it is going to be used in where people do not want complicated interfaces with fancy designs as it can make it harder to use.

## Micro Services architecture:

When building the system, I decided to build it using micro services this allows parts of the website to be reused in other parts as they as they work individually this also improves maintainability this is because the code is easier to find and also mean when updating the parts it updates across all parts of the website that use the function being updated.

## Spotify:

I decided to use Spotify over other music platforms for multiple reasons the first reason is that I use Spotify and have access to a Spotify account where I do not have access to an account from other platforms. The second reason is the API Spotify’s API is free to use and has the required API functionality I need to build the website where other platforms do not have the required functions or are not free to use and require a subscription. The final reason is that Spotify has a large user base meaning there will be more people able to use the website compared to if I used one of the not as popular music platforms.

# Risks

## Spotify API Dependent:

A major risk that affects the system is its dependency on the Spotify API this means that if the Spotify API becomes unresponsive or unavailable the system will not be able to work. This also means that if anything about the API changes that affects functions that is used in the system the system will need to be updated to support the new changes leaving it unavailable till the update has been done.

## Brighton Domain Servers:

Since the system is hosted solely on Brighton domains without redundancy or backup measures, it will become unresponsive and inaccessible in the event of a failure of Brighton domains.

# Documentation

Throughout development of the website there were multiple custom built tools so while developing the website I wrote documentation about the tools and how they work these documents cover how the API works and how to call the functions and also all the custom JS functions used throughout the website this was done to make maintaining the website in the future easy by having easy access to how everything works.

# Conclusion

# References

*Spotify Web API (no date) Web API | Spotify for Developers. Available at:* [*https://developer.spotify.com/documentation/web-api*](https://developer.spotify.com/documentation/web-api) *(Accessed: 20 September 2024).*

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*SoundCloud for developers (no date) API - Guide - SoundCloud Developers. Available at:* [*https://developers.soundcloud.com/docs/api/guide*](https://developers.soundcloud.com/docs/api/guide) *(Accessed: 10 December 2024).*

# Appendix

## Appendix 1:

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| --- | --- |
| Date | Meeting notes |
| 26/09/2024 | * Spoke about project idea * Talked about the legal side of the project * Spoke about what research needs to be done into the terms of service |
| 03/10/2024 | * Updated on legal research * Updated on project progress |
| 10/10/2024 | * Progress update on designing the project * Did ethical form * Updated on project progress |
| 24/10/2024 | * Updated on project progress * Spoke about submitting the Spotify API forms to have the project recognised by them |
| 13/11/2024 | * Spoke about the interim report focusing on what I have in It already and what I could add to it * Updated on project progress |
| 18/02/2025 | * Updated on development of the project * Shown a demonstration of a prototype working * Updated on the status of Spotify Application * Discussed features that could be added or discussed in report * Discussed the report of the dissertation |

## Appendix 2:

A computer screen shot of a program code

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## Appendix 3:

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## Appendix 4:

A screenshot of a computer program

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