**SpotiFlask**

Database project part 1 – design documentation

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(<https://developer.spotify.com/>)



(<https://www.fullstackpython.com/flask.html>)

# Evaluation

## Meeting System Requirements

As mentioned in the part 1 documentation, “Database project part 1 – design documentation”, my system should be able to:

* Allow access to data surrounding songs, playlists, artists, albums and the user.
* The UI should be simple and straightforward.
* The database should be quickly and easily accessible to the end user.
* The database should also be able to facilitate the long-term storage and addition or removal of data.

The system in its current state supports all of these requirements, as well as being able to fetch sample data when an internet connection is available. It also has offline capabilities and can provide an adequate amount of sample data for the user to test.

## Possible Improvements

There are several aspects of my system that could be improved. Firstly, the current user interface is bland, without much colour and only minimal formatting. This could be improved with more time being put toward the CSS styling of the web pages, as well as including a few more images then is currently present.

Secondly, although the query system is quite intuitive, the buttons that are hidden still take up space on the web page, giving it a strange look with odd, segmented gaps between certain items. This could be solved again with CSS, or even in the JavaScript backend itself, by changing the amount of space an object takes up while hidden.

A certain amount of quality of life features that could be implemented, such as the extension of existing code to disable buttons when a backend function such as a database query or creation script is running. Another quality of life feature that could be implemented could be the ability to directly select the first table / variable option in the selection, rather than having to switch off of the option then switch back for it to be searched.

## Changes to the Database

There have not been any major changes to the database that have taken place, with the ER diagram remaining almost exactly the same as was outlined in the part 1 documentation. This can be found attached at the end of the document, and functions as the ER diagram for the current system.

## Known Problems

There are no known problems currently present within the web app, however some currently used backend scripts could definitely be optimised further to increase performance for things such as filling the database with sample data, as well as the scripts that retrieve and organise data from queries into render-able html tables. These could be improved simply with more time, and the opportunity to research deeper into faster alternatives for filling the database, as well as the rendering of mass amounts of data into html tables some cases.

## Development process

I followed my original plan quite well. I had most goals achieved by the time set on my gantt chart, as well as some additional endpoints and backend functions that I had not realised I needed. I also introduced the idea of JavaScript into my web application, which took up some time as I had never used it before this. However, this time was well very useful, as it allowed the system to do things with html that I was otherwise going to have to try to implement in pure python and flask. This would have been time consuming, as there is a lack of inbuilt functions in python to deal with data from the html page, as well as a lack of the direct interface with html elements that JavaScript provides. This direct interface is quintessential to the current system and a majority of features and even endpoints would not function correctly without it.

### Preparation

Prior to beginning development, I had a quite solid understanding of SQL, so did not complete as many Arcadia activities as I could have. The transition from that SQL knowledge into python’s sqlite3 package was quite smooth, especially since Flask facilitates a direct interface with sqlite3 and SQL databases on a request by request basis. This was very useful in development, as it meant it could tie a database connection to a user’s requests and deal with their input data accordingly.

The development process I undertook followed an iterative structure. Looking back, this was likely the wrong choice, as it meant I was at higher risk of feature creep – which I occasionally found – and also that I did not have a set plan to follow step by step. This led to me being caught up in fixing a bug that would be recurring because of something in the html or python, rather than the JavaScript I was attempting to debug. I did manage to get around this through liberal use of the inbuilt logger module in python, and “console.log” in JavaScript, the equivalent to a print statement in python.

The iterative structure was especially harmful when implementing multi-table searches when it got later in the system’s development. This was because I had not planned well to implement this, and the iterative nature of my development led to several key functions that I could not easily change without the system breaking. These functions included the function responsible for retrieving data in JavaScript, as well as the backend python function running SQL queries to the database.

Although I managed to get around this by essentially recreating the functions with a focus on multi-table searches, it would have been much simpler to keep searching contained within one function. This also led to the creation of a multitude of endpoints that were unnecessary if I had been able to package the multi-table search and the single-table searches together.

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