

Software Architecture

Software architecture design is the process of creating and defining software architecture for a given project or application. Software design is broken up into two parts: architectural design and detailed design. Architectural design describes the high-level components of the software, their properties, and the relationships between them. This is analogous to a structural blueprint. The detailed design denotes the desired behavior of the components. Once set into motion, software architecture can be difficult and costly to change, so it is imperative to put serious consideration into it.

This design is important as it can provide several important benefits. Firstly, a good design can prevent potential issues by anticipating them ahead of time instead of running into them unprepared. By considering how you want to structure a project you also consider how it shouldn't be structured. Furthermore, good software architecture improves future maintainability. A haphazard disorganized design makes it very difficult to add new features and locate previous bugs. A design makes you consider the infrastructure that would be needed to later expand on and maintain the project and improves the organization as a whole.

For our project, we decided upon implementing a 3 tier architecture. This architecture extends the client-server architecture by defining data, logic, and presentation tiers. These tiers are very modular and can be upgraded or replaced independently of the rest. The presentation tier is the top-level user interface, the logic tier modulated the commands and data between the other two layers, and the data tier stores and retrieves data from a database.

This architecture works very well for our project for several reasons. Firstly, we can readily define a presentation, logic, and data tier. The user needs to authenticate a Spotify account which allows their data to be accessed. Here, their Spotify account serves as the database where data is parsed and stored through their API. Our backend then serves as the logic tier where it sends commands to manipulate the data in certain ways as per the users' request. Once completed, the data is sent to the frontend, our presentation tier, where the data is displayed. The user can then make choices about how they want to edit their playlists, which the logic tier processes and sends commands to fulfill.