Research Document

Technology research

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# What programming languages and frameworks are available for a good quality streaming service platform?

In this research question I will be comparing programming languages that are particularly good at synchronous communication because I need it for my video syncing application. At the end of this question I hope to exactly know what programming language and library I will be using for my application so that I can start on my walking skeleton.

## Literature study & Community Research

### Backend

These programming languages are commonly used for server side development in a video synchronizing platform. I will need a programming language and framework that can handle real-time communication, manage users sessions and can coordinate video synchronization. These are the 4 programming languages I will be considering.

#### Python

As I will be using WebSocket’s in my application for real time communication python would be a really good choice to use because of the wide range of libraries that it offers like Socket.IO. Also with a framework like Flask, simplicity of development can be really helpful. Python also has support for libraries like Pafy which can download youtube videos from links which is needed for my platform. Python also has a large and active community of developers which means there are plenty of resources to help me with this project.

#### JavaScript(Node.js)

Node.js is widely used because of its event-driven, non-blocking I/O model. Its really suitable for handling WebSocket connections and real time communication implementation with libraries like Socket.IO.

#### Go(Golang)

Go is very good for scalable server-side applications. It can handle multiple simultaneous connections efficiently which is very important for real-time communication and video synchronization. I have never used Golang and I have the feeling that it will be too hard/different of a language to start out on from scratch and to learn in one semester.

#### Java

Together with frameworks like Spring Boot java is commonly used for robust and scalable server-side applications, it offers strong performance reliability and extensive libraries for implementing real-time communication. I have created a lot of applications with Java so I want to do something different and expand my knowledge to different programming languages.

#### Conclusion

For my Backend I chose to use Python, because I have only created one script with python and I am very interested in creating a whole backend application with it. Also python seems to have the most helpful tools for me this project like a YouTube link downloader, Socket.IO integration and a simple framework like Flask I am eager to take on the challenge of working with a programming language that I have very little experience with and to further broaden my knowledge.

### Frontend

For my frontend I will be using JavaScript as this is the most commonly used frontend language with lots of support. JavaScript has possibilities for a rich responsive user interface and it also enables real-time updates and communication with the server which is needed for my video syncing application.

For JavaScript library/framework I have the chose between Angular, Vue or React. I will not choose Angular because of its dependency on TypeScript, also Angular has a high learning curve because of its complexity and I think I will make it to hard for myself if I would choose Angular.

My chose will be for Vue.js this is because I have used React a lot in my past projects and I have never used Vue because of this I want to extend my knowledge on this and use Vue in my project for a change. Vue also is very easy to learn according to my research.

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