**Research Document**

For Individual track project S3

Logo

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# Introduction

In this document I will introduce the tools I use and the reasoning behind it.

# Tools

## What is Java?

Java is one of the most used programming languages in the world and is the most popular one in South Korea, Germany and China with the usage being 53%, 33% and 47% respectively. During this semester we will study Java thoroughly.

It is to no one’s surprise that the leading version of Java is still version 8. For the years of 2020 and 2021 it’s usage from the community remains unchanged and Java version 11 is closely following behind.

[[1]](#footnote-1)

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## Which web framework do I use?

The framework I decided to use is Spring Boot. It is also the most popular choice among developers.

[[2]](#footnote-2)

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[[3]](#footnote-3)It is an open-source Java-based framework used to create a micro Service. It is developed by Pivotal Team and is used to build stand-alone and production ready spring applications.

Spring Boot is widely used for developing REST APIs, which is exactly what I will be making use of in this project.

Another upside of Spring Boot is that there is no need to build configuration manually, unlike with Spring MVC.

## Which build system do I use?

The build system I use for this project is Gradle. It is the second most popular build system, closely following Maven behind as can be seen in the diagram.

The overall picture is roughly the same in 2021 as it was in 2020.

[[4]](#footnote-4)

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[[5]](#footnote-5)Both Gradle and Maven employ some form of parallel project building and parallel dependency resolution. The biggest differences are Gradle's mechanisms for work avoidance and incrementality. The top 3 features that make Gradle faster than Maven are:

* **Incrementality** – Gradle is only running what is necessary and only processing changes when possible.
* **Build Cache** – Reuses the build outputs of any other Gradle build with the same inputs.
* **Gradle Daemon –** A long-lived process that keeps build information “hot” in memory.

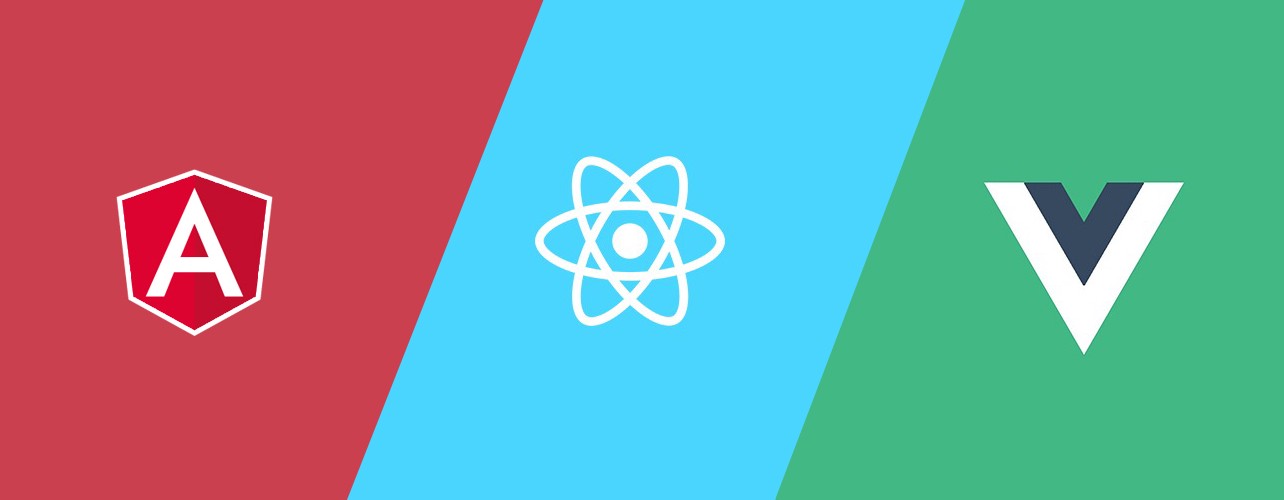
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## What JavaScript Framework do I use for my frontend?

After doing extensive research and carefully considering the available options, as a tool for developing frontend I decided to go with AngularJS.

[[7]](#footnote-7)



AngularJS is one of the most popular JavaScript frameworks out there. Just like React for example, (another very popular choice) it is a component-based framework used for building scalable web applications.

Both of these frameworks are perfectly suitable for the goal of this project. Angular is developed by Google and React by Meta (formerly known as Facebook).

Angular is built on TypeScript, which means that it is very good for Object-Oriented Programming (OOP) but the learning curve for it is much steeper and trickier than React’s. Angular is vast and dynamic. Developers may find it challenging, but it is worth it to give time at the initial phase to better enjoy developing the applications.

Even though it is less popular now, I still decided to go with Angular because it allows for a highly customizable and specific apps and has proved to be one of the best ones for the job.

Chart, timeline

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1. <https://www.jetbrains.com/lp/devecosystem-2021/java/> [↑](#footnote-ref-1)
2. <https://www.jetbrains.com/lp/devecosystem-2021/java/> [↑](#footnote-ref-2)
3. <https://www.tutorialspoint.com/spring_boot/spring_boot_introduction.htm> [↑](#footnote-ref-3)
4. <https://www.jetbrains.com/lp/devecosystem-2021/java/> [↑](#footnote-ref-4)
5. <https://gradle.org/maven-vs-gradle/> [↑](#footnote-ref-5)
6. <https://gradle.org/maven-vs-gradle/> [↑](#footnote-ref-6)
7. <https://chsvk.medium.com/vue-vs-angular-vs-react-in-2019-answered-4ec8dc96e602> [↑](#footnote-ref-7)
8. <https://www.youtube.com/watch?v=z2lFNydRXt4> [↑](#footnote-ref-8)