

Applied Research

Individual project Semester 3



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Dyulgeryan, Vartan

DAVINES PROJECT

## 1. Which framework will be used for front-end? (Literature study method)

Currently in the web development industry, the number of technologies, frameworks, and tools is rapidly increasing.

When choosing a particular framework or library, JavaScript has plethora of options for front-end development, such as VueJS, TezJS and Svelte. However Angular and React secure their places at the top of the list as many developers prefer them for their front-end development frameworks due to popularity.

### 1.1. What are reasons that React is preferred than Angular? (Literature study method)

React JS offers many excellent front-end benefits to users and developers. Here are some of the prime advantages of React JS you can leverage:

* React offers an easy debugging process. The code is reusable.
* It’s easier to learn because of its easy and simple design.
* It allows developers to migrate their app in react very easy.
* It supports both Android and iOS platforms.
* React JS is view oriented .
* It has faster updates with both server-side and front-end support.
* It supports a React Native library that offers efficient performance.

(Raval, 2022)

## 2. Which framework will be used for back-end?

## (Literature study, Community search method)

Today they are many programming languages and frameworks, but only a few are frequently in use. These languages are Java, C#, Python, Kotlin, etc. The most popular frameworks nowadays are Spring Boot – Java and ASP .NET Core for C#.

(Clark, 2022)

### 2.1. In what ways Spring Boot framework is more convenient to be used than ASP .NET Core? (Literature study, Community searched method)

ASP .NET Core is an Open Source, General-Purpose Development Platform Maintained by Microsoft, and the .NET Community. Cross-platform (supporting Windows, macOS, and Linux) and can be used to build device, cloud, and IoT applications. Spring Boot creates Spring-powered, production-grade applications and services with absolute minimum fuss. Spring Boot makes it easy to create stand-alone, production-grade, Spring based Applications that you can "just run", which is why it’s preferred to be used.

(Maciejko, 2020)

## 3. Ways to saves images in the database? (Literature study, Community search method)

### A full-stack application dealing with public interactions or creating user profiles usually runs into the problem of storing images or profile pictures of users to the database. Of course, you can break the picture into bytes or bits, etc., and store the same but this is a horrible practice and is far too difficult in practice. The other way of doing this is by uploading the picture to a server or a folder, generating a public URL for the upload from there, and storing this URL into the database.

(Bhatnagar, 2021)

### 3.1 Does using a cloud for storage is more effective than saving them in a file system? (Literature study, Community searched method)

To do so, we need a third party or in-house server or similar services that can hold off our images and do the needful. Cloud services like GCP, AWS, etc. provide us with this service but they are usually costly and have little storage in the free version. The alternative to these services is third-party providers like CloudConvert, Cloudimage, etc. One such alternative is Cloudinary which provides ample storage of nearly 25 GB in the free plan and many other services.

(Bhatnagar, 2021)

## 5. Which database should be used for storing data? (Literature study, Community searched method, Best good and bad practices)

Databases are the cornerstone of any Software Applications. You will need one or more databases to develop almost all kind of Software Applications: Web, Enterprise, Embedded Systems, Real-Time Systems, AI, ML, HPC, Blockchain, IoT, and many other applications. Currently there are a lot of different databases to use but the most popular ones are MySQL, Oracle, and PostgreSQL. (Kamaruzzaman, 2021)

### 5.1. In what ways MySQL is more convenient to use in this project rather Oracle

Among the open-source Databases, while PostgreSQL focuses on innovation and advanced features, MySQL focuses on robustness, stability, and maturity.

Today, MySQL is one of the most popular and widely used SQL databases. It is also one of the most used databases in Web Applications. Some of the world’s largest Web-Scale applications (e.g., Facebook, Uber) uses MySQL.

**Tops MySQL:**

* Open-source RDBMS with two licensing models: free Community Server and proprietary Enterprise Server.
* Offers ACID transactional guarantee (with InnoDB engine). In terms of CAP, it offers immediate Consistency.
* Offers horizontal partitioning (sharding) via its Shared Nothing MySQL Cluster. As a result, it offers high availability and high throughput with low latency and near-linear Scaling.
* With its MySQL Cluster, it offers multi-master ACID transactions.
* Multi-model database and supports both structured data (SQL) and semi-structured data (JSON).
* It’s free.

Currently, Oracle is the number one commercially supported database and one of the widely used RDBMS overall. Its latest release (21.c) has added many innovative features that will make it an attractive option in the coming years. Offers Blockchain Tables.

**Tops Oracle:**

* Proprietary RDBMS.
* Offers ACID transactional guarantee. In terms of CAP, it offers immediate Consistency as a single Server.
* Advanced Multi-Model databases supporting Structured Data (SQL), Semi-Structured Data(JSON, XML), Spatial Data, and RDF Store. Offers multiple access pattern depending on the specific Data Model
* Offers Blockchain Tables.
* Supports both OLTP and OLAP workload.

MySQL is free while Oracle is a paid database, and with the scope of this project it’s not usable. Oracle provides blockchain tables that are not needed for this project and the learning curve of oracle is high while on MySQL is low.

(Kamaruzzaman, 2021)

# Conclusion

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