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| MakerSpace Information Management System |
| Technical Documentation |
| A guidance of the project development process |

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# Introduction

This document describes both the process of development environment initialization and general commands for the backend and frontend projects, which aims to provide precise guidance to internal developers and IT staff from the client to apply the programming development of this information management system. Moreover, it is assumed that the user of this document should have related IT background and programming skills, so there are fewer details of specific programming commands such as the installation of dependencies.

# Development environment

## Database requirements

The data storage of the system relies on the open-source relational database system, MySQL from Oracle.

To guarantee the basic performance of data transmission, it is important to install suitable versions of MySQL in device. It is recommended that using the MySQL Community Server 5.7 to support database. A higher version of this software may cause potential conflicts between database data structures, and backend project.

MySQL Installer 5.7.42 resource: <https://dev.mysql.com/downloads/windows/installer/5.7.html> (Accessed: 11 May 2023)

## Backend requirements

The backend project is built by open-source Java framework called Spring Boot. To successfully run backend project, it is critical for install suitable Java development kit as supported environment from Oracle. Based on the requirements from this framework, at least the version 19 of JDK should be installed in device. Besides, version 20 of JDK could also be used.

JDK resource: <https://www.oracle.com/ie/java/technologies/downloads/> (Accessed: 11 May 2023)

## Frontend requirements

The frontend project is created with a popular JavaScript framework called React. There are two steps to set environment.

The first step is to install Node.js to support JavaScript environment. It is recommended that at using version 16.15.0 of Node.js. A higher or lower version of this software may cause problems during running process.

Node.js resource: <https://nodejs.org/en/download/releases> (Accessed: 11 May 2023)

The last step is to install React framework.

React resource: <https://react.dev/learn/installation> (Accessed: 11 May 2023)

In summary, the developers should follow these steps to set a complete programming environment that could support the smooth running of the database, backend project, and frontend project.

# Project initialization

After setting of development environment, all related code and support materials could be downloaded from GitHub, the open-source code version control platform. Besides, there are several paths of downloading public projects that could be found on GitHub's official website.

Code at GitHub recourse: <https://github.com/Wanqi-Strong/MakerSpace> (Accessed: 11 May 2023)

After successfully installing MySQL in the device, then the .sql files in the Script folder from the GitHub repository should be committed to installing the database for this system.

By choosing your own preferred integrated development environment (IDE), it is simple to install both dependencies for the backend and frontend project. For backend project, IntelliJ IDEA is recommended to control dependencies and running tasks. For frontend projects, VS code is suitable for developers to update dependencies and run tasks.

IntelliJ IDEA recourse: <https://www.jetbrains.com/idea/download/#section=windows> (Accessed: 11 May 2023)

VS Code recourse: <https://code.visualstudio.com/download> (Accessed: 11 May 2023)

# Project command

For frontend, there are two main commands.

Install dependencies: npm install

Run project: npm start