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# Deployment Manual

for

# Metu NCC Library Management

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# 1 Introduction

## 1.1 Summary

This deployment guide provides comprehensive instructions for the successful configuration and deployment of the Metu NCC Library Management (MLM) software product. Throughout this document, the term "Metu NCC Library Management" will be abbreviated as MLM. This guide covers the deployment process for both backend and frontend components in detail. Additionally, it includes important information such as system requirements and preliminary setups.

In this document, you will find the following:

- Requirements: All necessary software and hardware components required for running the MLM software.
- Backend Deployment: How to deploy and configure the Spring Boot and PostgreSQL-based backend.
- Frontend Deployment: How to deploy and configure the Flutter-based frontend.

This guide provides step-by-step instructions to ensure that you can deploy the MLM software smoothly, serving as a reference for developers deploying the software for the first time.

## 2 System Requirements

Before you begin the deployment process, it is important to ensure that your system meets the necessary requirements. This section outlines the hardware and software prerequisites needed to run the MLM software effectively.

### 2.1 Hardware Requirements

- The CPU must be a minimum 2 GHz dual-core processor.
- The system must have at least 4 GB of Ram, through 8 GB is recommended.
- The system must have at least 10 GB of free disk space.

### 2.2 Software Requirements

- The operating system must be Windows10, macOS 10.15+, or Linux. For Linux, we recommend Ubuntu 18.04+ as the preferred distribution due to its compatibility and extensive support within the developer community.
- The system must have Java Development Kit, JDK, version 17 or higher installed.
- The system must have PostgreSQL version 15 or higher installed.
- The system must have Flutter SDK version 2.0 or higher installed.

### 3 Preliminary Setups

Before proceeding with the deployment process, there are several preliminary setups that need to be completed to ensure smooth deployment and configuration of the MLM software. Additionally, please ensure that you have obtained an SSL certificate as it is required for secure communication between the backend and frontend components.

#### 3.1 Install Java Development Kit (JDK)

- Download JDK 17 and install it.
- Set the JAVA\_HOME environment variable.

#### 3.2 Install PostgreSQL

- Download PostgreSQL and install it.
- Create a database and note the access details.

#### 3.3 Install Flutter SDK

- Download Flutter SDK and install it.
- Run '*flutter doctor*' to verify the setup.

### 4 Backend Deployment

The backend deployment process involves setting up the server-side components of the MLM software. This section provides guidance on how to configure and run the backend application. Before proceeding with the backend deployment process, ensure that you have access to the necessary resources and have reviewed the system requirements outlined in Section 2.

#### 4.1 Clone the Repository

Run the following command to clone the repository:

```
git clone https://github.com/bartucank/mlm
```

#### 4.2 Configure Application Properties

Before running the MLM software, you need to configure various application properties to customize its behaviour. This file located at `/src/main/resources`. Below are the settings you can adjust:

##### 1. PostgreSQL Connection Settings

Configure the JDBC URL, username, and password for connecting to the PostgreSQL database.

##### 2. SSL Certificate Configuration

Specify the path to the SSL keystore, the password for the keystore, and the keystore type.

##### 3. Secret Configuration

Set the secret key and its expiry time for security purposes.

##### 4. Mail Configuration

Provide the username, password, SMTP host, port, and sender title for the email server.

##### 5. Default Settings

Adjust default settings such as start and end hours of the library, default borrow day, late return debt, server port, and Hibernate's automatic table creation strategy.

### 4.3 Build and Run the Application with Gradle

To build and run the MLM software using Gradle, follow these steps:

- Build the application:
  - Navigate to the project directory.
  - Run the command `./gradlew build` to build the application.
- Generate Jar:
  - After the build process is completed, run the command `./gradlew bootJar`.
- Run the Application:
  - After the generating jar process is completed, jar file will be existing at `/build/libs` folder. Run the jar file by running the command `jar -jar mlm-2.0.0.jar`.
  - Your backend server will be live on the port which is configured by you in the section 4.2.

## 5 Frontend Deployment

The frontend deployment process involves setting up the client-side components of the MLM software. This section provides guidance on how to configure and run the frontend application. Before proceeding with the frontend deployment process, ensure that you have access to the necessary resources and have reviewed the system requirements outlined in Section 2.

### 5.1 Clone the Repository

Run the following command to clone the repository:

```
git clone https://github.com/bartucank/mlmui
```

### 5.2 Configure Environment Variables

Before running the MLM software, you need to configure various environment variables to customize its behaviour. These variables are typically located in the environment configuration files. Below are the settings you can adjust:

#### 1. Backend Server Link

Ensure that the backend server link is correctly set in the `constants.dart` file. This file is located at `'api/service/'` folder. This link determines where the frontend application will send requests to interact with the backend server.

### 5.3 Build and Run the Application with Flutter

To build and run the MLM software using Flutter, follow these steps:

- Download the dependencies and build the application:
  - Navigate to the project directory.
  - Run the command '*flutter pub get*' to download the dependencies.
  - Run the command '*flutter build*' to build the application.
- Run the Application:
  - After the build process is completed, you can run the application on a connected device or emulator by executing the command '*flutter run*'.
- Release Android App:
  - For generating APK file, you must build and run at least one time. Then you must run command '*flutter build apk --release*' to build APK file.
- Generate iOS App:
  - For generating IPA file, you must build and run at least one time. Then you must run command

## 6 Conclusion

This Deployment Manual provides a comprehensive guide for the successful deployment of the MLM software. It covers both backend and frontend deployment processes in detail, ensuring users can follow step-by-step instructions for a seamless setup. By encompassing all necessary steps for developers, this document serves as a valuable resource for the successful deployment of the MLM software. Should you encounter any issues or require further assistance, you can open an issue on GitHub repository. Thank you for choosing MLM software.