Wiley Online Library

User Guide

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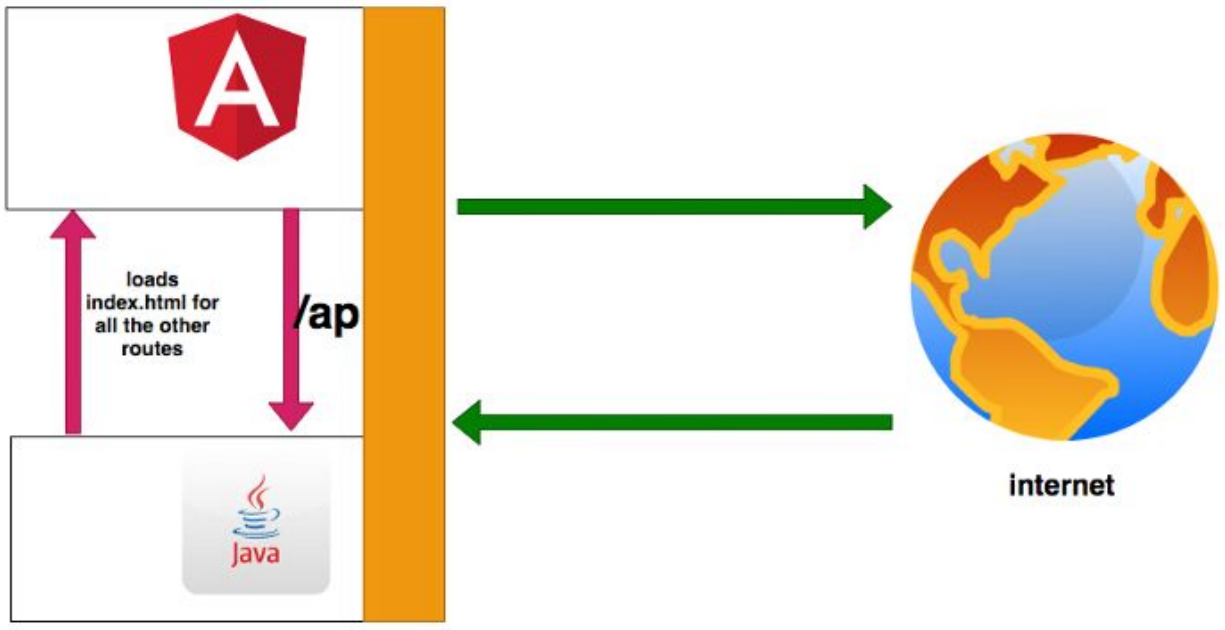
Introduction

The intention of this document is to provide a full user guide to the solution for Wileys Online Library given using Angular and Java.

Angular is a javascript framework for building web apps and it doesn't load itself in the browser. We need some kind of mechanism that loads the index.html (single page) of Angular with all the dependencies(CSS and js files) in the browser. In this case, we are using java as the web server which loads Angular assets and accepts any API calls from the Angular app.

Following image depicts the connections between components.



Why is Spring Boot and Angular a better Hybrid approach?

What is Angular?

To simply define, Angular is a simple platform that allows one to build simple applications on the web. It combines the usage of declarative templates, dependency injection, and end to end tooling along with integrated practices in order to meet development challenges. Angular also allows developers to build applications that not only live on the web but also on the desktop and mobile.

Today, Angular is considered to be one of the most popular JavaScript frameworks for front-end work, along with the likes of React and Vue.js. It has been available for almost a decade and has gone through several upgrades.

What is Spring Boot?

Spring Boot is a project set atop the Spring framework. It is a really simple way to set up, configure and run applications, simple and web-based. However, one major problem with the Spring framework is that one needs to configure everything by themselves. Hence, it results in having plenty of files to configure, which can be difficult. Now, this is where Spring Boot steps in.

Spring Boot can smartly choose your dependencies and hence, configures all the features that you may be using. Therefore, one can just proceed to start their application with a single click.

Why are Angular and Spring Boot used?

One of the biggest advantages of using Angular 7 or even Angular is that it is supported by Google. It is part of Google's Long-Term Support and they are very positive about its stability. Applications also make use of TypeScript language, a superscript of JavaScript, which allows for better security with support for types. It is also easier when checking for errors, during coding and maintenance.

The usage of declarative UI, in the form of HTML is a bonus point here as it is a declarative language. The Angular framework also comes with the MVC (Model-Controller-View) setup, which asks developers to divide the app only. Using this simpler MVC structure allows developers to cut down on unnecessary code making development easier. Furthermore, testing is easy with the use of Angular.

Coming to Spring Boot, as earlier mentioned, one major plus point is that dependencies are auto-configured. This is one major advantage that favors the use of Spring Boot.

Secondly, Spring Boot literally functions as a standalone. As a developer, one does not need to go through the pain of having a particular environment or a web server. An application can merely run on a click. The third plus point for Spring Boot is that it is opinionated. It is contextually aware and smart, and so the framework can choose how to do things for itself.

The Angular-Springboot Solution

This is a simple project which demonstrates developing and running Angular applications with Java. Here we assume that the application is deployed on the server.

- Once we deploy our application on the server, a welcome page generates two links - signup and login.
- A new user can choose the signup and register themselves by filling up the required details.
- However, the existing user can use their email id and password to log in.
- Once we log in, we can fetch the details of existing users.
- In the end, we can exit from the current state by clicking the logout link.

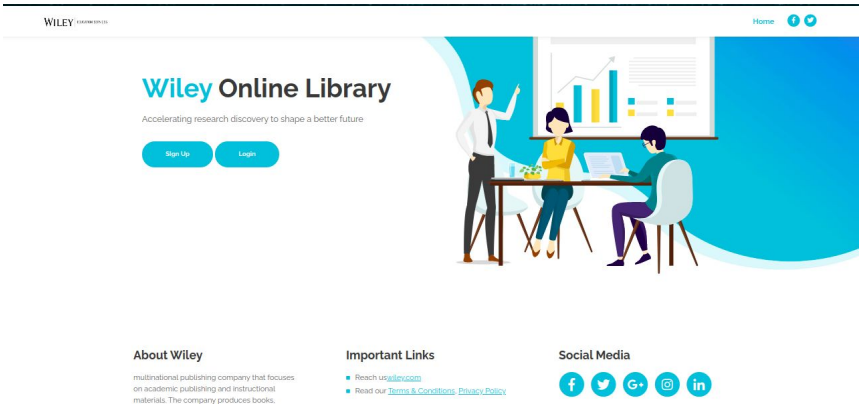
Demo prerequisites

Following are the tools and technologies that can be used to test the project locally. The links will guide you to the respective download pages.

- Java
- Angular CLI
- Typescript
- VSCode
- Ngx-bootstrap
- JQuery
- SpringBoot
- Hibernate
- MySQL

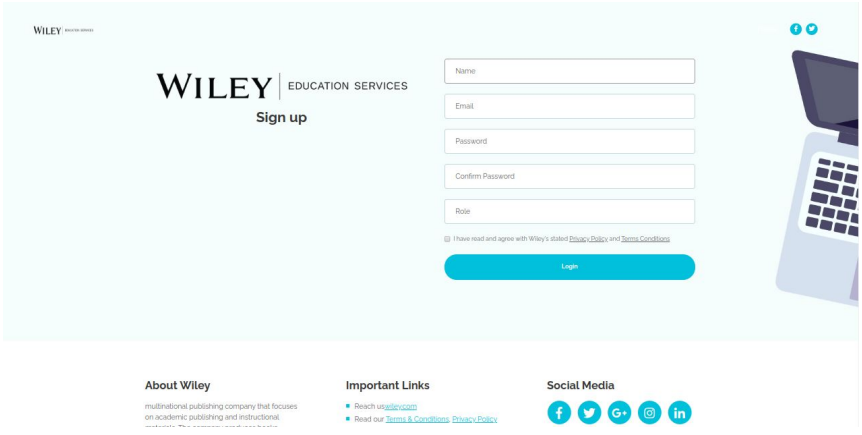
Technology Name	Description

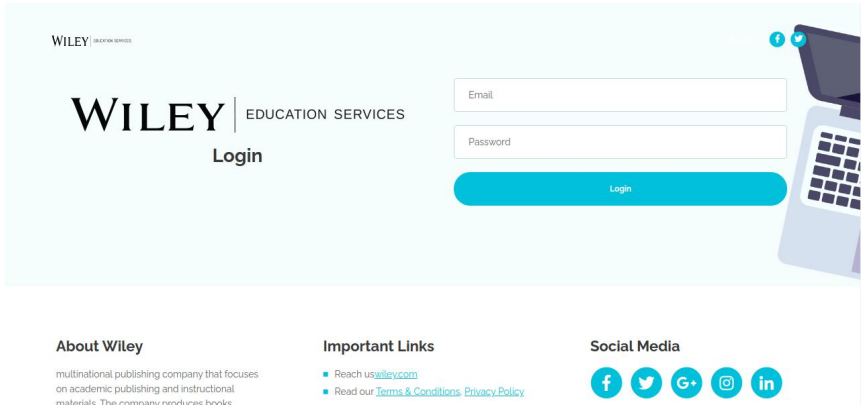
Angular CLI	You use the Angular CLI to create projects, generate application and library code, and perform a variety of ongoing development tasks such as testing, bundling, and deployment.
	
	To install the Angular CLI, open a terminal window and run the following command:
	
	`npm install -g @angular/cli`
	
	Run the application
	
	The Angular CLI includes a server, so that you can build and serve your app locally.
	
	1. Navigate to the workspace folder as wiley-sample-angular10.
	2. Run the following command:
	
	`cd my-app`
	`ng serve --open`
	
	The ng serve command launches the server, watches your files, and rebuilds the app as you make changes to those files.
	
	The --open (or just -o) option automatically opens your browser to **http://localhost:4200/**
	
	If your installation and setup was successful, you should see a page similar to the following.

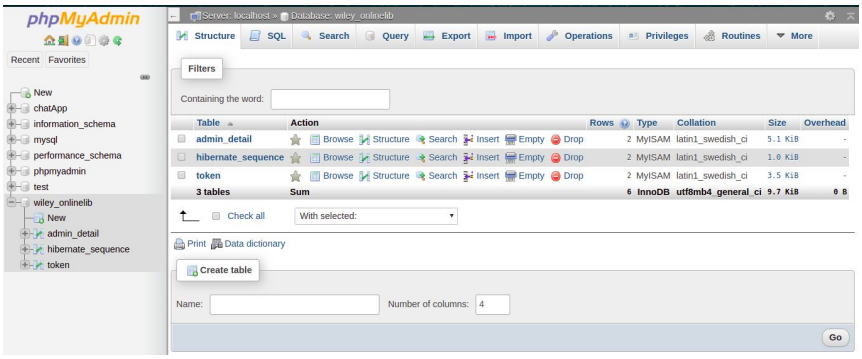


You will be able to navigate further according to your preference by clicking the login or signup buttons.

Signup page



	Login Page 
Install MySQL Server on the Ubuntu	Install the MySQL server by using the Ubuntu operating system package manager: sudo apt-get update sudo apt-get install mysql-server Start the MySQL service After the installation is complete, you can start the database service by running the following command. If the service is already started, a message informs you that the service is already running: sudo systemctl start mysql
Install XAMPP On Ubuntu	Install XAMPP in order to establish connection with PhpMyAdmin. Restore the Database Dump as given below.

Assumptions

1) The commands are given assuming that you are using a linux machine

Scope Limitations

1) The scope of the application is limited to the login feature
2) The applications are locally hosted

How To Build and execute the application locally

The Github link to this project is as follows. You can clone it and run it on your machine after the prerequisites are satisfied.

clone the project

- git clone

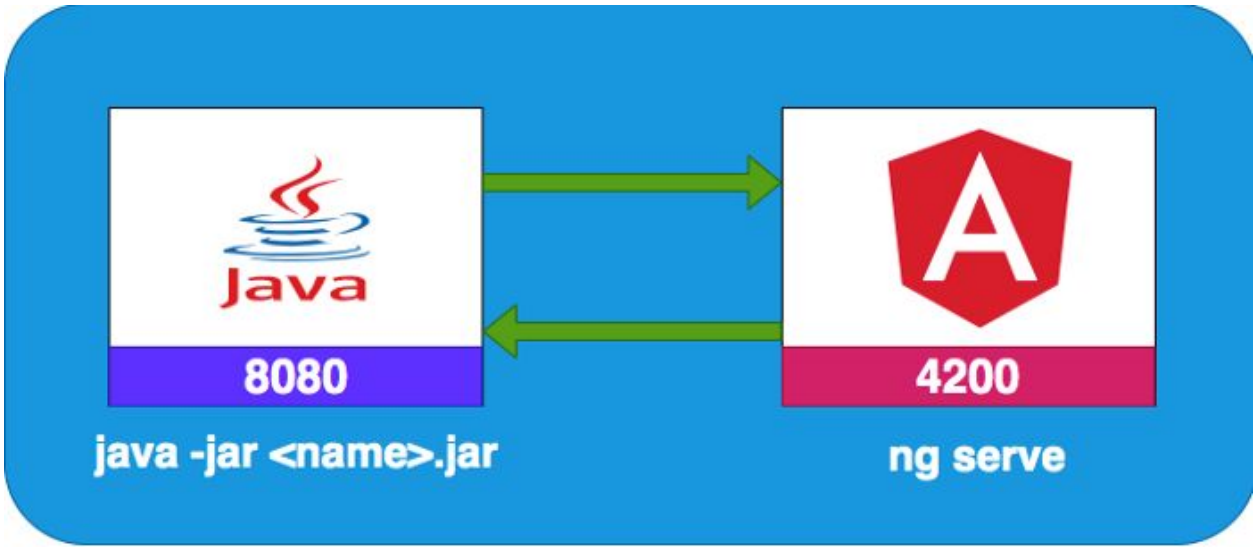
Run Angular on port 4200

- cd /src/main/ui
- npm install
- npm start

Run Java Code on 8080

- mvn clean install
- mvn spring-boot:run
- java -jar target/wiley-sample-java-0.0.1-SNAPSHOT.jar

In the development phase, we run the java server and the Angular app on completely different ports. It's easier and faster to develop that way. If you look at the following diagram the Angular app is running on port 4200 with the help of a webpack dev server and the java server is running on port 8080.

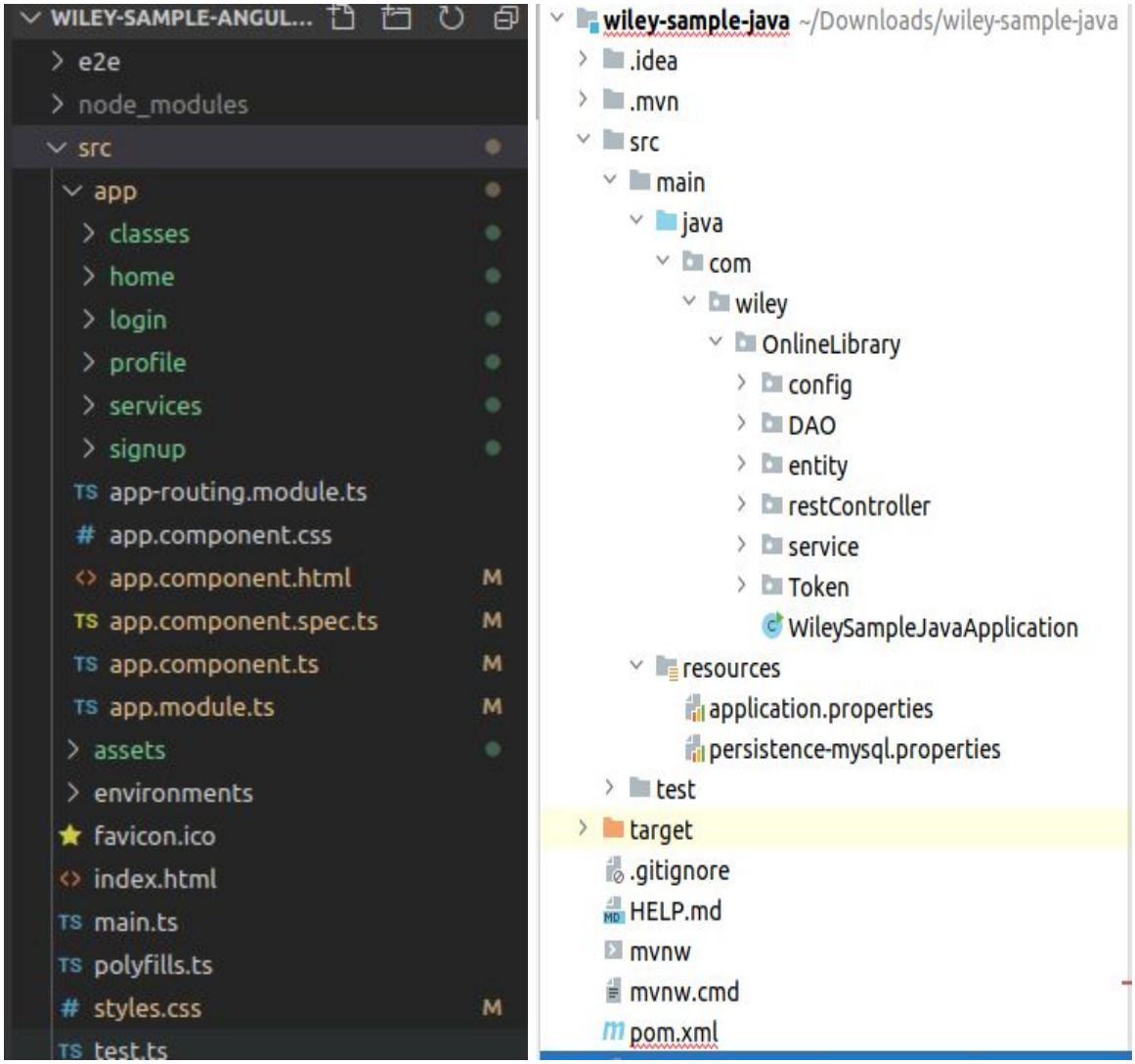


Project Structure

1) **wiley-sample-java**: This project is used to develop a simple RESTFul API using Spring Boot.

2) **wiley-sample-angular**: This project is used to develop single page applications using Angular 10.0.5 as front-end technology. This Angular application consumes Restful API developed and exposed by a wiley-sample-java project.

   Following is a depiction of the project.



The structure of the project is as follows.

- We need to have two completely different folders for java and angular.
- If you look at the above project structure, all the Angular app resides under the *wiley-sample-angular* folder and Java code resides under the *wiley-sample-java* folder.
- All the resources required for the *wiley-sample-angular* are under the folder */src/assets* such as properties, images, script files, etc