1. spring-rest-handson

Hands on 1

Create a Spring Web Project using Maven

SpringLearnApplicationTests.java   SpringLearnApplication.java   pom.xml   application.properties

Output:

```
20:17:13.670 [main] INFO com.cognizant.SpringLearnApplication -- START - SpringLearnApplication main()
20:17:14.212 [restartedMain] INFO com.cognizant.SpringLearnApplication -- START - SpringLearnApplication main()

  .   ____          _            __ _ _
 /\\ / ___'_ __ _ _(_)_ __  __ _ \ \ \ \
( ( )\___ | '_ | '_| | '_ \/ _` | \ \ \ \
 \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
  '  |____| .__|_| |_|_| |_\__, | / / / /
 =========|_|==============|___/=/_/_/_/

 :: Spring Boot ::                (v3.5.3)

2025-07-11T20:17:15.347+05:30  INFO 1764 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication     : Starting SpringLearnApplication using Java 21.0.6 with PID 1764 (C:\Users\pjvet\D
2025-07-11T20:17:15.350+05:30  INFO 1764 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication     : No active profile set, falling back to 1 default profile: "default"
2025-07-11T20:17:15.453+05:30  INFO 1764 --- [spring-learn] [  restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : Devtools property defaults active! Set 'spring.devtools.add-properties' to 'false
2025-07-11T20:17:15.453+05:30  INFO 1764 --- [spring-learn] [  restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : For additional web related logging consider setting the 'logging.level.web' prope
2025-07-11T20:17:17.322+05:30  INFO 1764 --- [spring-learn] [  restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port 8080 (http)
2025-07-11T20:17:17.351+05:30  INFO 1764 --- [spring-learn] [  restartedMain] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
2025-07-11T20:17:17.351+05:30  INFO 1764 --- [spring-learn] [  restartedMain] o.apache.catalina.core.StandardEngine    : Starting Servlet engine: [Apache Tomcat/10.1.42]
2025-07-11T20:17:17.431+05:30  INFO 1764 --- [spring-learn] [  restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplicationContext
2025-07-11T20:17:17.433+05:30  INFO 1764 --- [spring-learn] [  restartedMain] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 1977 ms
2025-07-11T20:17:17.990+05:30  INFO 1764 --- [spring-learn] [  restartedMain] o.s.b.d.a.OptionalLiveReloadServer       : LiveReload server is running on port 35729
2025-07-11T20:17:18.067+05:30  INFO 1764 --- [spring-learn] [  restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port 8080 (http) with context path '/'
2025-07-11T20:17:18.082+05:30  INFO 1764 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication     : Started SpringLearnApplication in 3.855 seconds (process running for 7.527)
2025-07-11T20:17:18.088+05:30  INFO 1764 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication     : END - SpringLearnApplication main()
```

Spring Core – Load Country from Spring Configuration XML

An airlines website is going to support booking on four countries. There will be a drop down on the home page of this website to select the respective country. It is also important to store the two-character ISO code of each country.

Code	Name
US	United States
DE	Germany
IN	India
JP	Japan

Above data has to be stored in spring configuration file. Write a program to read this configuration file and display the details.

 SpringLearnApplicationTests.java   SpringLearnApplication.java   pom.xml   country.xml   Country.java   application.properties

Output:

2.spring-rest-handson

Hello World RESTful Web Service

Write a REST service in the spring learn application created earlier, that returns the text "Hello World!!" using Spring Web Framework. Refer details below:

Method: GET
URL: /hello
Controller: com.cognizant.spring-learn.controller.HelloController
Method Signature: public String sayHello()
Method Implementation: return hard coded string "Hello World!!"
Sample Request: http://localhost:8083/hello
Sample Response: Hello World!!

country.xml   application.propertie   SpringLearnApplicati   SpringLearnApplicati   pom.xml   HelloController.java
                        s   onTests.java   on.java

Output1:

Output2:
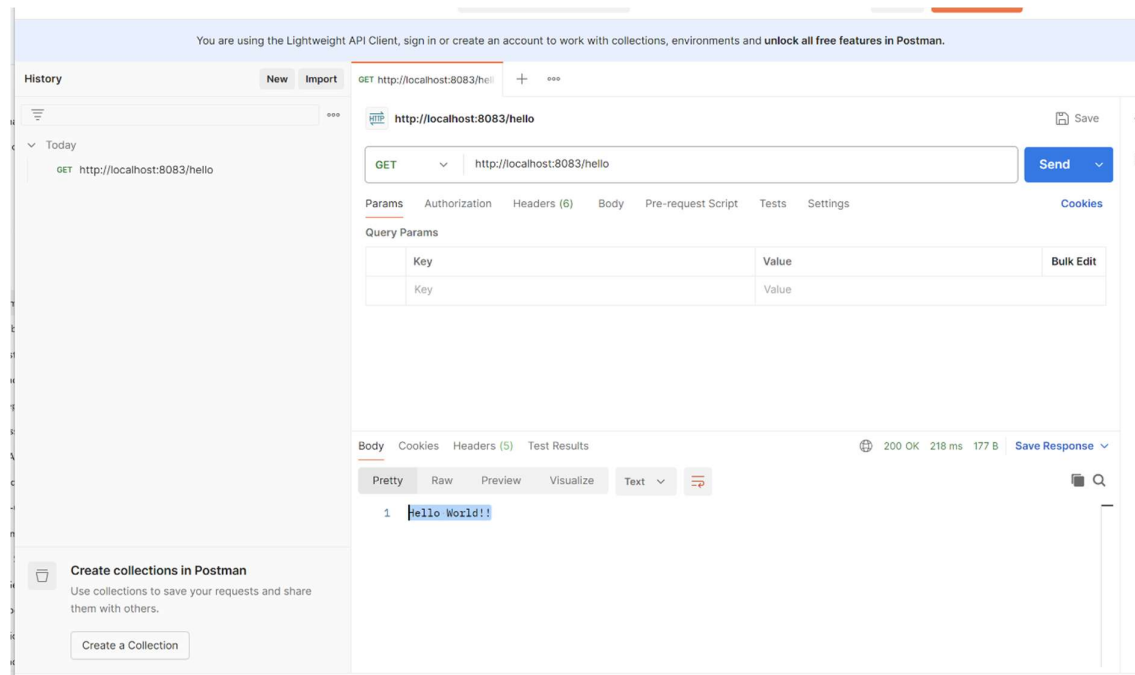
REST - Country Web Service

Write a REST service that returns India country details in the earlier created spring learn application.

URL: /country
Controller: com.cognizant.spring-learn.controller.CountryController
Method Annotation: @RequestMapping
Method Name: getCountryIndia()
Method Implementation: Load India bean from spring xml configuration and return
Sample Request: http://localhost:8083/country
Sample Response:

{

  "code": "IN",

  "name": "India"

}

application.propertie
s

SpringLearnApplicati
on.java

pom.xml

CountryController.jav
a

country.xml

Country.java

Output1:


```
/\\ /___'_ _ _ _(_)_ __ __ _ \ \ \ \
( ( )\___ | '_ | '_| | '_ \/ _` | \ \ \ \
 \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
  '  |____| .__|_| |_|_| |_\__, | / / / /
 =========|_|==============|___/=/_/_/_/

 :: Spring Boot ::                (v3.5.3)

2025-07-11T21:13:49.660+05:30  INFO 20200 --- [spring-learn] [    restartedMain] com.cognizant.SpringLearnApplication     : Starting SpringLearnApplication using Java 21.0.6 with PID 20200
2025-07-11T21:13:49.660+05:30 DEBUG 20200 --- [spring-learn] [    restartedMain] com.cognizant.SpringLearnApplication     : Running with Spring Boot v3.5.3, Spring v6.2.8
2025-07-11T21:13:49.660+05:30  INFO 20200 --- [spring-learn] [    restartedMain] com.cognizant.SpringLearnApplication     : No active profile set, falling back to 1 default profile: "defau
2025-07-11T21:13:49.884+05:30  INFO 20200 --- [spring-learn] [    restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat initialized with port 8083 (http)
2025-07-11T21:13:49.885+05:30  INFO 20200 --- [spring-learn] [    restartedMain] o.apache.catalina.core.StandardService   : Starting service [Tomcat]
2025-07-11T21:13:49.885+05:30  INFO 20200 --- [spring-learn] [    restartedMain] o.apache.catalina.core.StandardEngine    : Starting Servlet engine: [Apache Tomcat/10.1.42]
2025-07-11T21:13:49.908+05:30  INFO 20200 --- [spring-learn] [    restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring embedded WebApplicationContext
2025-07-11T21:13:49.908+05:30  INFO 20200 --- [spring-learn] [    restartedMain] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 238 ms
2025-07-11T21:13:50.000+05:30  INFO 20200 --- [spring-learn] [    restartedMain] o.s.b.d.a.OptionalLiveReloadServer       : LiveReload server is running on port 35729
2025-07-11T21:13:50.014+05:30  INFO 20200 --- [spring-learn] [    restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer  : Tomcat started on port 8083 (http) with context path '/'
2025-07-11T21:13:50.019+05:30  INFO 20200 --- [spring-learn] [    restartedMain] com.cognizant.SpringLearnApplication     : Started SpringLearnApplication in 0.4 seconds (process running f
2025-07-11T21:13:50.021+05:30 DEBUG 20200 --- [spring-learn] [    restartedMain] .ConditionEvaluationDeltaLoggingListener : Condition evaluation unchanged
2025-07-11T21:13:50.045+05:30 DEBUG 20200 --- [spring-learn] [    restartedMain] com.cognizant.springlearn.Country        : Inside Country Constructor.
2025-07-11T21:13:50.050+05:30 DEBUG 20200 --- [spring-learn] [    restartedMain] com.cognizant.springlearn.Country        : Inside setCode
2025-07-11T21:13:50.051+05:30 DEBUG 20200 --- [spring-learn] [    restartedMain] com.cognizant.springlearn.Country        : Inside setName
2025-07-11T21:13:50.054+05:30  INFO 20200 --- [spring-learn] [    restartedMain] com.cognizant.SpringLearnApplication     : Country : Country [code=IN, name=India]
2025-07-11T21:13:50.054+05:30  INFO 20200 --- [spring-learn] [    restartedMain] com.cognizant.SpringLearnApplication     : END - SpringLearnApplication main()
2025-07-11T21:14:14.342+05:30  INFO 20200 --- [spring-learn] [nio-8083-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/]       : Initializing Spring DispatcherServlet 'dispatcherServlet'
2025-07-11T21:14:14.342+05:30  INFO 20200 --- [spring-learn] [nio-8083-exec-2] o.s.web.servlet.DispatcherServlet        : Initializing Servlet 'dispatcherServlet'
2025-07-11T21:14:14.343+05:30  INFO 20200 --- [spring-learn] [nio-8083-exec-2] o.s.web.servlet.DispatcherServlet        : Completed initialization in 1 ms
2025-07-11T21:14:14.345+05:30  INFO 20200 --- [spring-learn] [nio-8083-exec-2] c.c.s.controller.CountryController       : START - getCountryIndia()
2025-07-11T21:14:14.399+05:30 DEBUG 20200 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country        : Inside Country Constructor.
2025-07-11T21:14:14.400+05:30 DEBUG 20200 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country        : Inside setCode
2025-07-11T21:14:14.400+05:30 DEBUG 20200 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country        : Inside setName
2025-07-11T21:14:14.402+05:30  INFO 20200 --- [spring-learn] [nio-8083-exec-2] c.c.s.controller.CountryController       : Country: Country [code=IN, name=India]
2025-07-11T21:14:14.402+05:30  INFO 20200 --- [spring-learn] [nio-8083-exec-2] c.c.s.controller.CountryController       : END - getCountryIndia()
2025-07-11T21:14:14.507+05:30 DEBUG 20200 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country        : Inside getCode
2025-07-11T21:14:14.508+05:30 DEBUG 20200 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country        : Inside getName
```

Output2:

You are using the Lightweight API Client, sign in or create an account to work with collections, environments and unlock all free features in Postman.

History   New   Import

GET http://localhost:8083/cou   +   °°°

Today

GET http://localhost:8083/country

GET http://localhost:8083/hello

http://localhost:8083/country   Save

GET ∨   http://localhost:8083/country   Send ∨

Params   Authorization   Headers (6)   Body   Pre-request Script   Tests   Settings   Cookies

Query Params

Key	Value	Bulk Edit
Key	Value	

Body   Cookies   Headers (5)   Test Results   200 OK   175 ms   192 B   Save Response ∨

Pretty   Raw   Preview   Visualize   JSON ∨

```
1  {
2      "code": "IN",
3      "name": "India"
4  }
```

Create collections in Postman
Use collections to save your requests and share
them with others.

Create a Collection

REST - Get country based on country code

Write a REST service that returns a specific country based on country code. The country code should be case insensitive.

Controller: com.cognizant.spring-learn.controller.CountryController
Method Annotation: @GetMapping("/countries/{code}")
Method Name: getCountry(String code)
Method Implemetation: Invoke countryService.getCountry(code)
Service Method: com.cognizant.spring-learn.service.CountryService.getCountry(String code)

Service Method Implementation:

- **Get the country code using @PathVariable**

- **Get country list from country.xml**

- **Iterate through the country list**

- **Make a case insensitive matching of country code and return the country.**

- **Lambda expression can also be used instead of iterating the country list**

Sample Request: http://localhost:8083/country/in

Sample Response:

{

  "code": "IN",

  "name": "India"

}

SpringLearnApplicati
on.java

CountryService.java   CountryController.jav   country.xml   Country.java   application.propertie
a   s

Output1:

```
      /\\ /__' _ __ _ _(_)_ __  __ _ \ \ \ \
( ( )\___ | '_ | '_| | '_ \/ _` | \ \ \ \
 \\/  ___)| |_)| | | | | || (_| |  ) ) ) )
  '  |____| .__|_| |_|_| |_\__, | / / / /
 =========|_|==============|___/=/_/_/_/

 :: Spring Boot ::                (v3.5.3)

2025-07-11T21:32:50.068+05:30  INFO 10584 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication      : Starting SpringLearnApplication using Java 21.0.6 with PID 1058
2025-07-11T21:32:50.068+05:30 DEBUG 10584 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication      : Running with Spring Boot v3.5.3, Spring v6.2.8
2025-07-11T21:32:50.069+05:30  INFO 10584 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication      : No active profile set, falling back to 1 default profile: "defa
2025-07-11T21:32:50.299+05:30  INFO 10584 --- [spring-learn] [  restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer   : Tomcat initialized with port 8083 (http)
2025-07-11T21:32:50.300+05:30  INFO 10584 --- [spring-learn] [  restartedMain] o.apache.catalina.core.StandardService    : Starting service [Tomcat]
2025-07-11T21:32:50.301+05:30  INFO 10584 --- [spring-learn] [  restartedMain] o.apache.catalina.core.StandardEngine     : Starting Servlet engine: [Apache Tomcat/10.1.42]
2025-07-11T21:32:50.322+05:30  INFO 10584 --- [spring-learn] [  restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/]        : Initializing Spring embedded WebApplicationContext
2025-07-11T21:32:50.322+05:30  INFO 10584 --- [spring-learn] [  restartedMain] w.s.c.ServletWebServerApplicationContext  : Root WebApplicationContext: initialization completed in 251 ms
2025-07-11T21:32:50.389+05:30  INFO 10584 --- [spring-learn] [  restartedMain] o.s.b.d.a.OptionalLiveReloadServer        : LiveReload server is running on port 35729
2025-07-11T21:32:50.406+05:30  INFO 10584 --- [spring-learn] [  restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer   : Tomcat started on port 8083 (http) with context path '/'
2025-07-11T21:32:50.409+05:30  INFO 10584 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication      : Started SpringLearnApplication in 0.384 seconds (process runnin
2025-07-11T21:32:50.410+05:30  INFO 10584 --- [spring-learn] [  restartedMain] .ConditionEvaluationDeltaLoggingListener  : Condition evaluation unchanged
2025-07-11T21:32:50.456+05:30 DEBUG 10584 --- [spring-learn] [  restartedMain] com.cognizant.springlearn.Country         : Inside Country Constructor.
2025-07-11T21:32:50.457+05:30 DEBUG 10584 --- [spring-learn] [  restartedMain] com.cognizant.springlearn.Country         : Inside setCode
2025-07-11T21:32:50.457+05:30 DEBUG 10584 --- [spring-learn] [  restartedMain] com.cognizant.springlearn.Country         : Inside setName
2025-07-11T21:32:50.460+05:30 DEBUG 10584 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication      : Country : Country [code=IN, name=India]
2025-07-11T21:32:50.460+05:30  INFO 10584 --- [spring-learn] [  restartedMain] com.cognizant.SpringLearnApplication      : END - SpringLearnApplication main()
2025-07-11T21:33:00.209+05:30  INFO 10584 --- [spring-learn] [nio-8083-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/]        : Initializing Spring DispatcherServlet 'dispatcherServlet'
2025-07-11T21:33:00.210+05:30  INFO 10584 --- [spring-learn] [nio-8083-exec-2] o.s.web.servlet.DispatcherServlet         : Initializing Servlet 'dispatcherServlet'
2025-07-11T21:33:00.211+05:30  INFO 10584 --- [spring-learn] [nio-8083-exec-2] o.s.web.servlet.DispatcherServlet         : Completed initialization in 1 ms
2025-07-11T21:33:00.214+05:30  INFO 10584 --- [spring-learn] [nio-8083-exec-2] c.c.s.controller.CountryController        : START - getCountry(in)
2025-07-11T21:33:00.214+05:30  INFO 10584 --- [spring-learn] [nio-8083-exec-2] c.c.springlearn.service.CountryService    : START - CountryService.getCountry()
2025-07-11T21:33:00.231+05:30 DEBUG 10584 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country         : Inside Country Constructor.
2025-07-11T21:33:00.232+05:30 DEBUG 10584 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country         : Inside setCode
2025-07-11T21:33:00.232+05:30 DEBUG 10584 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country         : Inside setName
2025-07-11T21:33:00.236+05:30 DEBUG 10584 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country         : Inside getCode
2025-07-11T21:33:00.236+05:30  INFO 10584 --- [spring-learn] [nio-8083-exec-2] c.c.springlearn.service.CountryService    : END - CountryService.getCountry()
2025-07-11T21:33:00.236+05:30  INFO 10584 --- [spring-learn] [nio-8083-exec-2] c.c.s.controller.CountryController        : Country: Country [code=IN, name=India]
2025-07-11T21:33:00.236+05:30  INFO 10584 --- [spring-learn] [nio-8083-exec-2] c.c.s.controller.CountryController        : END - getCountry()
2025-07-11T21:33:00.241+05:30 DEBUG 10584 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country         : Inside getCode
2025-07-11T21:33:00.242+05:30 DEBUG 10584 --- [spring-learn] [nio-8083-exec-2] com.cognizant.springlearn.Country         : Inside getName
```
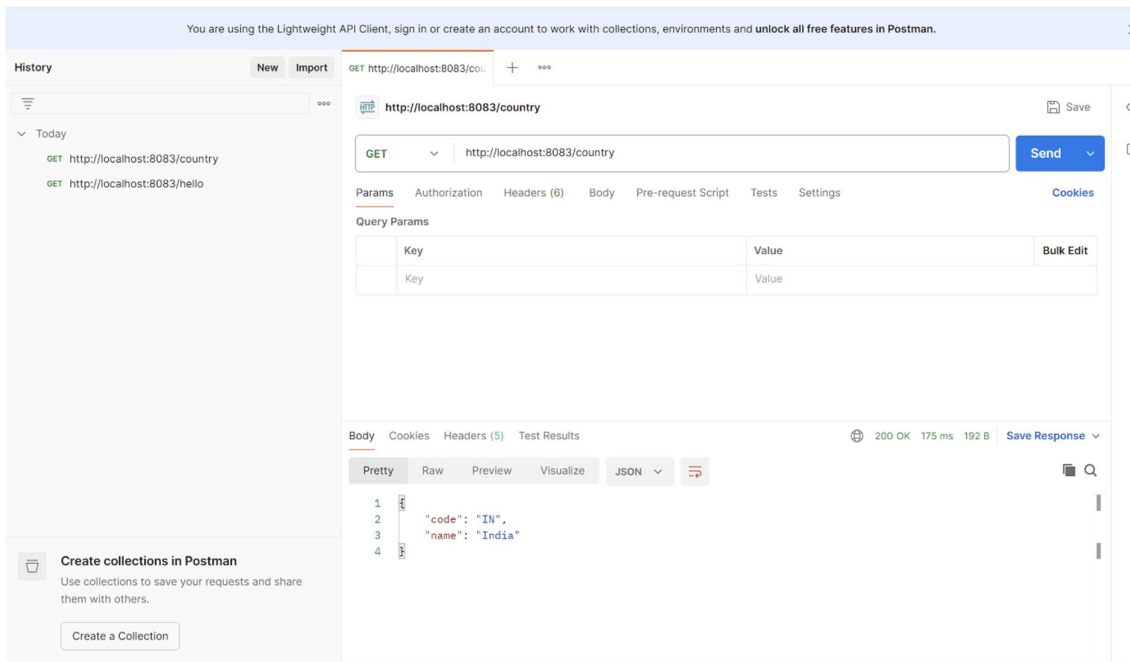
Output2:

5. JWT-handson

Create authentication service that returns JWT

As part of first step of JWT process, the user credentials needs to be sent to authentication service request that generates and returns the JWT.
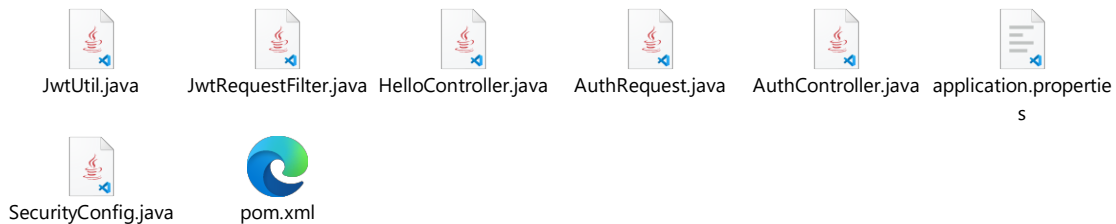
Ideally when the below curl command is executed that calls the new authentication service, the token should be responded. Kindly note that the credentials are passed using -u option.

Request

curl -s -u user:pwd http://localhost:8090/authenticate

Response

{"token":"eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJ1c2VyIiwiaWF0IjoxNTcwMzc5NDc0LCJleHAiOjE1NzAzODA2NzR9.t3LRvlCV-hwKfoqZYlaVQqEUiBloWcWn0ft3tgv0dL0"}

JwtUtil.java   JwtRequestFilter.java   HelloController.java   AuthRequest.java   AuthController.java   application.properties

SecurityConfig.java   pom.xml

Output: