WEEK 4 SOLUTONS

Spring REST using SpringBoot 3:

Hands on 1:

Create a Spring Web Project using Maven

SpringLearnApplication.java:

```
package com.cognizant.spring_learn;

import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication
public class SpringLearnApplication {

    public static void main(String[] args) {
       SpringApplication.run(SpringLearnApplication.class, args);
    }
}
```

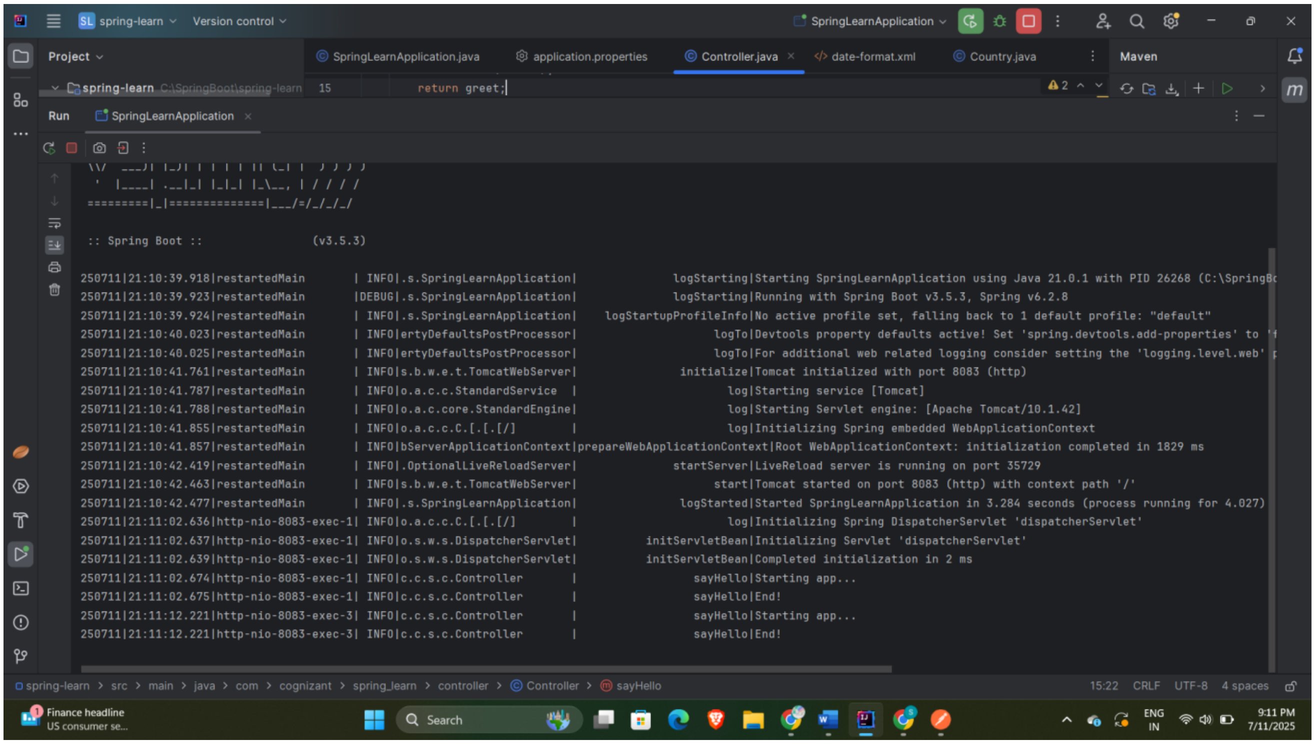
Controller.java

```
package com.cognizant.spring_learn.controller;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RestController;

@RestController
public class Controller {
    private static final Logger LOGGER = LoggerFactory.getLogger(Controller.class);
    @GetMapping("/hello")
    public String sayHello(){
        return "Hello, World!!";
    }
}
```

application.properties

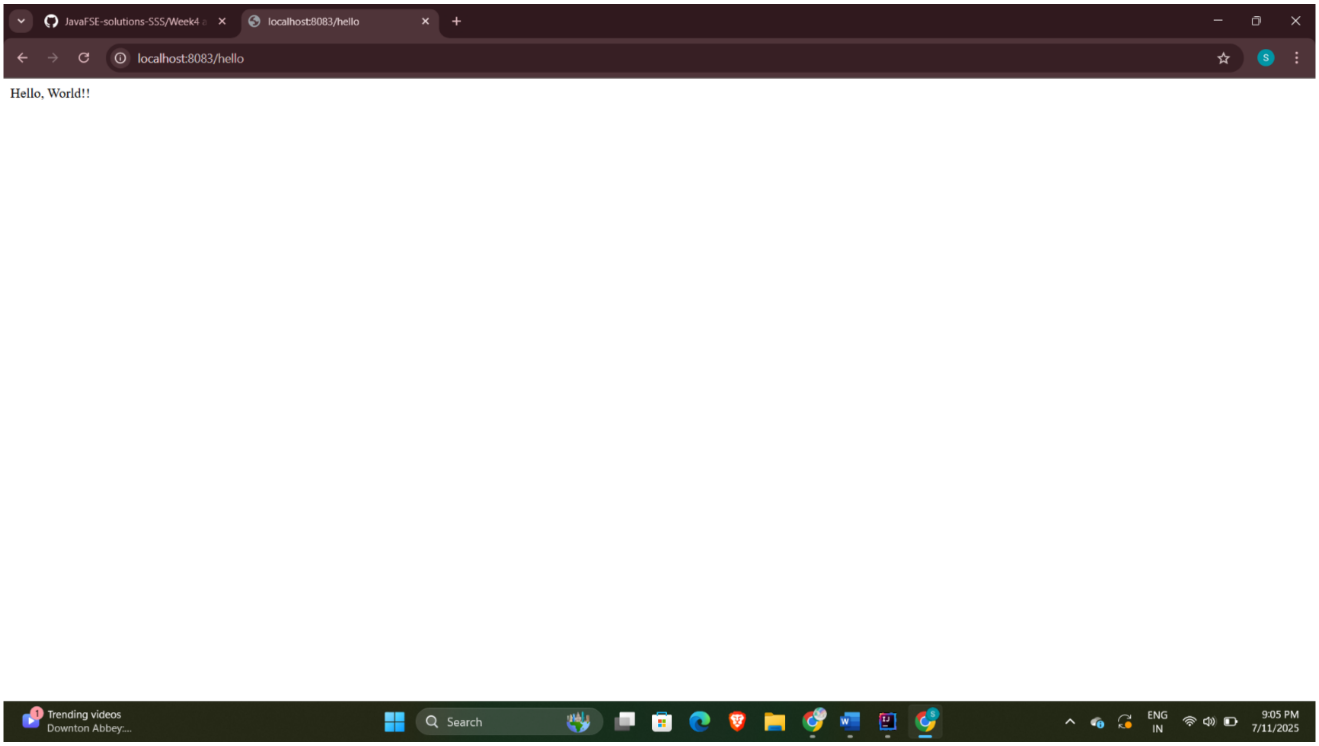
```
spring.application.name=spring-learn
server.port=8083
logging.level.org.springframework=info
logging.level.com.cognizant.springlearn=debug
logging.pattern.console=%d{yyMMdd}|%d{HH:mm:ss.SSS}|%-20.20thread|%5p|%-25.25logger{25}|%25M|%m%n
logging.level.com.cognizant.spring_learn=DEBUG
```

Output:

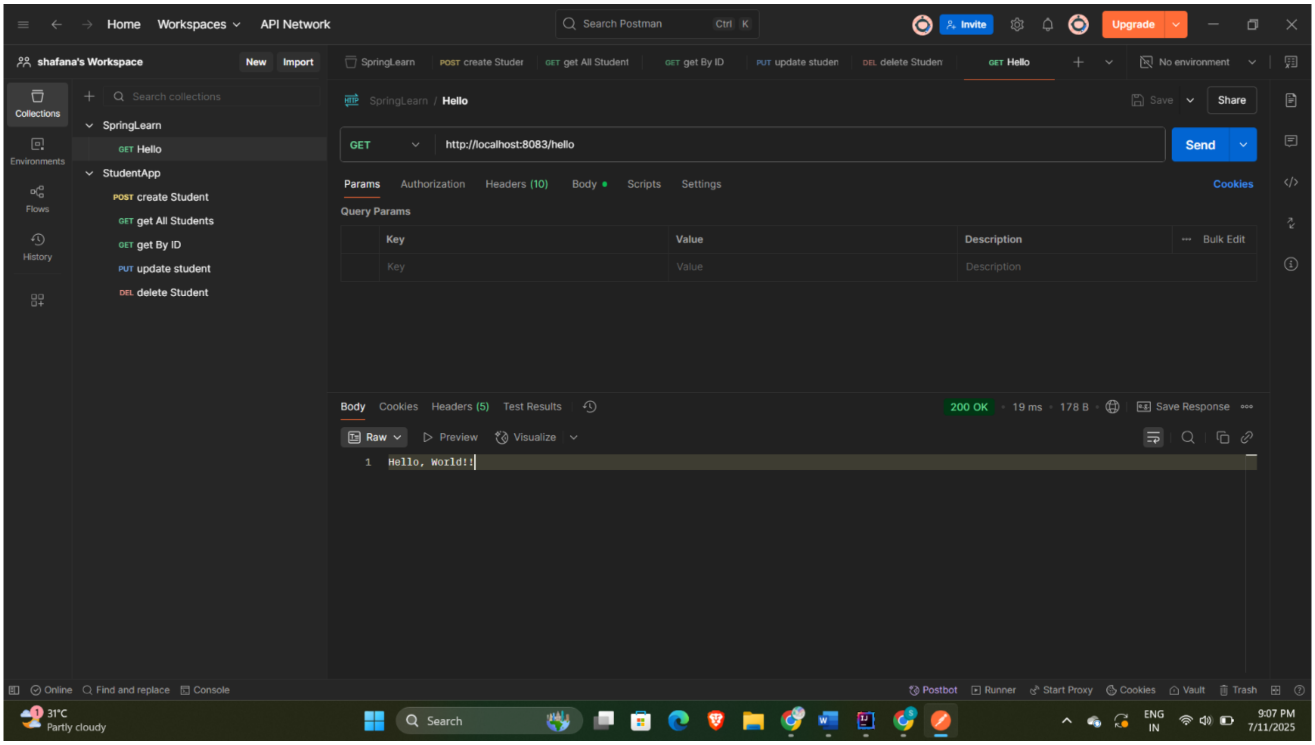


```
15            return greet;
```

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

 :: Spring Boot ::                (v3.5.3)

250711|21:10:39.918|restartedMain       | INFO|.s.SpringLearnApplication|             logStarting|Starting SpringLearnApplication using Java 21.0.1 with PID 26268 (C:\SpringBo
250711|21:10:39.923|restartedMain       |DEBUG|.s.SpringLearnApplication|             logStarting|Running with Spring Boot v3.5.3, Spring v6.2.8
250711|21:10:39.924|restartedMain       | INFO|.s.SpringLearnApplication|    logStartupProfileInfo|No active profile set, falling back to 1 default profile: "default"
250711|21:10:40.023|restartedMain       | INFO|ertyDefaultsPostProcessor|                   logTo|Devtools property defaults active! Set 'spring.devtools.add-properties' to 'f
250711|21:10:40.025|restartedMain       | INFO|ertyDefaultsPostProcessor|                   logTo|For additional web related logging consider setting the 'logging.level.web' p
250711|21:10:41.761|restartedMain       | INFO|s.b.w.e.t.TomcatWebServer|              initialize|Tomcat initialized with port 8083 (http)
250711|21:10:41.787|restartedMain       | INFO|o.a.c.c.StandardService  |                     log|Starting service [Tomcat]
250711|21:10:41.788|restartedMain       | INFO|o.a.c.core.StandardEngine|                     log|Starting Servlet engine: [Apache Tomcat/10.1.42]
250711|21:10:41.855|restartedMain       | INFO|o.a.c.c.C.[.[.[/]        |                     log|Initializing Spring embedded WebApplicationContext
250711|21:10:41.857|restartedMain       | INFO|bServerApplicationContext|prepareWebApplicationContext|Root WebApplicationContext: initialization completed in 1829 ms
250711|21:10:42.419|restartedMain       | INFO|.OptionalLiveReloadServer|             startServer|LiveReload server is running on port 35729
250711|21:10:42.463|restartedMain       | INFO|s.b.w.e.t.TomcatWebServer|                   start|Tomcat started on port 8083 (http) with context path '/'
250711|21:10:42.477|restartedMain       | INFO|.s.SpringLearnApplication|              logStarted|Started SpringLearnApplication in 3.284 seconds (process running for 4.027)
250711|21:11:02.636|http-nio-8083-exec-1| INFO|o.a.c.c.C.[.[.[/]        |                     log|Initializing Spring DispatcherServlet 'dispatcherServlet'
250711|21:11:02.637|http-nio-8083-exec-1| INFO|o.s.w.s.DispatcherServlet|          initServletBean|Initializing Servlet 'dispatcherServlet'
250711|21:11:02.639|http-nio-8083-exec-1| INFO|o.s.w.s.DispatcherServlet|          initServletBean|Completed initialization in 2 ms
250711|21:11:02.674|http-nio-8083-exec-1| INFO|c.c.s.c.Controller       |                sayHello|Starting app...
250711|21:11:02.675|http-nio-8083-exec-1| INFO|c.c.s.c.Controller       |                sayHello|End!
250711|21:11:12.221|http-nio-8083-exec-3| INFO|c.c.s.c.Controller       |                sayHello|Starting app...
250711|21:11:12.221|http-nio-8083-exec-3| INFO|c.c.s.c.Controller       |                sayHello|End!
```



```
Hello, World!!
```



```
GET http://localhost:8083/hello
```

200 OK · 19 ms · 178 B

```
Hello, World!!
```

Hands on 2

REST - Country Web Service

SpringLearnApplication.java:

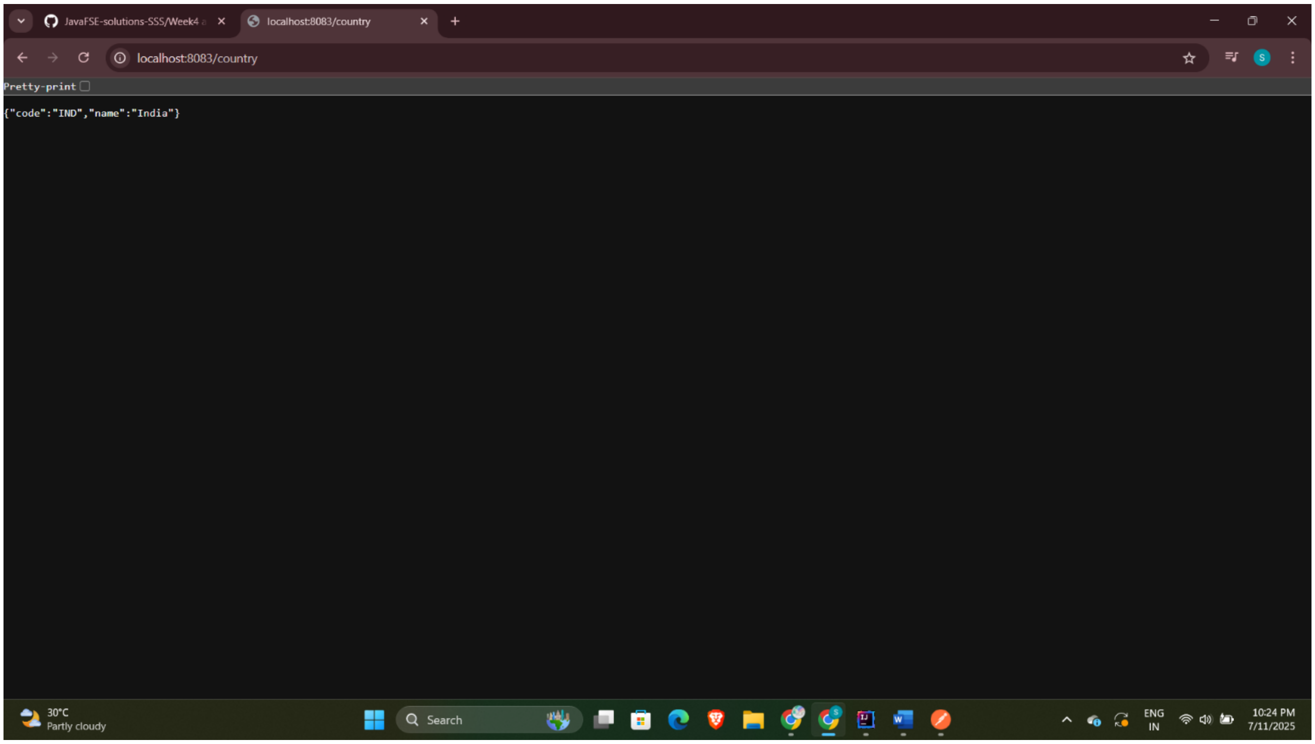
```
// Shaik Shafana Shihaam
package com.cognizant.spring_learn;

import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication
public class SpringLearnApplication {

   public static void main(String[] args) {
      SpringApplication.run(SpringLearnApplication.class, args);
   }
}
```

CountryController.class

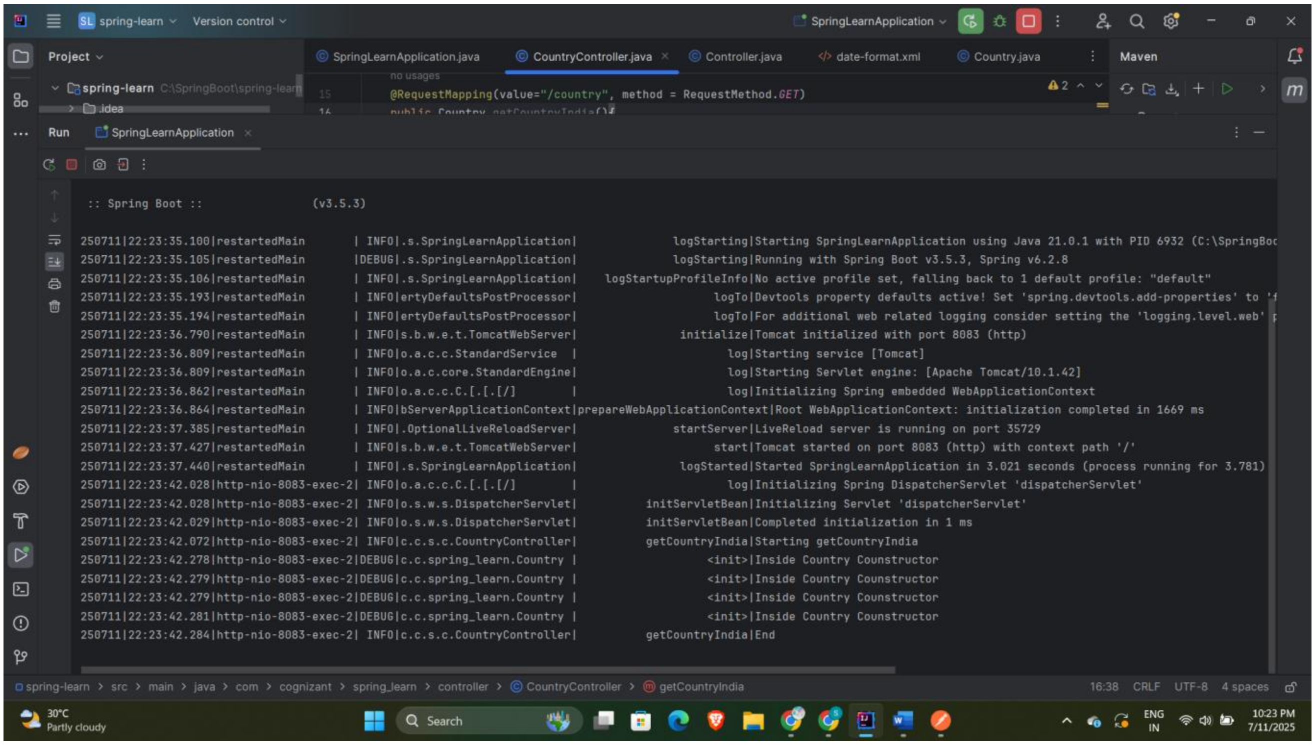
```
package com.cognizant.spring_learn.controller;

import com.cognizant.spring_learn.Country;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.springframework.context.ApplicationContext;
import org.springframework.context.support.ClassPathXmlApplicationContext;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RestController;

@RestController
public class CountryController {
   private static final Logger LOGGER = LoggerFactory.getLogger(CountryController.class);
   @RequestMapping(value="/country", method = RequestMethod.GET)
   public Country getCountryIndia(){
      LOGGER.info("Starting getCountryIndia");
      ApplicationContext context = new ClassPathXmlApplicationContext("country.xml");
```

```
        Country country = context.getBean("in",Country.class);
        LOGGER.info("End");
        return country;
    }
}
```

Output:



```
{"code":"IND","name":"India"}
```



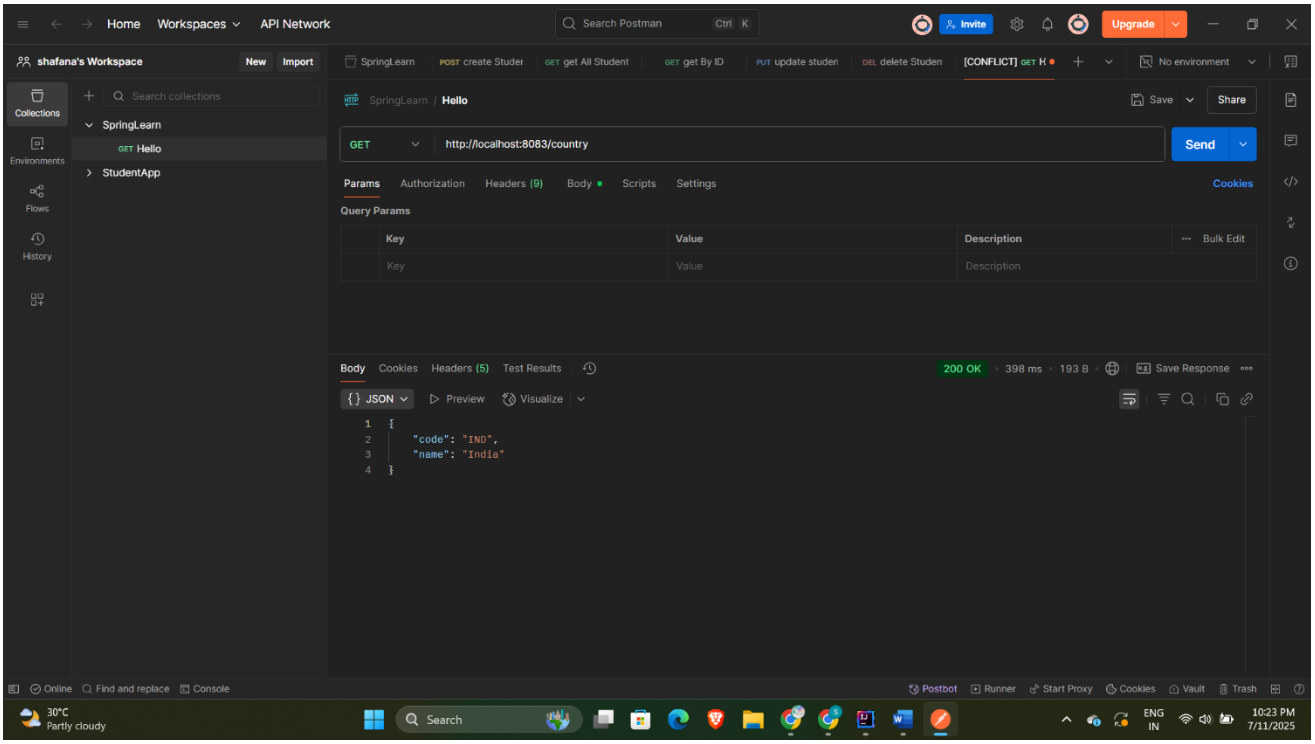
```
@RequestMapping(value="/country", method = RequestMethod.GET)
public Country getCountryIndia(){
```

```
 :: Spring Boot ::                (v3.5.3)

250711|22:23:35.100|restartedMain       | INFO|.s.SpringLearnApplication|             logStarting|Starting SpringLearnApplication using Java 21.0.1 with PID 6932 (C:\SpringBoo
250711|22:23:35.105|restartedMain       |DEBUG|.s.SpringLearnApplication|             logStarting|Running with Spring Boot v3.5.3, Spring v6.2.8
250711|22:23:35.106|restartedMain       | INFO|.s.SpringLearnApplication|    logStartupProfileInfo|No active profile set, falling back to 1 default profile: "default"
250711|22:23:35.193|restartedMain       | INFO|ertyDefaultsPostProcessor|                   logTo|Devtools property defaults active! Set 'spring.devtools.add-properties' to 'f
250711|22:23:35.194|restartedMain       | INFO|ertyDefaultsPostProcessor|                   logTo|For additional web related logging consider setting the 'logging.level.web' p
250711|22:23:36.790|restartedMain       | INFO|s.b.w.e.t.TomcatWebServer|              initialize|Tomcat initialized with port 8083 (http)
250711|22:23:36.809|restartedMain       | INFO|o.a.c.c.StandardService  |                     log|Starting service [Tomcat]
250711|22:23:36.809|restartedMain       | INFO|o.a.c.core.StandardEngine|                     log|Starting Servlet engine: [Apache Tomcat/10.1.42]
250711|22:23:36.862|restartedMain       | INFO|o.a.c.c.C.[.[.[/]        |                     log|Initializing Spring embedded WebApplicationContext
250711|22:23:36.864|restartedMain       | INFO|bServerApplicationContext|prepareWebApplicationContext|Root WebApplicationContext: initialization completed in 1669 ms
250711|22:23:37.385|restartedMain       | INFO|.OptionalLiveReloadServer|             startServer|LiveReload server is running on port 35729
250711|22:23:37.427|restartedMain       | INFO|s.b.w.e.t.TomcatWebServer|                   start|Tomcat started on port 8083 (http) with context path '/'
250711|22:23:37.440|restartedMain       | INFO|.s.SpringLearnApplication|              logStarted|Started SpringLearnApplication in 3.021 seconds (process running for 3.781)
250711|22:23:42.028|http-nio-8083-exec-2| INFO|o.a.c.c.C.[.[.[/]        |                     log|Initializing Spring DispatcherServlet 'dispatcherServlet'
250711|22:23:42.028|http-nio-8083-exec-2| INFO|o.s.w.s.DispatcherServlet|          initServletBean|Initializing Servlet 'dispatcherServlet'
250711|22:23:42.029|http-nio-8083-exec-2| INFO|o.s.w.s.DispatcherServlet|          initServletBean|Completed initialization in 1 ms
250711|22:23:42.072|http-nio-8083-exec-2| INFO|c.c.s.c.CountryController|          getCountryIndia|Starting getCountryIndia
250711|22:23:42.278|http-nio-8083-exec-2|DEBUG|c.c.spring_learn.Country |                  <init>|Inside Country Counstructor
250711|22:23:42.279|http-nio-8083-exec-2|DEBUG|c.c.spring_learn.Country |                  <init>|Inside Country Counstructor
250711|22:23:42.279|http-nio-8083-exec-2|DEBUG|c.c.spring_learn.Country |                  <init>|Inside Country Counstructor
250711|22:23:42.281|http-nio-8083-exec-2|DEBUG|c.c.spring_learn.Country |                  <init>|Inside Country Counstructor
250711|22:23:42.284|http-nio-8083-exec-2| INFO|c.c.s.c.CountryController|          getCountryIndia|End
```

spring-learn > src > main > java > com > cognizant > spring_learn > controller > CountryController > getCountryIndia

16:38 CRLF UTF-8 4 spaces

30°C Partly cloudy 10:23 PM 7/11/2025



SpringLearn / Hello

GET http://localhost:8083/country

Query Params

Key	Value	Description
Key	Value	Description

Body — 200 OK · 398 ms · 193 B

```
{
    "code": "IND",
    "name": "India"
}
```

30°C Partly cloudy 10:23 PM 7/11/2025

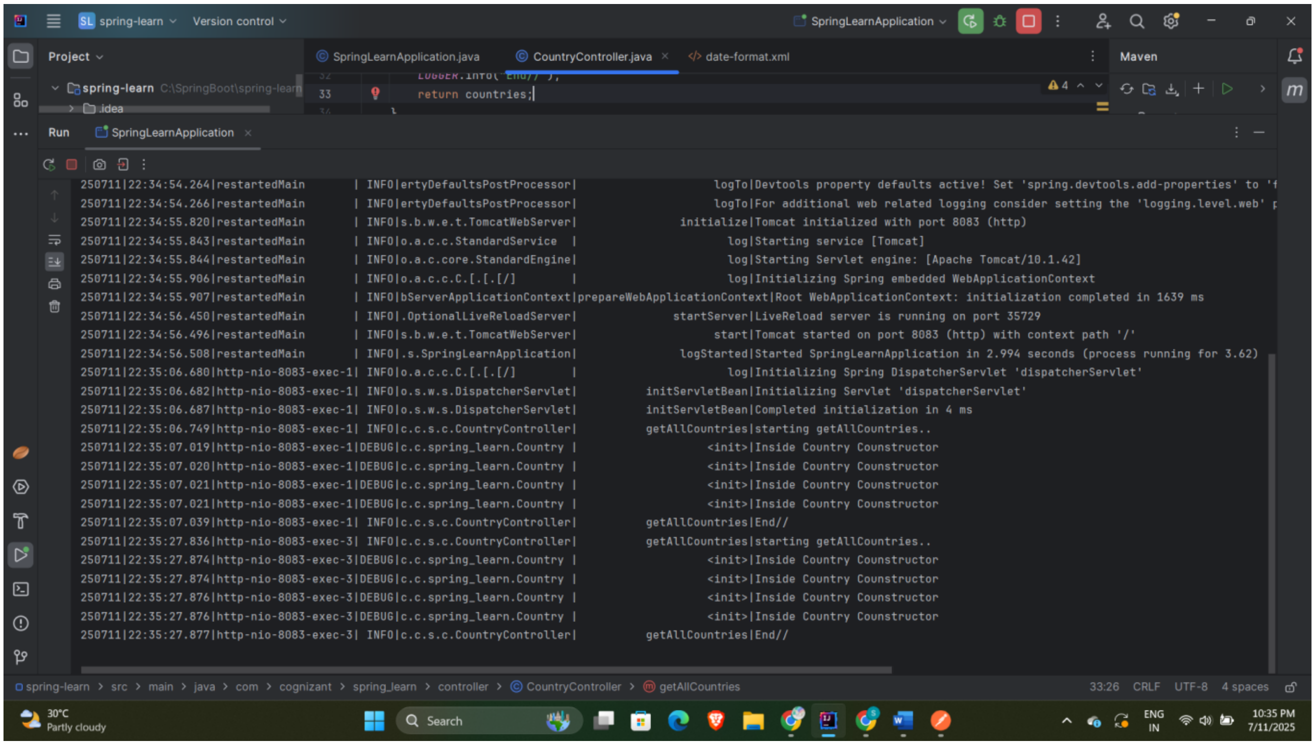
Hands on 3

REST - Get all countries

CountryController.java

```
// Shaik Shafana Shihaam

package com.cognizant.spring_learn.controller;

import com.cognizant.spring_learn.Country;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.springframework.context.ApplicationContext;
import org.springframework.context.support.ClassPathXmlApplicationContext;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RestController;

import java.util.List;

@RestController
public class CountryController {
    private static final Logger LOGGER = LoggerFactory.getLogger(CountryController.class);
    @RequestMapping(value="/country", method = RequestMethod.GET)
    public Country getCountryIndia(){
        LOGGER.info("Starting getCountryIndia");
        ApplicationContext context = new ClassPathXmlApplicationContext("date-format.xml");
        Country country = context.getBean("in",Country.class);
        LOGGER.info("End");
        return country;
    }

    @GetMapping("/countries")
    public List<Country> getAllCountries(){
        LOGGER.info("starting getAllCountries..");
        ApplicationContext context = new ClassPathXmlApplicationContext("date-format.xml");
        List<Country> countries = context.getBean("countryList",List.class);
        LOGGER.info("End//");
        return countries;
    }
}
```

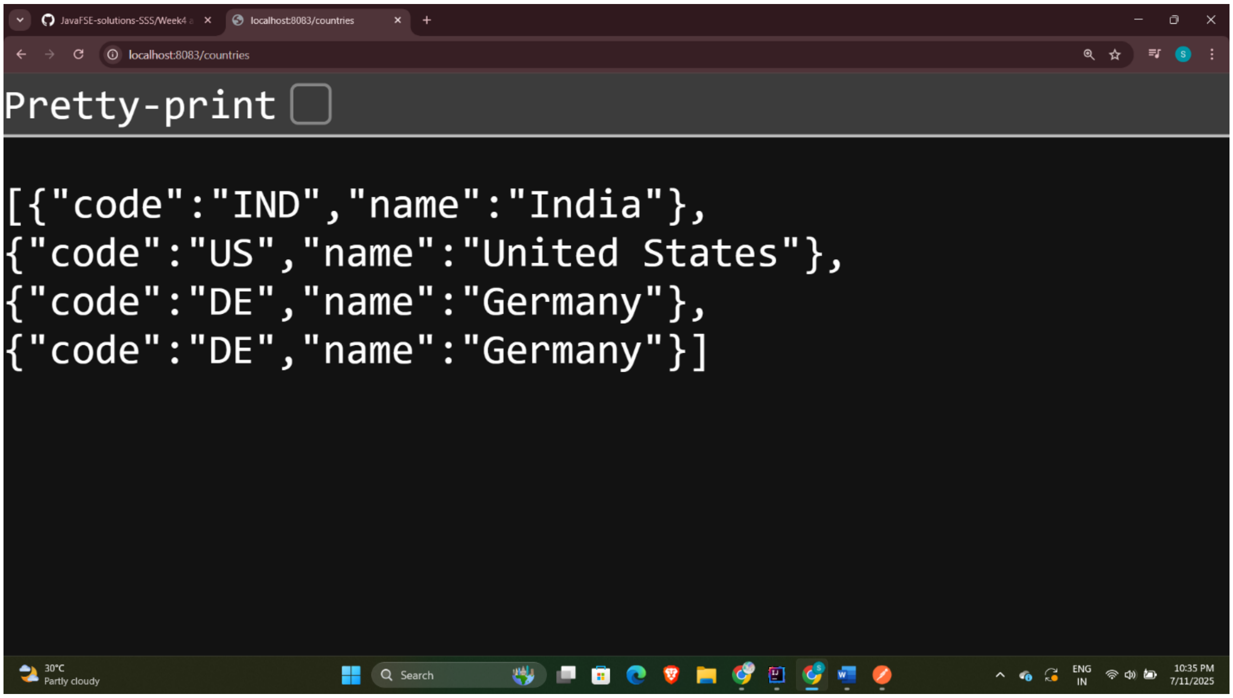
Output :



```
        return countries;
```

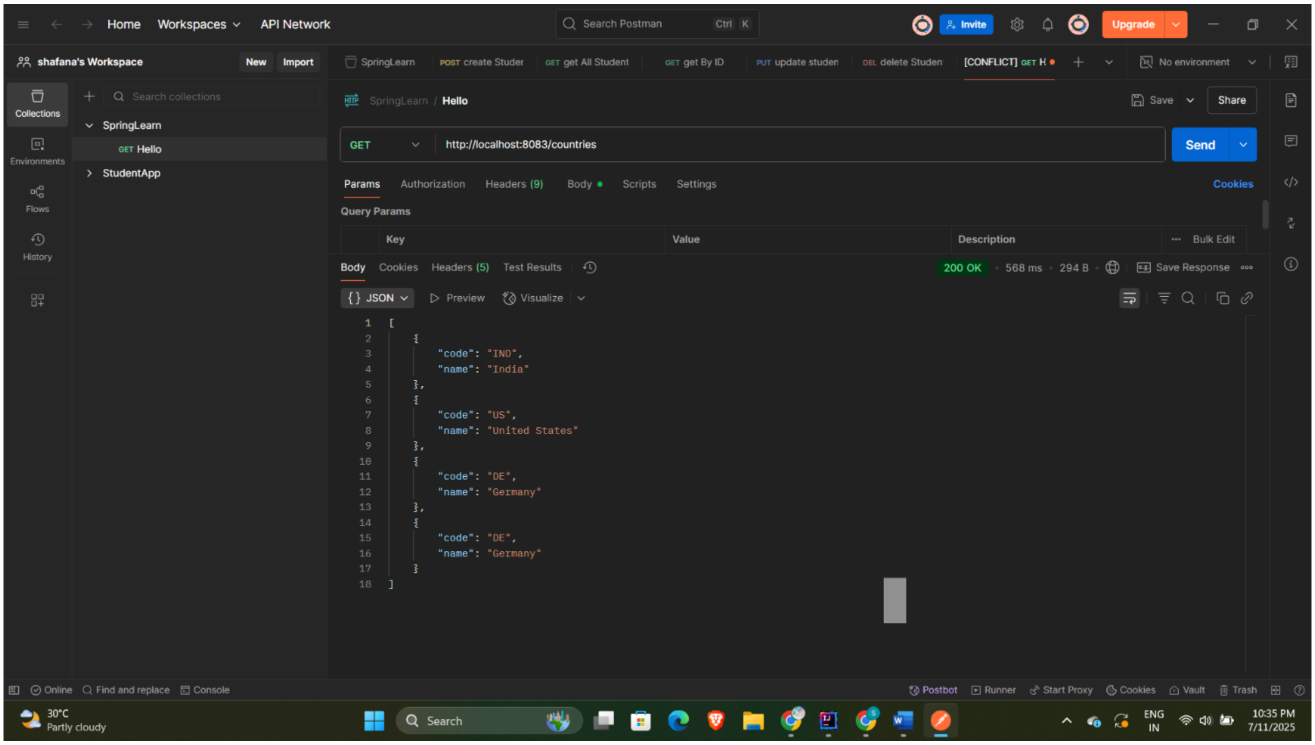
```
250711|22:34:54.264|restartedMain       | INFO|ertyDefaultsPostProcessor|            logTo|Devtools property defaults active! Set 'spring.devtools.add-properties' to 'f
250711|22:34:54.266|restartedMain       | INFO|ertyDefaultsPostProcessor|            logTo|For additional web related logging consider setting the 'logging.level.web' p
250711|22:34:55.820|restartedMain       | INFO|s.b.w.e.t.TomcatWebServer|       initialize|Tomcat initialized with port 8083 (http)
250711|22:34:55.843|restartedMain       | INFO|o.a.c.c.StandardService  |              log|Starting service [Tomcat]
250711|22:34:55.844|restartedMain       | INFO|o.a.c.core.StandardEngine|              log|Starting Servlet engine: [Apache Tomcat/10.1.42]
250711|22:34:55.906|restartedMain       | INFO|o.a.c.c.C.[.[.[/]        |              log|Initializing Spring embedded WebApplicationContext
250711|22:34:55.907|restartedMain       | INFO|bServerApplicationContext|prepareWebApplicationContext|Root WebApplicationContext: initialization completed in 1639 ms
250711|22:34:56.450|restartedMain       | INFO|.OptionalLiveReloadServer|      startServer|LiveReload server is running on port 35729
250711|22:34:56.496|restartedMain       | INFO|s.b.w.e.t.TomcatWebServer|            start|Tomcat started on port 8083 (http) with context path '/'
250711|22:34:56.508|restartedMain       | INFO|.s.SpringLearnApplication|       logStarted|Started SpringLearnApplication in 2.994 seconds (process running for 3.62)
250711|22:35:06.680|http-nio-8083-exec-1| INFO|o.a.c.c.C.[.[.[/]        |              log|Initializing Spring DispatcherServlet 'dispatcherServlet'
250711|22:35:06.682|http-nio-8083-exec-1| INFO|o.s.w.s.DispatcherServlet|     initServletBean|Initializing Servlet 'dispatcherServlet'
250711|22:35:06.687|http-nio-8083-exec-1| INFO|o.s.w.s.DispatcherServlet|     initServletBean|Completed initialization in 4 ms
250711|22:35:06.749|http-nio-8083-exec-1| INFO|c.c.s.c.CountryController|     getAllCountries|starting getAllCountries..
250711|22:35:07.019|http-nio-8083-exec-1|DEBUG|c.c.spring_learn.Country |              <init>|Inside Country Counstructor
250711|22:35:07.020|http-nio-8083-exec-1|DEBUG|c.c.spring_learn.Country |              <init>|Inside Country Counstructor
250711|22:35:07.021|http-nio-8083-exec-1|DEBUG|c.c.spring_learn.Country |              <init>|Inside Country Counstructor
250711|22:35:07.021|http-nio-8083-exec-1|DEBUG|c.c.spring_learn.Country |              <init>|Inside Country Counstructor
250711|22:35:07.039|http-nio-8083-exec-1| INFO|c.c.s.c.CountryController|     getAllCountries|End//
250711|22:35:27.836|http-nio-8083-exec-3| INFO|c.c.s.c.CountryController|     getAllCountries|starting getAllCountries..
250711|22:35:27.874|http-nio-8083-exec-3|DEBUG|c.c.spring_learn.Country |              <init>|Inside Country Counstructor
250711|22:35:27.874|http-nio-8083-exec-3|DEBUG|c.c.spring_learn.Country |              <init>|Inside Country Counstructor
250711|22:35:27.876|http-nio-8083-exec-3|DEBUG|c.c.spring_learn.Country |              <init>|Inside Country Counstructor
250711|22:35:27.876|http-nio-8083-exec-3|DEBUG|c.c.spring_learn.Country |              <init>|Inside Country Counstructor
250711|22:35:27.877|http-nio-8083-exec-3| INFO|c.c.s.c.CountryController|     getAllCountries|End//
```

spring-learn
Version control
SpringLearnApplication
Project
SpringLearnApplication.java
CountryController.java
date-format.xml
Maven
spring-learn C:\SpringBoot\spring-learn
.idea
Run
SpringLearnApplication
spring-learn > src > main > java > com > cognizant > spring_learn > controller > CountryController > getAllCountries
33:26 CRLF UTF-8 4 spaces
30°C Partly cloudy
Search
ENG IN
10:35 PM 7/11/2025



Pretty-print □

```
[{"code":"IND","name":"India"},
{"code":"US","name":"United States"},
{"code":"DE","name":"Germany"},
{"code":"DE","name":"Germany"}]
```



GET http://localhost:8083/countries

```
[
    {
        "code": "IND",
        "name": "India"
    },
    {
        "code": "US",
        "name": "United States"
    },
    {
        "code": "DE",
        "name": "Germany"
    },
    {
        "code": "DE",
        "name": "Germany"
    }
]
```

Hands on 4

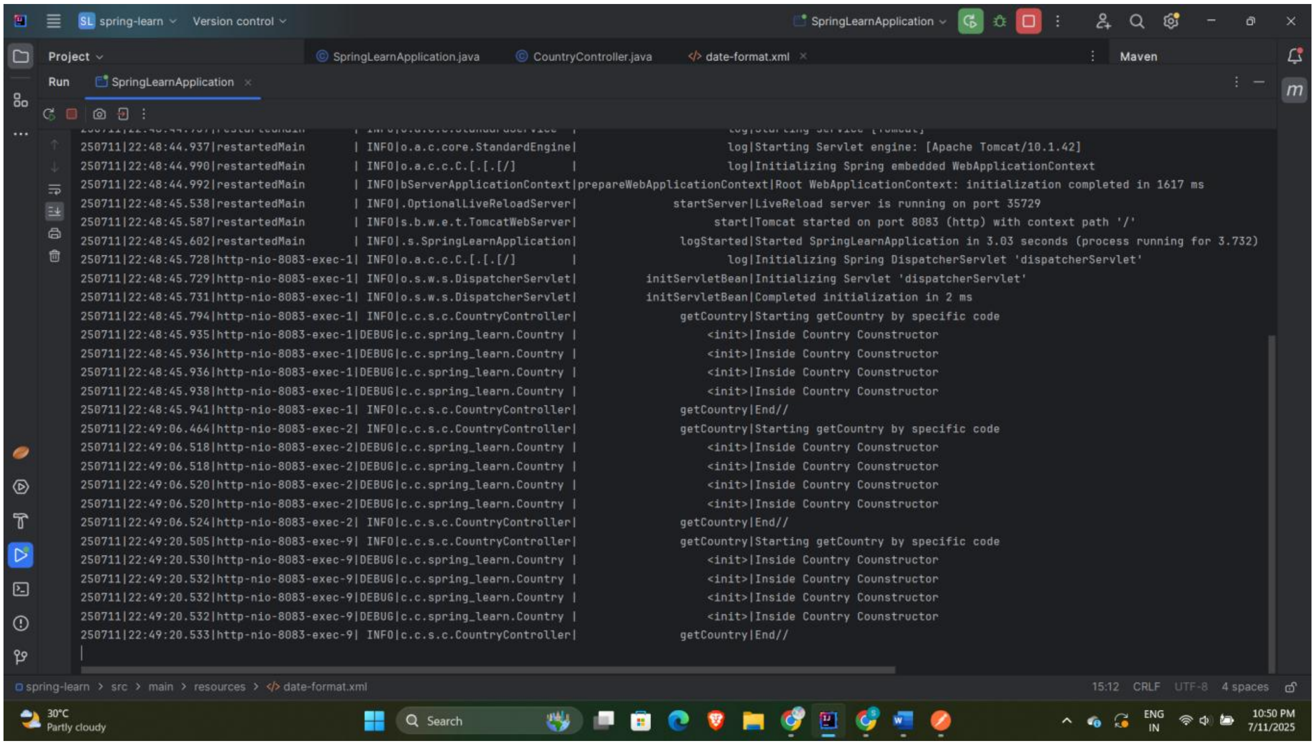
REST - Get country based on country code

CountryController.class:

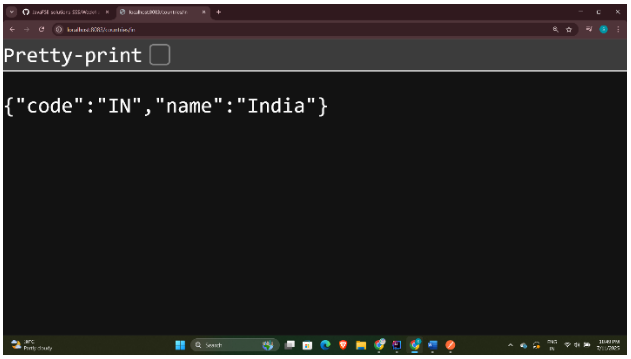
```
package com.cognizant.spring_learn.controller;

import com.cognizant.spring_learn.Country;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.springframework.context.ApplicationContext;
import org.springframework.context.support.ClassPathXmlApplicationContext;
import org.springframework.web.bind.annotation.*;

import java.util.List;

@RestController
public class CountryController {
   private static final Logger LOGGER = LoggerFactory.getLogger(CountryController.class);
   @RequestMapping(value="/country", method = RequestMethod.GET)
   public Country getCountryIndia(){
      LOGGER.info("Starting getCountryIndia");
      ApplicationContext context = new ClassPathXmlApplicationContext("date-format.xml");
      Country country = context.getBean("in",Country.class);
      LOGGER.info("End");
      return country;
   }

   @GetMapping("/countries/{code}")
   public Country getCountry(@PathVariable String code){
      LOGGER.info("Starting getCountry by specific code");
      ApplicationContext context = new ClassPathXmlApplicationContext("date-format.xml");
      Country country = context.getBean(code,Country.class);
      LOGGER.info("End//");
      return country;
   }
   @GetMapping("/countries")
```

```
    public List<Country> getAllCountries(){
        LOGGER.info("starting getAllCountries..");
        ApplicationContext context = new ClassPathXmlApplicationContext("date-format.xml");
        List<Country> countries = context.getBean("countryList",List.class);
        LOGGER.info("End//");
        return countries;
    }
}
```

Output :

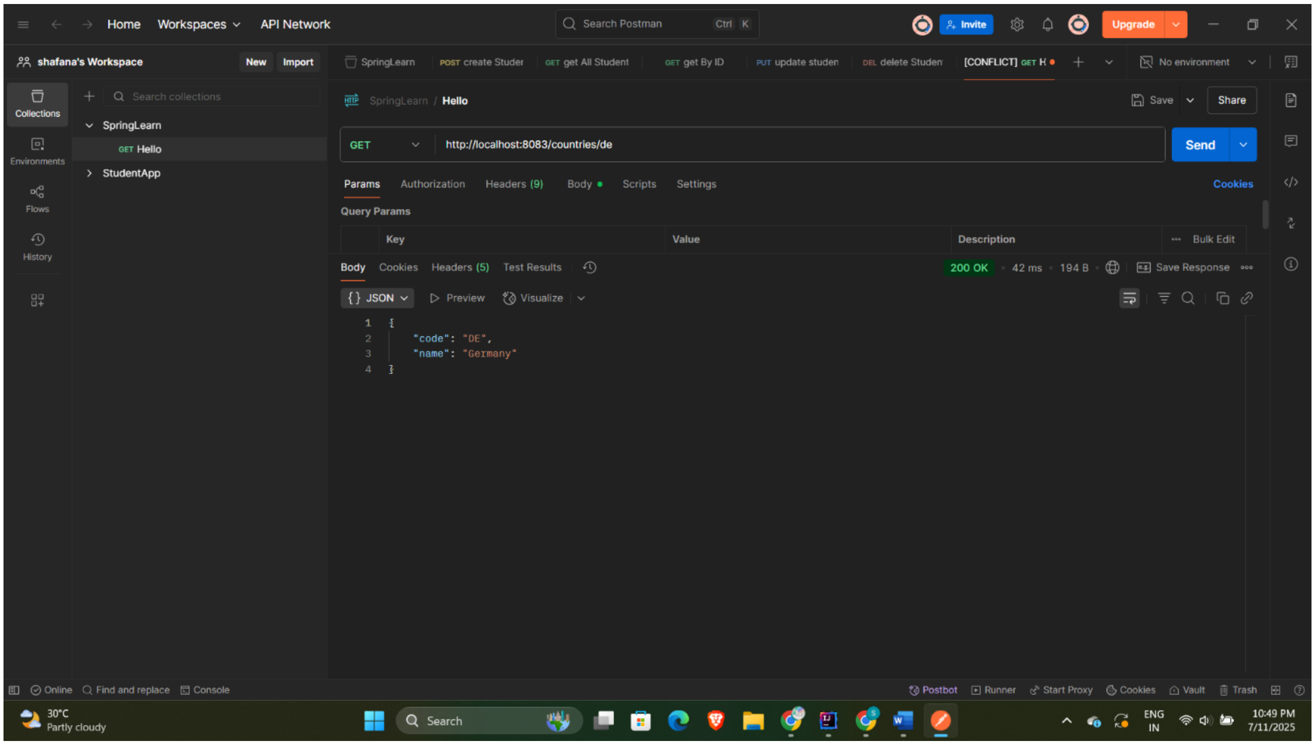


```
250711|22:48:44.937|restartedMain       | INFO|o.a.c.core.StandardEngine|                log|Starting Servlet engine: [Apache Tomcat/10.1.42]
250711|22:48:44.990|restartedMain       | INFO|o.a.c.c.C.[.[.[/]        |                log|Initializing Spring embedded WebApplicationContext
250711|22:48:44.992|restartedMain       | INFO|bServerApplicationContext|prepareWebApplicationContext|Root WebApplicationContext: initialization completed in 1617 ms
250711|22:48:45.538|restartedMain       | INFO|.OptionalLiveReloadServer|        startServer|LiveReload server is running on port 35729
250711|22:48:45.587|restartedMain       | INFO|s.b.w.e.t.TomcatWebServer|              start|Tomcat started on port 8083 (http) with context path '/'
250711|22:48:45.602|restartedMain       | INFO|.s.SpringLearnApplication|         logStarted|Started SpringLearnApplication in 3.03 seconds (process running for 3.732)
250711|22:48:45.728|http-nio-8083-exec-1| INFO|o.a.c.c.C.[.[.[/]        |                log|Initializing Spring DispatcherServlet 'dispatcherServlet'
250711|22:48:45.729|http-nio-8083-exec-1| INFO|o.s.w.s.DispatcherServlet|    initServletBean|Initializing Servlet 'dispatcherServlet'
250711|22:48:45.731|http-nio-8083-exec-1| INFO|o.s.w.s.DispatcherServlet|    initServletBean|Completed initialization in 2 ms
250711|22:48:45.794|http-nio-8083-exec-1| INFO|c.c.s.c.CountryController|         getCountry|Starting getCountry by specific code
250711|22:48:45.935|http-nio-8083-exec-1|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:48:45.936|http-nio-8083-exec-1|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:48:45.936|http-nio-8083-exec-1|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:48:45.938|http-nio-8083-exec-1|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:48:45.941|http-nio-8083-exec-1| INFO|c.c.s.c.CountryController|         getCountry|End//
250711|22:49:06.464|http-nio-8083-exec-2| INFO|c.c.s.c.CountryController|         getCountry|Starting getCountry by specific code
250711|22:49:06.518|http-nio-8083-exec-2|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:49:06.518|http-nio-8083-exec-2|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:49:06.520|http-nio-8083-exec-2|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:49:06.520|http-nio-8083-exec-2|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:49:06.524|http-nio-8083-exec-2| INFO|c.c.s.c.CountryController|         getCountry|End//
250711|22:49:20.505|http-nio-8083-exec-9| INFO|c.c.s.c.CountryController|         getCountry|Starting getCountry by specific code
250711|22:49:20.530|http-nio-8083-exec-9|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:49:20.532|http-nio-8083-exec-9|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:49:20.532|http-nio-8083-exec-9|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:49:20.532|http-nio-8083-exec-9|DEBUG|c.c.spring_learn.Country |             <init>|Inside Country Counstructor
250711|22:49:20.533|http-nio-8083-exec-9| INFO|c.c.s.c.CountryController|         getCountry|End//
```



Pretty-print □

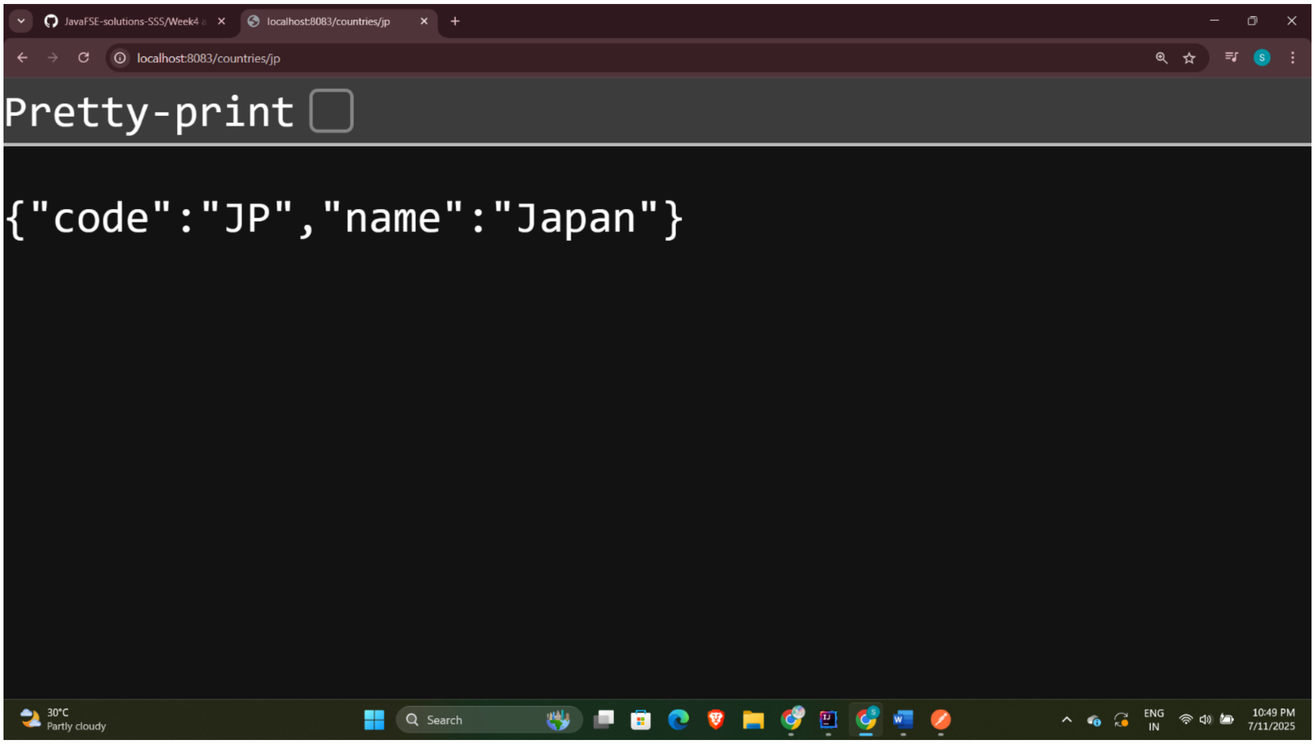
```
{"code":"IN","name":"India"}
```



GET http://localhost:8083/countries/de

200 OK · 42 ms · 194 B

```
{
    "code": "DE",
    "name": "Germany"
}
```



localhost:8083/countries/jp

Pretty-print □

```
{"code":"JP","name":"Japan"}
```