WEEK 4 ASSIGNMENTS:

1.Create a Spring Web Project using Maven
pom.xml

```
<project xmlns="http://maven.apache.org/POM/4.0.0"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

         xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

    <modelVersion>4.0.0</modelVersion>

    <groupId>com.example</groupId>

    <artifactId>spring-rest-handson</artifactId>

    <version>1.0-SNAPSHOT</version>

    <packaging>jar</packaging>


    <dependencies>

        <dependency>

            <groupId>org.springframework.boot</groupId>

            <artifactId>spring-boot-starter-web</artifactId>

        </dependency>

    </dependencies>


    <build>

        <plugins>

            <plugin>

                <groupId>org.springframework.boot</groupId>

                <artifactId>spring-boot-maven-plugin</artifactId>

            </plugin>

        </plugins>
    </build>

</project>
```

2. Spring Core – Load Country from Spring Configuration XML
country.xml

```
<beans xmlns="http://www.springframework.org/schema/beans"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="

http://www.springframework.org/schema/beans

http://www.springframework.org/schema/beans/spring-beans.xsd">



    <bean id="country" class="com.example.model.Country">

        <property name="code" value="IN"/>

        <property name="name" value="India"/>

    </bean>

</beans>
```

Country.java package com.example.model;

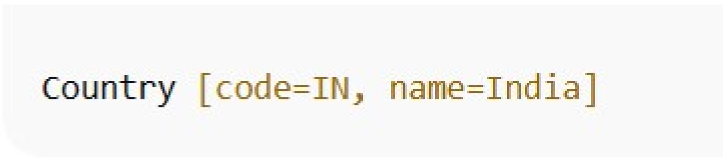
```
public class Country {     private String code;     private
String name;  // Getters and Setters     public String
getCode() { return code; }     public void setCode(String
code) { this.code = code; }     public String getName() {
return name; }     public void setName(String name) {
this.name = name; }



    @Override     public String toString() {         return "Country
[code=" + code + ", name=" + name + "]";

    }

}
```

MainApp.java package com.example; import com.example.model.Country;

import org.springframework.context.ApplicationContext; import org.springframework.context.support.ClassPathXmlApplicationContext;

```
public class MainApp {     public static
void main(String[] args) {

        ApplicationContext context = new ClassPathXmlApplicationContext("country.xml");

        Country country = (Country) context.getBean("country");

        System.out.println(country);

    }

}
```

OUTPUT:



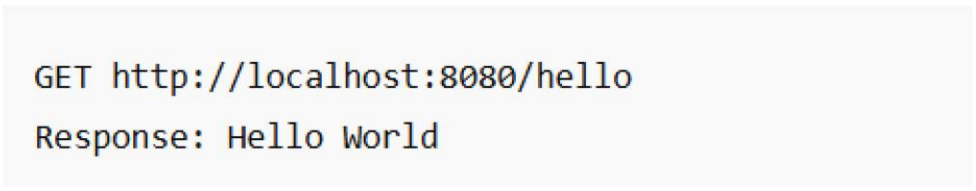
```
Country [code=IN, name=India]
```

3.Hello World RESTful Web Service

HelloController.java package com.example.controller; import org.springframework.web.bind.annotation.*;

```
@RestController public class
HelloController {
@GetMapping("/hello")
public String sayHello() {
return "Hello World";

    }

}
```

OUTPUT:



```
GET http://localhost:8080/hello
Response: Hello World
```

4. REST - Country Web Service

Country.java package

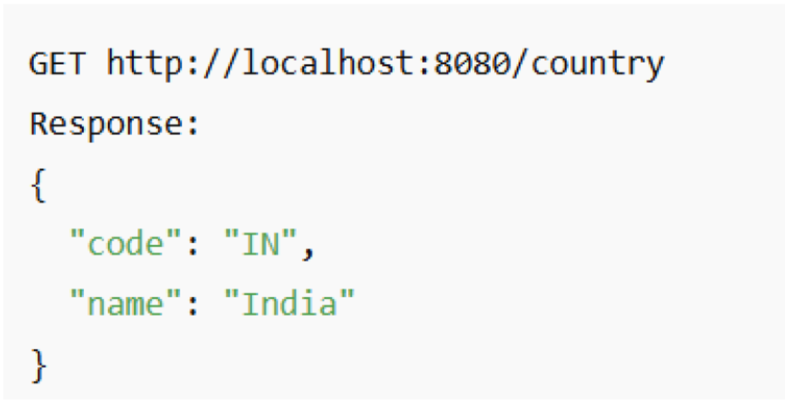
```
com.example.model; public class
Country {     private String code;
private String name;



    // Constructor, Getters, Setters     public
Country(String code, String name) {
this.code = code;         this.name = name;

    }
    public String getCode() { return code; }
public String getName() { return name; }

}
```

CountryController.java package

```
com.example.controller; import
com.example.model.Country; import
org.springframework.web.bind.annotation.*;

@RestController public class
CountryController {
@GetMapping("/country")     public
Country getCountry() {         return new
Country("IN", "India");
```

```
    }
}
```

OUTPUT:



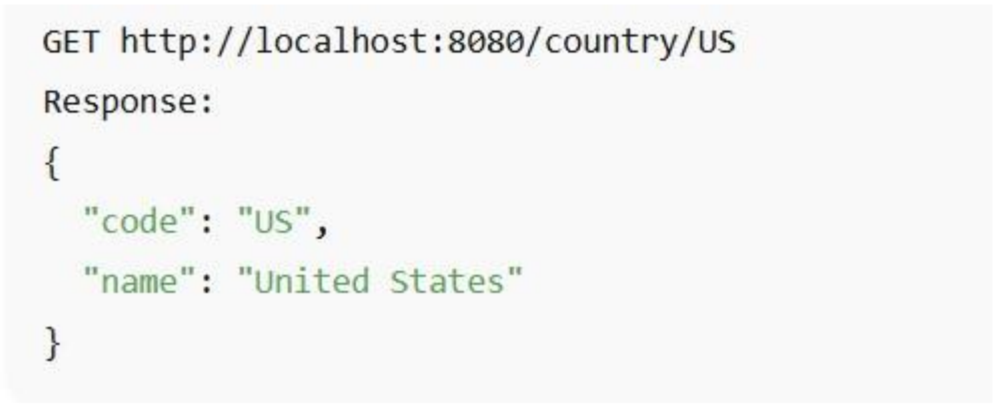
```
GET http://localhost:8080/country
Response:
{
  "code": "IN",
  "name": "India"
}
```

5.REST - Get Country Based on Country Code

CountryController.java @GetMapping("/country/{code}")

```
public Country getCountryByCode(@PathVariable String code) {
if (code.equalsIgnoreCase("IN")) {         return new Country("IN",
"India");     } else if (code.equalsIgnoreCase("US")) {         return
new Country("US", "United States");

    } else {         return new Country("NA", "Not
Available");

    }

}
```

OUTPUT:



```
GET http://localhost:8080/country/US
Response:
{
  "code": "US",
  "name": "United States"
}
```

6. JWT Authentication – Already Provided Earlier
pom.xml

```
<project xmlns="http://maven.apache.org/POM/4.0.0"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"


         xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

    <modelVersion>4.0.0</modelVersion>

    <groupId>com.example</groupId>

    <artifactId>jwt-handson</artifactId>

    <version>1.0</version>

    <packaging>jar</packaging>

<dependencies>

        <dependency>

            <groupId>org.springframework.boot</groupId>

            <artifactId>spring-boot-starter-web</artifactId>

        </dependency>


        <dependency>

            <groupId>io.jsonwebtoken</groupId>

            <artifactId>jjwt</artifactId>

            <version>0.9.1</version>

        </dependency>


        <dependency>

            <groupId>org.springframework.boot</groupId>

            <artifactId>spring-boot-starter-security</artifactId>

        </dependency>
```

```
  </dependencies>

  <build>
    <plugins>
      <plugin>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-maven-plugin</artifactId>
      </plugin>
    </plugins>
  </build>
</project>
```

JwtHandsonApplication.java package com.example; import org.springframework.boot.SpringApplication; import org.springframework.boot.autoconfigure.SpringBootApplication;

```
@SpringBootApplication public class
JwtHandsonApplication {     public static
void main(String[] args) {

    SpringApplication.run(JwtHandsonApplication.class, args);
  }
}
```

AuthRequest.java package com.example.model; public class AuthRequest { private String username; private String password;

```
    public String getUsername() { return username; }     public void
setUsername(String username) { this.username = username; } public String
getPassword() { return password; }     public void setPassword(String
password) { this.password = password; }

}
```

AuthResponse.java package

```
com.example.model; public
class AuthResponse {
private String jwtToken;


    public AuthResponse(String jwtToken) {
this.jwtToken = jwtToken;

    }


    public String getJwtToken() {
return jwtToken;

    }
}
```

JWT Utility JwtUtil.java package

```
com.example.util; import io.jsonwebtoken.Jwts;
import io.jsonwebtoken.SignatureAlgorithm; import
org.springframework.stereotype.Component; import
java.util.Date;


@Component
```

```
public class JwtUtil {      private final String secret =
"shuruthika-secret-key";           public           String
generateToken(String  username)  {                 return
Jwts.builder()

            .setSubject(username)

            .setIssuedAt(new Date())

            .setExpiration(new Date(System.currentTimeMillis() + 1000 * 60 * 60)) // 1 hour

            .signWith(SignatureAlgorithm.HS256, secret)

            .compact();

   }

}
```

Controller AuthController.java package

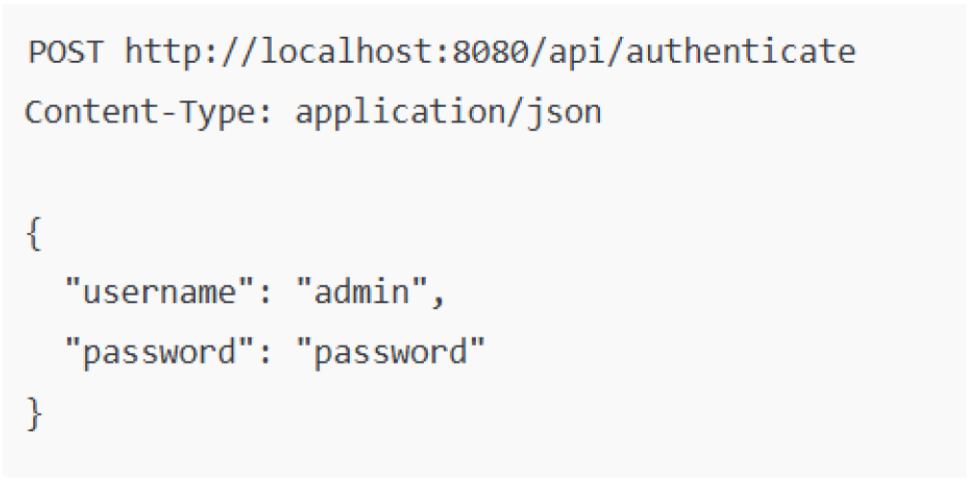
```
com.example.controller; import
com.example.model.AuthRequest; import
com.example.model.AuthResponse; import
com.example.util.JwtUtil; import
org.springframework.web.bind.annotation.*;


@RestController
@RequestMapping("/api") public
class AuthController {


   private final JwtUtil jwtUtil;


   public AuthController(JwtUtil jwtUtil) {
this.jwtUtil = jwtUtil;
```

```
    }


    @PostMapping("/authenticate")     public AuthResponse
generateToken(@RequestBody AuthRequest request) {         if
("admin".equals(request.getUsername()) &&
"password".equals(request.getPassword())) {

            String token = jwtUtil.generateToken(request.getUsername());
return new AuthResponse(token);

        } else {             throw new RuntimeException("Invalid
Credentials");

        }
    }
}
```

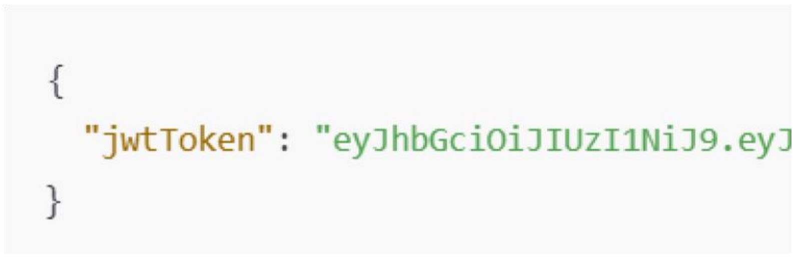
Security Config SecurityConfig.java package com.example.config; import
org.springframework.context.annotation.Bean; import
org.springframework.security.config.annotation.web.builders.HttpSecurity; import
org.springframework.security.web.SecurityFilterChain;

```
import org.springframework.context.annotation.Configuration;


@Configuration public class
SecurityConfig {

    @Bean     public SecurityFilterChain securityFilterChain(HttpSecurity http) throws
Exception {         http.csrf(csrf -> csrf.disable())

            .authorizeHttpRequests(auth -> auth.anyRequest().permitAll());
return http.build();
```

OUTPUT:



```
POST http://localhost:8080/api/authenticate
Content-Type: application/json

{
  "username": "admin",
  "password": "password"
}
```



```
{
  "jwtToken": "eyJhbGciOiJIUzI1NiJ9.eyJ
}
```

```
  }
}
```