14.Google OAuth2 Login

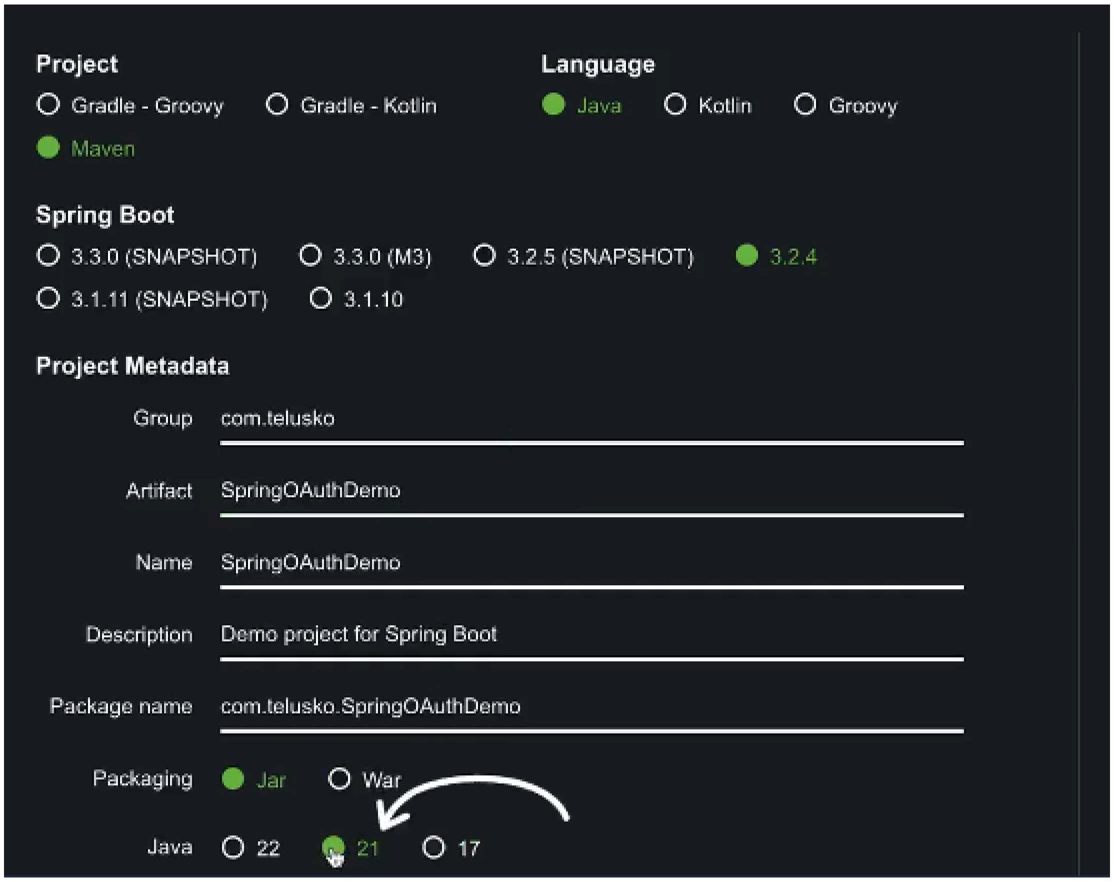
Implementing Google OAuth2 Login in Spring Boot

This guide will help you set up **Google OAuth2 Login** for your Spring Boot application. It includes the configurations and steps required to integrate both providers successfully.

Project Setup

1. Prerequisites

- **Java 17+**
- **Spring Boot 3.0+**
- Maven
- IDE (e.g., IntelliJ, Eclipse)
- Google developer accounts to register your application.



Project
Gradle - Groovy Gradle - Kotlin [✓ Maven]

Language
[✓ Java] Kotlin Groovy

Spring Boot
3.3.0 (SNAPSHOT) 3.3.0 (M3) 3.2.5 (SNAPSHOT) [✓ 3.2.4] 3.1.11 (SNAPSHOT) 3.1.10

Project Metadata

Group	com.telusko
Artifact	SpringOAuthDemo
Name	SpringOAuthDemo
Description	Demo project for Spring Boot
Package name	com.telusko.SpringOAuthDemo
Packaging	[✓ Jar] War
Java	22 [✓ 21] 17

2. Maven Dependencies

Add the following dependencies in your pom.xml for Spring Security OAuth2 support:

```xml
<dependencies>
    <!-- Spring Security OAuth2 -->
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-oauth2-client</artifactId>
    </dependency>
    <!-- Spring Web -->
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-web</artifactId>
    </dependency>
</dependencies>
```

3. Create the Security Configuration

The **SecurityConfig** class configures the security settings and enables OAuth2 login.

Example:

```java
package com.telusko.springoauthdemo;

import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;
import org.springframework.security.config.annotation.web.builders.HttpSecurity;
import org.springframework.security.config.annotation.web.configuration.EnableWebSecurity;
import org.springframework.security.web.SecurityFilterChain;

@Configuration
@EnableWebSecurity
public class SecurityConfig {

    @Bean
    public SecurityFilterChain securityFilterChain(HttpSecurity http) throws Exception {
        http
            .authorizeHttpRequests(auth -> auth
                .anyRequest().authenticated() // All requests require authentication
            )
            .oauth2Login(Customizer.withDefaults()); // Enable OAuth2 login
        return http.build();
    }
}
```

4. Create a REST Controller

The **HelloController** class defines a simple endpoint for testing OAuth2 authentication.

Example:

```
package com.telusko.springoauthdemo;

import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RestController;

@RestController
public class HelloController {

    @GetMapping("/hello")
    public String greet() {
        return "Welcome to Telusko";
    }
}
```

5. Configure application.properties

Add your Google OAuth2 credentials in the application.properties file. Replace the placeholders with your credentials.

Example:

```
# Application name
spring.application.name=SpringOAuthDemo

# Google OAuth2 credentials
spring.security.oauth2.client.registration.google.client-id=<your-google-client-id>
spring.security.oauth2.client.registration.google.client-secret=<your-google-client-secret>
```

6. Obtain OAuth2 Credentials

Google OAuth2

1. Go to Google Cloud Console.
2. Create a new project or select an existing one.
3. Navigate to **APIs & Services > Credentials**.
4. Create an **OAuth 2.0 Client ID**:
   - Application type: **Web application**
   - Authorized redirect URI: `http://localhost:8080/login/oauth2/code/google`
5. Copy the **Client ID** and **Client Secret** and add them to your `application.properties`.

7. Run the Application

1. Start your Spring Boot application by running the `main` class.
2. Visit `http://localhost:8080/hello`.
3. You will be redirected to a login page where you can select **Google** for authentication.
4. Once authenticated, you will see the `Welcome to Telusko` message.

---

8. Additional Configuration (Optional)

Custom Redirect After Login

To redirect users to a specific page after login, configure the DefaultOAuth2UserService:

```
http
    .oauth2Login(oauth2 -> oauth2
        .defaultSuccessUrl("/hello", true) // Redirect to /hello after login
    );
```

Customizing Login Page

To use a custom login page, add:

```
http
    .oauth2Login(oauth2 -> oauth2
        .loginPage("/custom-login") // Replace with your custom login page endpoint
    );
```

---

9. Testing

Google Authentication:

- Visit http://localhost:8080/login/oauth2/code/google.
- Authenticate using your Google account.

---

10. Key Components in OAuth2

1. **SecurityFilterChain**: Configures the Spring Security filter chain to enable OAuth2 login.
2. **application.properties**: Stores the OAuth2 client details for Google.
3. **OAuth2 Client**: Spring Security uses spring-boot-starter-oauth2-client to handle authentication flows.
4. **Authorized Redirect URIs**: Ensures the authentication server