15.Github Login

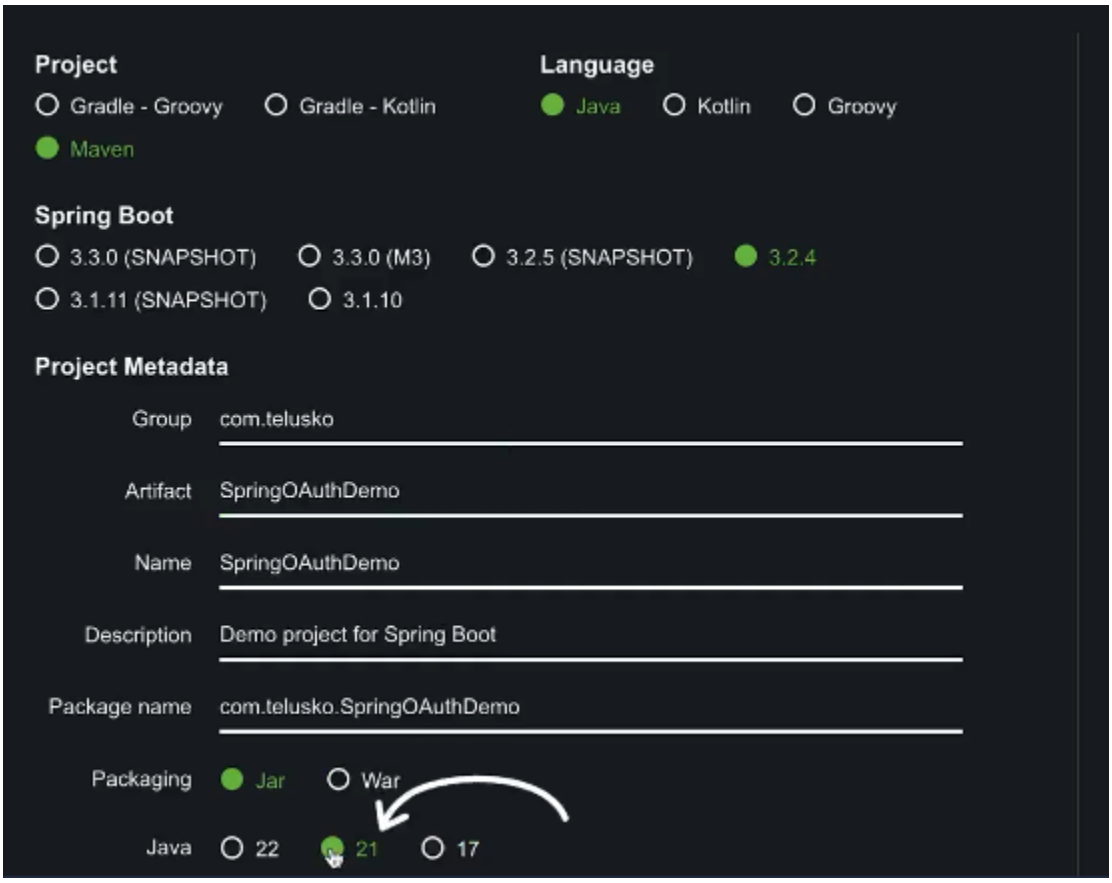
Implementing GitHub OAuth2 Login in Spring Boot

This guide will help you set up **GitHub 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)
- GitHub developer accounts to register your application.



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2. Maven Dependencies

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

```
<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:

```
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.

Code:

```
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 GitHub OAuth2 credentials in the application.properties file. Replace the placeholders with your credentials.

Code:

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

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

6. Obtain OAuth2 Credentials

GitHub OAuth2

1. Go to GitHub Developer Settings.
2. Click **New OAuth App** and fill out the details:
    - Homepage URL: http://localhost:8080
    - Authorization callback URL: http://localhost:8080/login/oauth2/code/github
3. Register the application and copy the **Client ID** and **Client Secret** into 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 **GitHub** 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

1. **GitHub Authentication:**
    - Visit http://localhost:8080/login/oauth2/code/github.
    - Authenticate using your GitHub 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 GitHub.
3. **OAuth2 Client**: Spring Security uses spring-boot-starter-oauth2-client to handle authentication flows.
4. **Authorized Redirect URIs**: Ensures the authentication server