Spring Boot Application with OAuth2

1. Set Up a Spring Boot Application with OAuth2

```xml
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-oauth2-client</artifactId>
</dependency>

<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-security</artifactId>
</dependency>
```

2. Configure OAuth2 in application.properties

(Google OAuth2).

```
spring.security.oauth2.client.registration.google.client-id=your-client-id
spring.security.oauth2.client.registration.google.client-secret=your-client-secret
spring.security.oauth2.client.registration.google.scope=openid, email, profile
spring.security.oauth2.client.provider.google.authorization-
uri=https://accounts.google.com/o/oauth2/auth
spring.security.oauth2.client.provider.google.token-uri=https://oauth2.googleapis.com/token
```

3. Create a Secure Controller

```java
@RestController
public class DemoController {

  @GetMapping("/public")
  public String publicEndpoint() {
    return "This is a public API";
  }

  @GetMapping("/private")
  public String privateEndpoint(OAuth2AuthenticationToken authentication) {
    return "Authenticated user: " + authentication.getPrincipal().getAttributes();
  }
}
```

/public → Accessible without authentication.
/private → Requires OAuth2 login.

4. Start the Spring Boot App
Run the application and go to:

```
http://localhost:8080/private
```

*You will be redirected to Google for authentication.

5. Use Postman to Get OAuth2 Token
   1) Open Postman.
      a. Go to Authorization → Select OAuth 2.0.
      b. Click Get New Access Token.
   2) Fill in:
      a. Auth URL: https://accounts.google.com/o/oauth2/auth
      b. Access Token URL: https://oauth2.googleapis.com/token
      c. Client ID: your-client-id
      d. Client Secret: your-client-secret
      e. Scope: openid email profile
      f. Grant Type: Authorization Code
      g. Click Get Token → Copy the Access Token.

6. Send a Request to the Secured API
   1) Set Authorization Type → Bearer Token.
   2) Paste the Access Token.
   3) Send a GET request to http://localhost:8080/private.