

Module 6: Microservices Security

Assignment Solution

edureka!

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Assignment Solution

OAuth-server:

Generate a new project (OAuth-server) from "https://start.spring.io/" as below:
Choose the latest stable Spring Boot version e.g., 2.6.4. Do not choose "SNAPSHOT".

The screenshot shows the Spring Initializr web application interface. The browser address bar shows 'start.spring.io'. The page has a yellow header with the 'spring initializr' logo. The main content area is divided into sections for project configuration:

- Project:** Maven Project (selected), Gradle Project.
- Language:** Java (selected), Kotlin, Groovy.
- Spring Boot:** 2.7.0 (SNAPSHOT), 2.6.3 (SNAPSHOT), 2.6.2 (selected), 2.5.9 (SNAPSHOT), 2.5.8.
- Project Metadata:**
 - Group: com.amazingbooks
 - Artifact: oauth-server
 - Name: oauth-server
 - Description: Demo project for Spring Boot.
 - Package name: com.amazingbooks.oauth-server
 - Packaging: Jar (selected), War.
 - Java: 17 (selected), 11, 8.
- Dependencies:** Eureka Discovery Client, SPRING CLOUD DISCOVERY, Spring Web. A button 'ADD DEPENDENCIES... CTRL + B' is present.

At the bottom, there are three buttons: 'GENERATE CTRL + G', 'EXPLORE CTRL + SPACE', and 'SHARE...'. Social media icons for GitHub and Twitter are on the left.

Click on "Generate"-> unzip and add following dependency in pom.xml before the import:

```
<dependency>
  <groupId>org.springframework.cloud</groupId>
  <artifactId>spring-cloud-starter-oauth2</artifactId>
  <version>2.2.5.RELEASE</version>
</dependency>
```

Import into Eclipse and Check the provided code for implementation.

Generate OAuth2 Token:

Use the below curl commands from a bash terminal to generate token:

```
$ curl --location --request POST 'http://localhost:8080/oauth-server/oauth/token?grant_type=password&username=john&password=12345&scope=read' --header 'Content-Type: application/json' --header 'Authorization: Basic Y2xpZW50OnN1Y3JldA==' --data-raw ''
```

% Total		% Received		% Xferd	Average Speed		Time	Time	Time
Current					Dload	Upload	Total	Spent	Left
									Speed
100	743	0	743	0	0	21245	0	--:--:--	--:--:--
<pre>{ "access_token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJleHAiOiJlNDU0NDkzMDG5InVzZXJfcmFtZSI6ImpvaG4iLCJhdXRob3JpdGl1cyI6WyJyZWFiI0sImp0aSI6Ijg0YmE2ZDk5LW", "refresh_token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJlc2VyX25hbWUiOiJqb2h", "token_type": "bearer", "expires_in": 43199, "scope": "read", "jti": "88ba6d99-cdb6-4c9a-aa4f-d479501f6f44" }</pre>									

Use the newly generated `access_token`(highlighted) to call APIs in `studentms` and `feesms`. All calls sent through `apigateway` must have a valid token:

Call studentms GET api /students through apigateway with valid token:

```
$ curl -X GET http://localhost:8080/studentms/students -H "Authorization: Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6Ikpvcj9.eyJleHAiOjE2NDcyOTU0DksInVzZXJfbmFtZSI6Impvag4lClcxhdxRob3JpdGllcyI6WyJyZWFiIiwiaWF0eSI6Ijg3YWwOWWJjLWNlMmItNDC5Zi1hNDM3LUlUMGIuMTgyYyZSI6ImNsawvudF9pc2k6IiwiaWF0eSI6IjE2NDcyOTU0DksInVzZXJfbmFtZSI6ImNsawvudCisInNjb3B1IjpbInJlYWQiXX0.EQ4PWsk7nQuiVsXjsHbmef1tkxsx6LKt-86PfyXULDq"
```

% Total		% Received		% Xferd		Average Speed		Time	Time	Time	
Current						Dload	Upload	Total	Spent	Left	Speed
100	109	0	109	0	0	338	0	--:--:--	--:--:--	--:--:--	339
[{"id":1,"name":"John Doe","dateOfBirth":"1991-01-01"}, {"id":2,"name":"Jane Doe","dateOfBirth":"1992-02-02"}]											

Call feesms GET api /fees through apigateway with valid token:

```
$ curl -X GET http://localhost:8080/feesms/fees -H "Authorization: Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6Ikpvcj9.eyJleHAiOjE2NDcyOTU4ODksInVzZXJbmFtZSI6ImpvagEiLCJhdXRob3RpdGUiOiYyZWwudWYyZWFkIiwiaSimp0asi6Ijg3YWwmdW9jLWNlMmItNDC5zi1hNDM3LUwUMGIwMTgyYjYzYSIsImNawvudF9pZCI6ImNawvudCisInnjb3B1IjpbInJlYWQiXX0.EQ4PWsk7nQuiVsXsjhbmef1tkxsx6Lkt-86PfyXULDQ"
```

% Total Current		% Received		% Xferd		Average Speed		Time	Time	Time	
						Dload	upload	Total	Spent	Left	Speed
100	212	0	212	0	0	8277	0	--:--:--	--:--:--	--:--:--	8833

```
[{"id":1,"studentId":1,"amount":1000.00,"feeMonth":"JANUARY","feeYear":2021,"dateOfPayment":"2022-01-01"}, {"id":2,"studentId":1,"amount":2000.00,"feeMonth":"FEBRUARY","feeYear":2022,"dateOfPayment":"2022-02-02"}]
```

Call studentms GET api /students/{studentId}/fees which internally calls feesms GET api /fees?studentId={studentId} through apigateway with valid token:

```
$ curl -X GET http://localhost:8080/studentms/students/1/fees -H  
"Authorization: Bearer  
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJleHAiOjE2NDcyOTU0Dk5InVzZXJfcmFtZSI6Impwag4iLCJhdXRob3JpdGllcyI6WyJyZWFiIiwiaWF0eSI6MTYwMjQxNjE0LmItNDc1ZiIhbmVudCisInnjb3B1IjpbInJlYWQiXX0.EQ4PW  
3LWUIMGIvMTgYybZZSISmNsawVudF9pZCI6ImNsawVudCisInnjb3B1IjpbInJlYWQiXX0.EQ4PW  
Sk7nQ1viVSXshbMefltKx5s6LKt-86PfyXULDQ"
```

% Total	% Received	% Xferd	Average	Speed	Time	Time	Time
Current			Dload	Upload	Total	Spent	Left Speed
100	154	0	154	0	0	151	0
					--:--:--	0:00:01	--:--:-- 151

```
[{"id":1,"studentId":1,"amount":1000.00,"feeMonth":"JANUARY","feeYear":2021},{
"id":2,"studentId":1,"amount":2000.00,"feeMonth":"FEBRUARY","feeYear":2022}]
```

Call studentms POST api /students/{studentId}/fees which internally calls feesms POST api /fees through apigateway with valid token:

```
$ curl -X POST http://localhost:8080/studentms/students/1/fees -H
"Authorization: Bearer
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJleHAiOjE2NDcyOTU4ODksInVzZXJfbmFtZSI6I
mpvaG4iLCJhdXRob3RpdGllcyI6WjYyZWFiI10sImp0asi6Ijg3YWwWOWJjLWw1MmItNDc5Zi1hNDM
3LWU1MGiWMTgyYjYzZSIsImNsawVudF9pZCI6ImNsawVudCisInnjb3B1IjpbInJlYWQiXX0.EQ4PW
Sk7nQUIvSxJshbMef1tkXSX6Lkt-86PfyXULDQ" -d '{"studentId":
2, "amount": 200, "feeMonth": "JANUARY", "feeYear": 2022}' -H 'Content-Type:
application/json'
```

% Total	% Received	% Xferd	Average	Speed	Time	Time	Time
Current			Dload	Upload	Total	Spent	Left Speed
100	136	0 71 100	65	813	744	--:--:--	--:--:-- --:--:-- 1581

```
{"id":5,"studentId":2,"amount":200,"feeMonth":"JANUARY","feeYear":2022}
```