Sending CSRF Token

Purpose of the getCsrfToken Method:

- This method is used to fetch the Cross-Site Request Forgery (CSRF) token from the HttpServletRequest object.
- It retrieves the token stored under the attribute "_csrf" in the request.

CSRF Token Retrieval:

- CSRF tokens are a security mechanism to prevent unauthorized or malicious actions on behalf of authenticated users.

In this implementation, the token is extracted using:

```
return (CsrfToken) request.getAttribute("_csrf");
```

Endpoint:

- The endpoint "/csrf-token" is mapped to this method, which allows clients (e.g., frontend applications) to retrieve the CSRF token as needed for secure communications.

Practical Use Case:

- The retrieved token can be sent to the client (e.g., in the response body or headers) and is expected to be included in subsequent requests requiring CSRF protection.

Spring Security Integration:

- This method assumes that Spring Security is configured to handle CSRF tokens automatically, where tokens are generated and managed for each session or request.
- The attribute "_csrf" is a standard key used by Spring Security to store the CSRF token.

Usage in Client Requests:

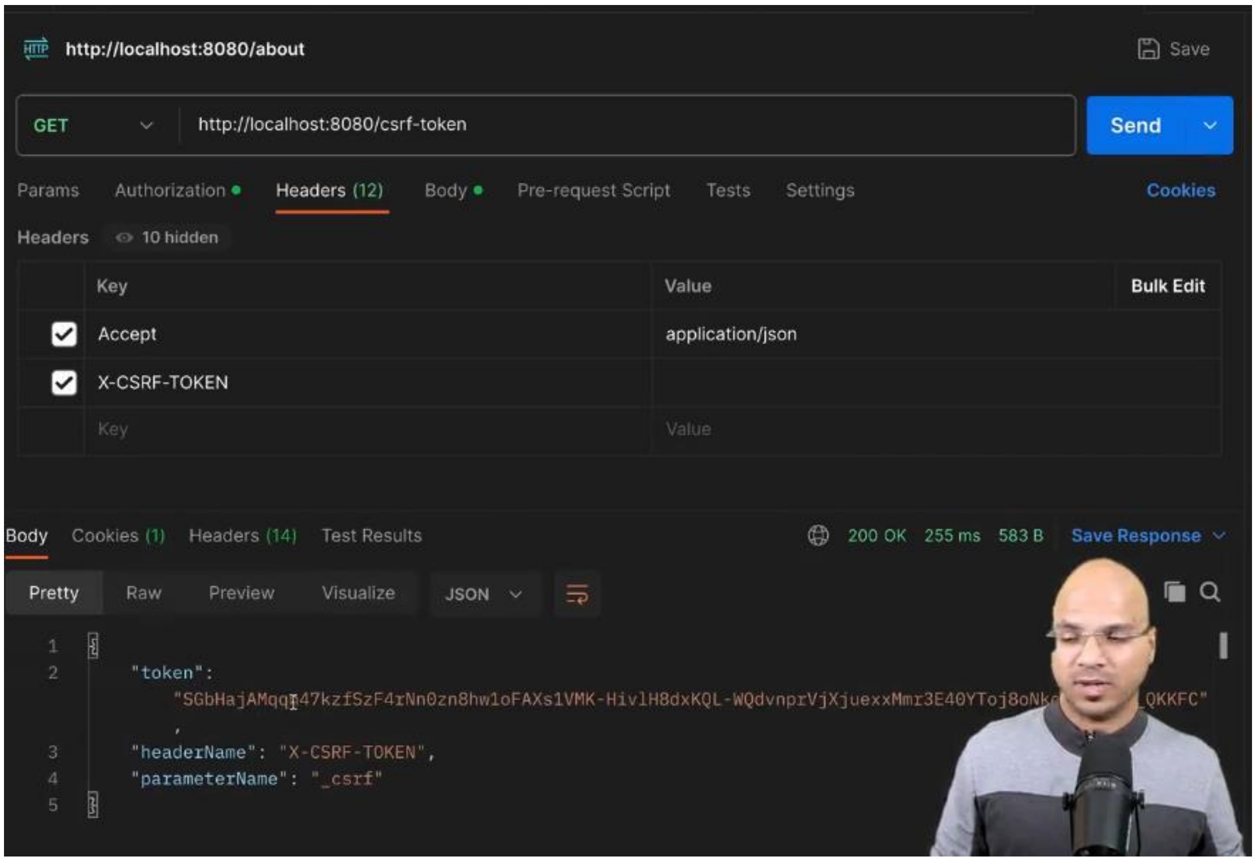
- When performing actions like POST, PUT, or DELETE, the client must include this token in the request headers (e.g., X-CSRF-Token) or as a hidden form field.

Security Best Practices:

- Ensure that this endpoint ("/csrf-token") is not exposed to unauthorized access.
- Use HTTPS to protect the transmission of the CSRF token.
- Avoid caching responses from this endpoint, as CSRF tokens are session-specific.

StudentsController.java

```java
@RestController
public class StudentController {

    @Autowired
    private StudentService studentService;

    @GetMapping("/csrf-token")
    public CsrfToken getCsrfToken(HttpServletRequest request) {
        return (CsrfToken) request.getAttribute("_csrf");
    }

    @GetMapping("/students")
    public ResponseEntity<List<Student>> getStudents(){
        return ResponseEntity.ok(studentService.getStudents());
    }

    @PostMapping("/students")
    public ResponseEntity<Student> addStudent(@RequestBody Student student ){
        if(studentService.addStudent(student)) {
            return ResponseEntity.ok(student);
        }else {
            return ResponseEntity.internalServerError().build();
        }
    }

}
```



http://localhost:8080/about

GET http://localhost:8080/csrf-token

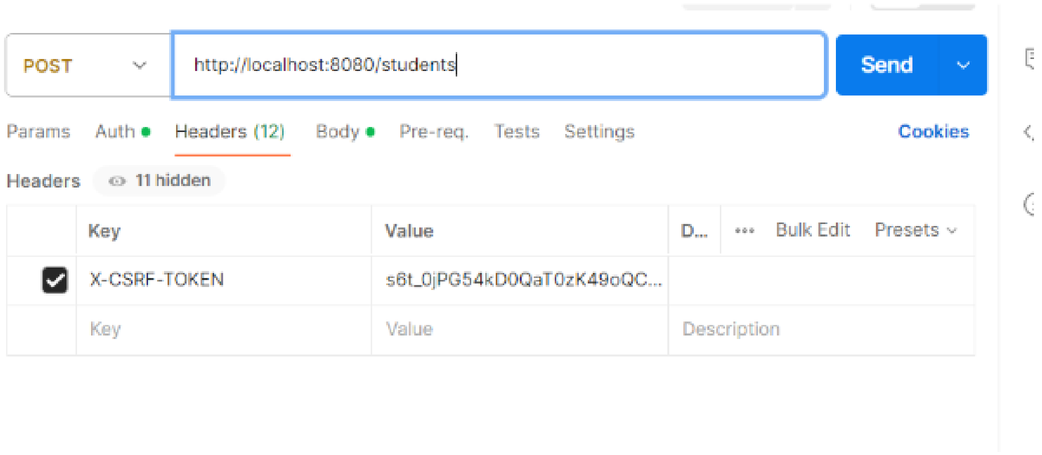
Headers (12)

Key	Value
Accept	application/json
X-CSRF-TOKEN	

200 OK 255 ms 583 B

```
{
    "token":
        "SGbHajAMqq 47kzfSzF4rNn0zn8hw1oFAXs1VMK-HivlH8dxKQL-WQdvnprVjXjuexxMmr3E40YToj8oNk [illegible] QKKFC"
        ,
    "headerName": "X-CSRF-TOKEN",
    "parameterName": "_csrf"
}
```

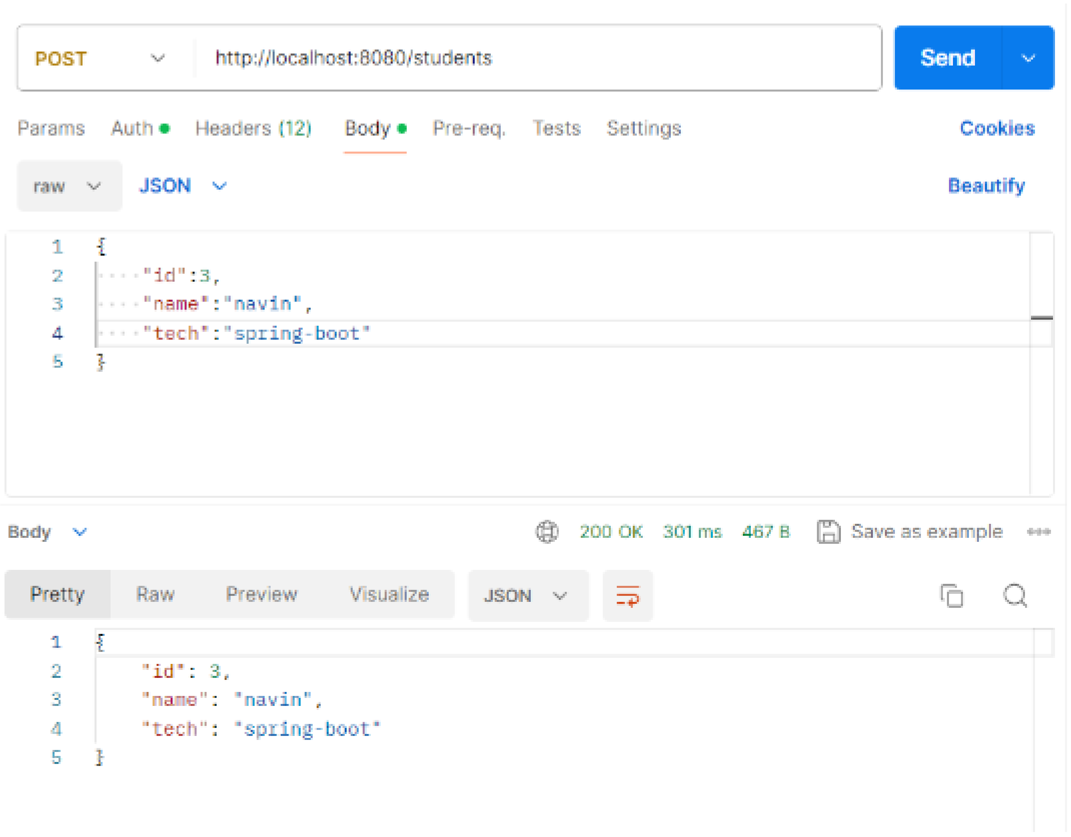
Now after adding csrf token:



POST http://localhost:8080/students

Headers (12)

Key	Value	D...
X-CSRF-TOKEN	s6t_0jPG54kD0QaT0zK49oQC...	



http://localhost:8080/students

```
{
    "id":3,
    "name":"navin",
    "tech":"spring-boot"
}
```

200 OK 301 ms 467 B

```
{
    "id": 3,
    "name": "navin",
    "tech": "spring-boot"
}
```