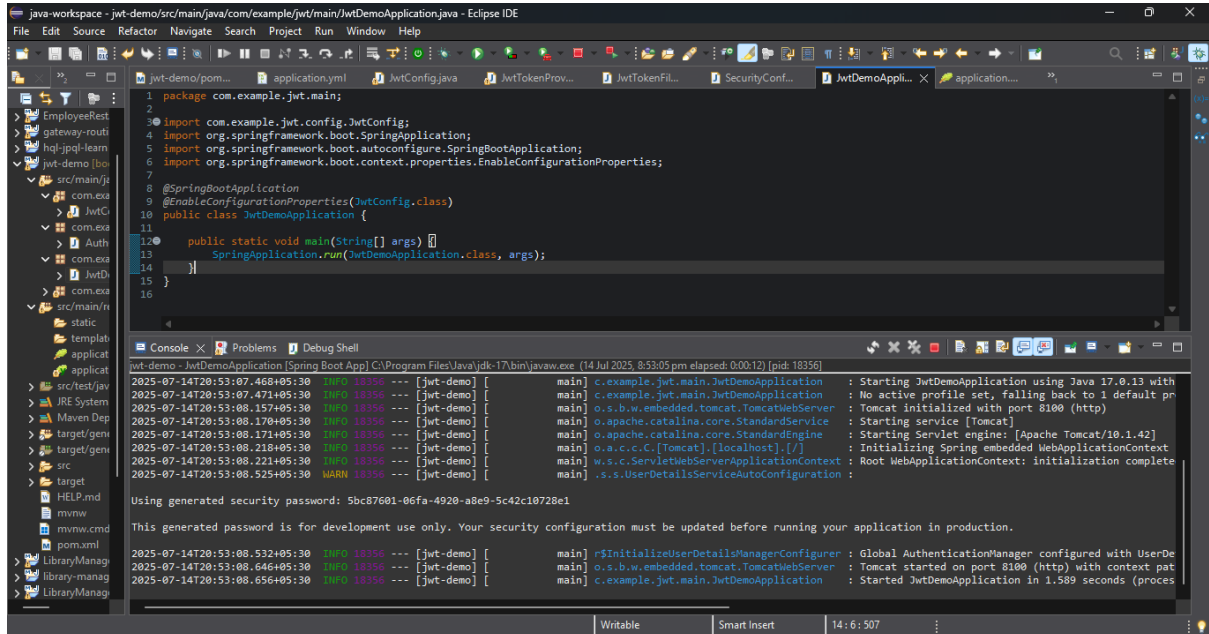


### Exercise 3: Using JSON Web Tokens (JWT) for Secure Communication

Output:



The screenshot displays the Eclipse IDE interface. The main editor shows the `JwdDemoApplication.java` file, which is a Spring Boot application. The code includes package declarations, imports for `JwtConfig`, `SpringApplication`, `SpringBootApplication`, and `EnableConfigurationProperties`. The `main` method calls `SpringApplication.run` with the application class and arguments.

```
1 package com.example.jwt.main;
2
3 import com.example.jwt.config.JwtConfig;
4 import org.springframework.boot.SpringApplication;
5 import org.springframework.boot.autoconfigure.SpringBootApplication;
6 import org.springframework.boot.context.properties.EnableConfigurationProperties;
7
8 @SpringBootApplication
9 @EnableConfigurationProperties(JwtConfig.class)
10 public class JwdDemoApplication {
11
12     public static void main(String[] args) {
13         SpringApplication.run(JwdDemoApplication.class, args);
14     }
15 }
16
```

The console output shows the application's startup sequence. It starts with a warning about the security password, followed by a series of log messages indicating the initialization of the application, the Tomcat web server, and the Spring context. The application starts on port 8100 (http) with context path `/`.

```
Using generated security password: 5bc87601-06fa-4920-a8e9-5c42c10728e1
This generated password is for development use only. Your security configuration must be updated before running your application.

2025-07-14T20:53:07.468+05:30 INFO 18356 --- [jwd-demo] [main] c.example.jwt.main.JwdDemoApplication : Starting JwdDemoApplication using Java 17.0.13 with
2025-07-14T20:53:07.471+05:30 INFO 18356 --- [jwd-demo] [main] c.example.jwt.main.JwdDemoApplication : No active profile set, falling back to 1 default pr
2025-07-14T20:53:08.157+05:30 INFO 18356 --- [jwd-demo] [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 8100 (http)
2025-07-14T20:53:08.170+05:30 INFO 18356 --- [jwd-demo] [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2025-07-14T20:53:08.171+05:30 INFO 18356 --- [jwd-demo] [main] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.42]
2025-07-14T20:53:08.218+05:30 INFO 18356 --- [jwd-demo] [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2025-07-14T20:53:08.221+05:30 INFO 18356 --- [jwd-demo] [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization complete
2025-07-14T20:53:08.525+05:30 WARN 18356 --- [jwd-demo] [main] .s.s.UserDetailsServiceAutoConfiguration :

Global AuthenticationManager configured with UserDe
Tomcat started on port 8100 (http) with context pat
Started JwdDemoApplication in 1.589 seconds (proces
```