GLOBALRAIN

Artemis Financial Vulnerability Assessment Report

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Document Revision History

Version	Date	Author	Comments
1.0	2-4-24	Corey Arnold	

Client

ARTEMIS FINANCIAL

Instructions

Submit this completed vulnerability assessment report. Replace the bracketed text with the relevant information. In the report, identify your findings of security vulnerabilities and provide recommendations for the next steps to remedy the issues you have found.

- Respond to the five steps outlined below and include your findings.
- Respond using your own words. You may also choose to include images or supporting materials. If you include them, make certain to insert them in all the relevant locations in the document.
- Refer to the Project One Guidelines and Rubric for more detailed instructions about each section of the template.

Developer
Corey Arnold

1. Interpreting Client Needs

The client, Artemis Financial, has the need for the modernization of its operations and we are tasked with ensuring that said operations are as secure as possible for this software application. Artemis Financial handles sensitive customer information insurance, retirement, savings, and investments. The security of this application is of the upmost importance. The company rightly hopes to protect the organization from external threats and protect all communications. Our task is to ensure the security of all existing software, as well as ensuring the security of the modernization efforts.

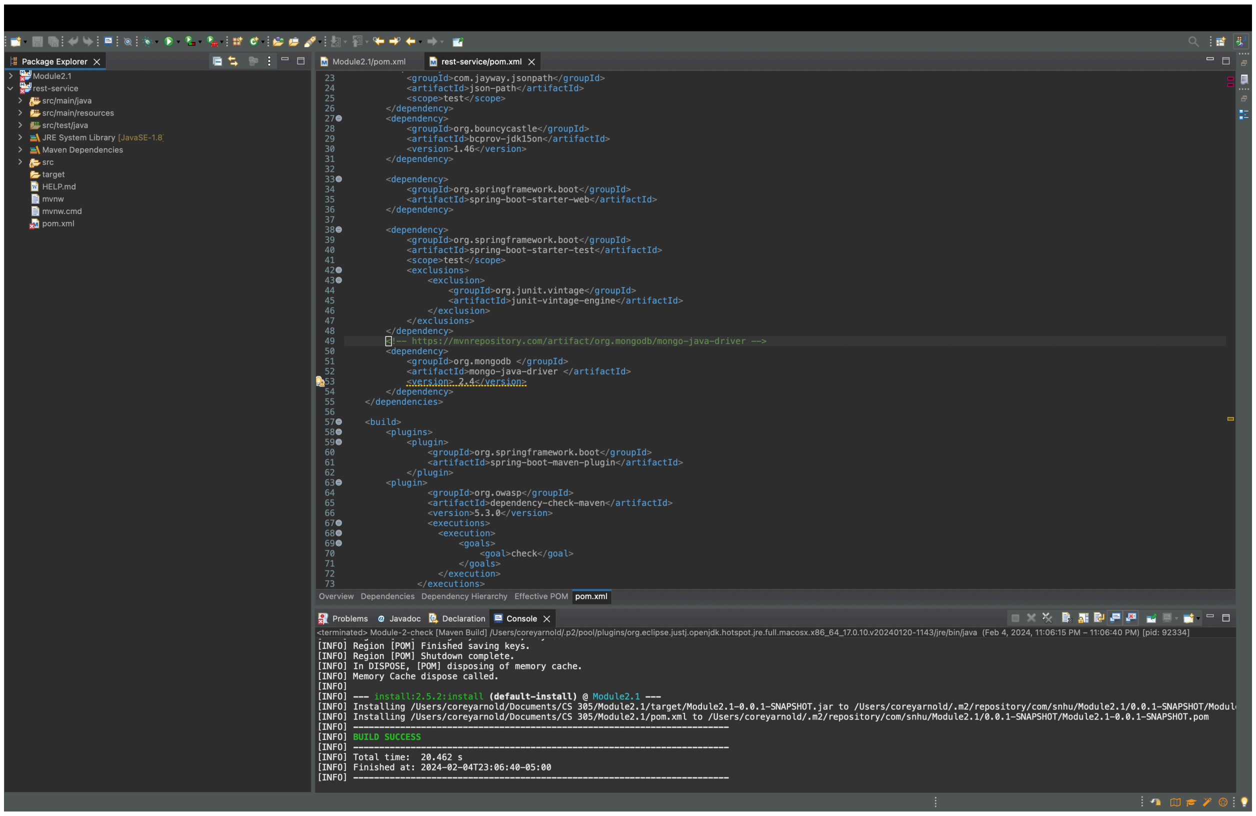
2. Areas of Security

I recommend covering input validation, client server, code error, and encapsulation. Input validation will help prevent many vulnerabilities that mainly come from issues arising from uncommon inputs into the application. Client/Server security will help to protect information as it passes between user and server, a common weak point that needs to be covered especially when the information is entirely financial in nature. Code error should always be covered, but requires and second and third look when the system pertains to main peoples entire livelihood. Encapsulation will serve to protect the data within the system.

3. Manual Review

Output encoding is needed within our application as there is a big risk here of attackers being able to force in malicious scripts into the webpage.

4. Static Testing



```xml
                <groupId>com.jayway.jsonpath</groupId>
                <artifactId>json-path</artifactId>
                <scope>test</scope>
            </dependency>
            <dependency>
                <groupId>org.bouncycastle</groupId>
                <artifactId>bcprov-jdk15on</artifactId>
                <version>1.46</version>
            </dependency>

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

            <dependency>
                <groupId>org.springframework.boot</groupId>
                <artifactId>spring-boot-starter-test</artifactId>
                <scope>test</scope>
                <exclusions>
                    <exclusion>
                        <groupId>org.junit.vintage</groupId>
                        <artifactId>junit-vintage-engine</artifactId>
                    </exclusion>
                </exclusions>
            </dependency>
            <!-- https://mvnrepository.com/artifact/org.mongodb/mongo-java-driver -->
            <dependency>
                <groupId>org.mongodb </groupId>
                <artifactId>mongo-java-driver </artifactId>
                <version> 2.4</version>
            </dependency>
        </dependencies>

        <build>
            <plugins>
                <plugin>
                    <groupId>org.springframework.boot</groupId>
                    <artifactId>spring-boot-maven-plugin</artifactId>
                </plugin>
            <plugin>
                    <groupId>org.owasp</groupId>
                    <artifactId>dependency-check-maven</artifactId>
                    <version>5.3.0</version>
                    <executions>
                      <execution>
                          <goals>
                              <goal>check</goal>
                          </goals>
                      </execution>
                    </executions>
```

```
<terminated> Module-2-check [Maven Build] /Users/coreyarnold/.p2/pool/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.macosx.x86_64_17.0.10.v20240120-1143/jre/bin/java  (Feb 4, 2024, 11:06:15 PM – 11:06:40 PM) [pid: 92334]
[INFO] Region [POM] Finished saving keys.
[INFO] Region [POM] Shutdown complete.
[INFO] In DISPOSE, [POM] disposing of memory cache.
[INFO] Memory Cache dispose called.
[INFO]
[INFO] --- install:2.5.2:install (default-install) @ Module2.1 ---
[INFO] Installing /Users/coreyarnold/Documents/CS 305/Module2.1/target/Module2.1-0.0.1-SNAPSHOT.jar to /Users/coreyarnold/.m2/repository/com/snhu/Module2.1/0.0.1-SNAPSHOT/Modul
[INFO] Installing /Users/coreyarnold/Documents/CS 305/Module2.1/pom.xml to /Users/coreyarnold/.m2/repository/com/snhu/Module2.1/0.0.1-SNAPSHOT/Module2.1-0.0.1-SNAPSHOT.pom
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  20.462 s
[INFO] Finished at: 2024-02-04T23:06:40-05:00
[INFO] ------------------------------------------------------------------------
```

Was unable to get the dependency form to create within eclipse. The test would run entirely but no report would be created upon test completion.

5. Mitigation Plan

The first step of mitigation I would recommend the reinforcement of our inputs and outputs as it seems like this is the biggest vulnerability of our application. Our application currently is at a big risk of being manipulated by both user inputs, and the outputs generated by those inputs. Code error is the other big source of vulnerabilities. The code can be cleaned up to better prevent any breaches in our security to promote the best possible security for our application.