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# Practices for Secure Software Report

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## Document Revision History

| **Version** | **Date** | **Author** | **Comments** |
| --- | --- | --- | --- |
| **1.0** | **[Date]** | **[Your Name]** |  |

## Client



## Instructions

Submit this completed practices for secure software report. Replace the bracketed text with the relevant information. You must document your process for writing secure communications and refactoring code that complies with software security testing protocols.

* Respond to the 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 Two Guidelines and Rubric for more detailed instructions about each section of the template.

## Developer

Douglas Rowland

## Algorithm Cipher

To enhance Artemis Financial’s web application security, I recommend implementing the AES (Advanced Encryption Standard) cipher with a 256-bit key length. AES-256 is secure against known cryptographic attacks and is widely recognized for its efficiency and security. This cipher operates with symmetric keys, meaning the same key is used for both encryption and decryption, which simplifies key management while maintaining strong security. It also supports block cipher modes such as CBC and GCM, which are suitable for high-volume data environments. AES has been used extensively in various industries and is part of the encryption standard for the U.S. government, indicating its reliability and effectiveness in securing sensitive data.

## Certificate Generation

Insert a screenshot below of the CER file.

[Insert screenshots here.]

A screenshot of a computer program

Description automatically generated

## Deploy Cipher

Insert a screenshot below of the checksum verification.

[Insert screenshots here.]

A screenshot of a computer

Description automatically generated

## Secure Communications

Insert a screenshot below of the web browser that shows a secure webpage.

[Insert screenshots here.]



A screen shot of a computer screen

Description automatically generated

## Secondary Testing

Insert screenshots below of the refactored code executed without errors and the dependency-check report.

[Insert screenshots here.]

A screen shot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

## Functional Testing

Insert a screenshot below of the refactored code executed without errors.

[Insert screenshots here.]

A screenshot of a computer screen

Description automatically generated

## Summary

[Insert text.]

In this project, I refactored Artemis Financial’s software to enhance its security. They key steps included implementing a AES-256 encryption algorithm, generating and deploying a self-signed certificate, and ensuring that is communicated securely through HTTPS communication. I ran a dependency check through OWASP to test for any known vulnerabilities. In this report, there are details of each vulnerability.

## Industry Standard Best Practices

I applied industry standard best practices throughout the refactoring process to mitigate known security vulnerabilities. This included following secure coding guidelines, using well-established encryption algorithms, and performing comprehensive testing. Adhering to these practices helps maintain the integrity and confidentiality of the software, protects against potential attacks, and ensures that the software meets the high-security standards expected in the financial industry. By implementing these best practices, we not only enhance the security of the software but also contribute to the overall well-being and trustworthiness of Artemis Financial.