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# CS 305 Project Two

**Practices for Secure Software Report**

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## Document Revision History

| **Version** | **Date** | **Author** | **Comments** |
| --- | --- | --- | --- |
| **1.0** | **March 26, 2021** | **Amber Foster** | **Security Report** |

## Client



## Instructions

Deliver this completed Practices for Secure Software Report documenting your process for writing secure communications and refactoring code that complies with software security testing protocols.

Respond to the steps outlined below and replace the bracketed text with your findings in your own words. If you choose to include images or supporting materials, be sure to insert them throughout.

## Developer

Amber Foster

## 1. Algorithm Cipher

Determine an appropriate encryption algorithm cipher to deploy given the security vulnerabilities, justifying your reasoning. Be sure to address the following:

* **Provide a brief, high-level overview of the encryption algorithm cipher.**

Encryption is a technique of encoding messages and allowing the intended support to understand the meaning of the messages. It is a two-way function that helps to encode and then to decode a message which does not want to be a public message. Cryptography is the algorithm of using codes and ciphers to protect messages. Cipher is an algorithm for performing either encryption or decryption in cryptography. Cipher algorithms have a series of properly defined steps that can be followed as an example procedure. Cipher is the synonymous with the code as they both help in interesting a message. The current categories of cipher are the block and stream ciphers. Block ciphers are the blocks of symbols and of a fixed size. Stream ciphers are the continuous stream of symbols. Also, I used the AES 256-bit encryption in this project, and it is the strongest and most vigorous encryption standard that is commercially used today.

* **Discuss the hash functions and bit levels of the cipher.**

The hash functions in cipher are very useful and it can appear in nearly all the information security applications. The values are returned by a hash function that is called message digest or hash values. It is a mathematical function that is converts into a particular type of regularly numerical input that goes into another compressed input. The hash functions input length can be any, but the output length can always be fixed. There are two features of hash functions that are called fixed length output and efficiency of operation. The number of bits is equal to the number of characters during encryption. Encryption bit is the smallest part of information that is characterized by a number.

* **Explain the use of** **random numbers, symmetric vs non-symmetric keys, and so on.**

The cryptographic key is a extended random string that are made up of letters and numbers that are used to encrypt or decrypt data. The symmetric keys and algorithm are the same keys which are used for both encryption and decryption. The asymmetric keys are used differently though both encryption and decryption. The secure random number generator is built of random bits of data that can be developed through a small deviation in the system. The secure random number generator will ensure that the hash keys are consistent. Asymmetric encryption is more secure overall then symmetric encryption, but symmetric encryption is much faster in the end than asymmetric encryption. The cipher algorithm is a symmetric which the key is only used by the recipient and the sender. If the algorithm is asymmetric then the enciphering key will be different from the deciphering key. One key cannot be reduced from another key and hence into an asymmetric key algorithm, the private property of the algorithm can be public without any confidential loss.

* **Describe the history and current state of encryption algorithms.**

Encryption algorithms started thousands of years ago. Earlier when it was introduced, the method was used for encryption by using just a pen and paper, now encryption algorithms are basically used for simple mechanical aids. The overview of complex mechanical and electromechanical machines provided more effective and easy means of encryption and hence allowed to elaborate schemes of greater complexity without pen and paper. In history ciphers have been used to send messages as private communication. Cryptography is largely preserved by the governments and during World War I, the cryptography was used to keep messages private.

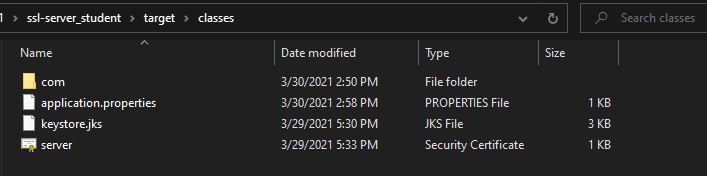
## 2. Certificate Generation

Generate appropriate self-signed certificates using the Java Keytool, which is used through the command line.

* The RSA certificate was self-generated from the keystore file that provides the information that the keystore was generated with a time retro.

![Graphical user interface, text, application

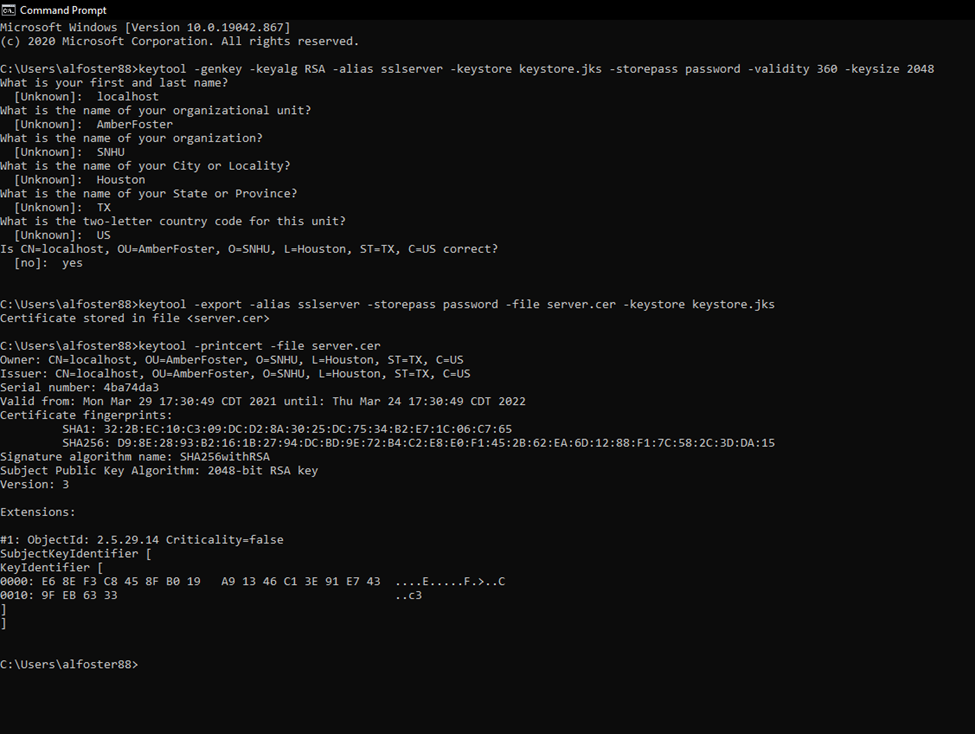
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## 3. Deploy Cipher

Refactor the code and use security libraries to deploy and implement the encryption algorithm cipher to the software application. Verify this additional functionality with a checksum.

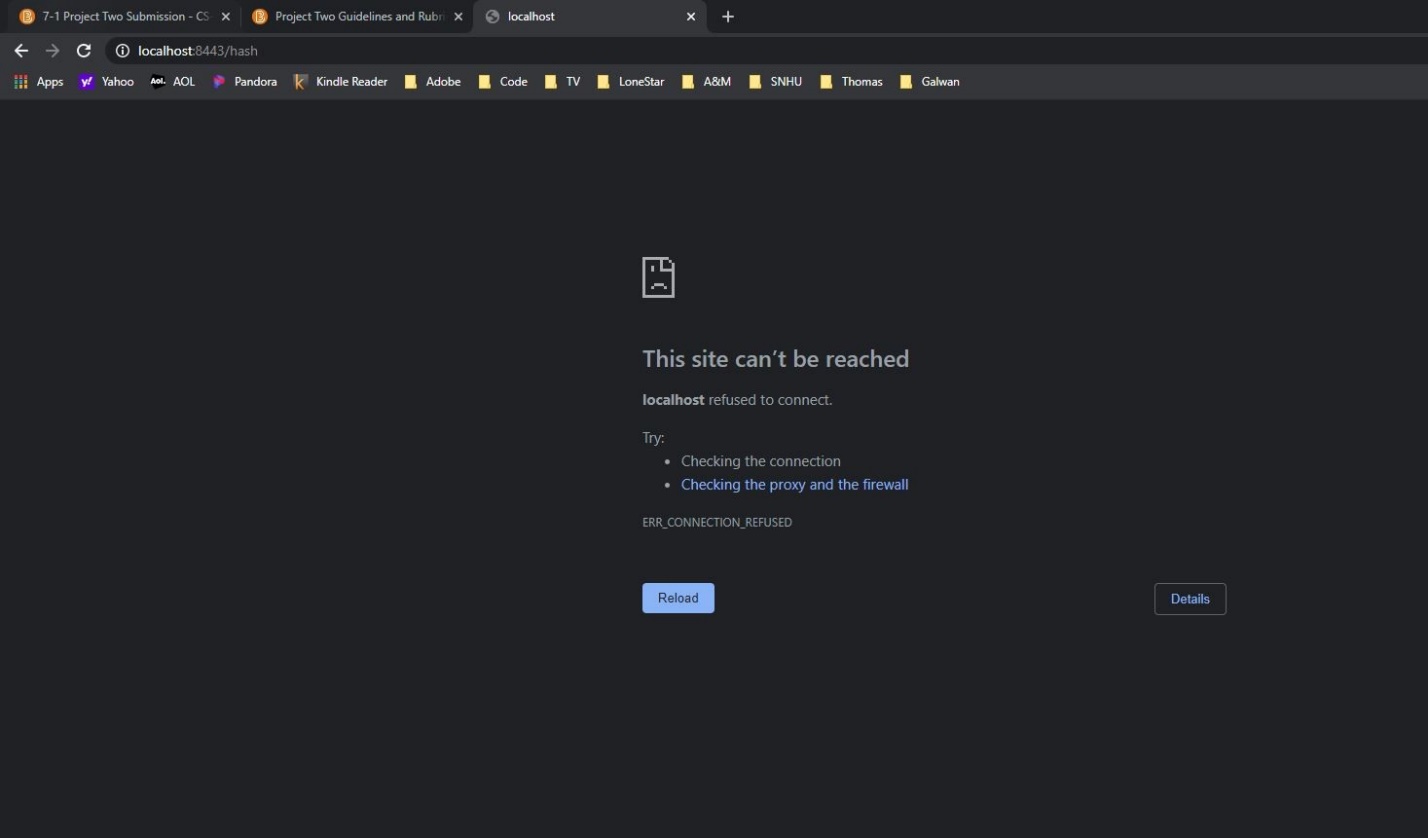
* The generation of this checksum value for the output phrase is “Hello World Check Sum!”.

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## 4. Secure Communications

Refactor the code to convert HTTP to the HTTPS protocol. Compile and run the refactored code to verify secure communication by typing **https://localhost:8443/hash** in a new browser window to demonstrate that the secure communication works successfully.

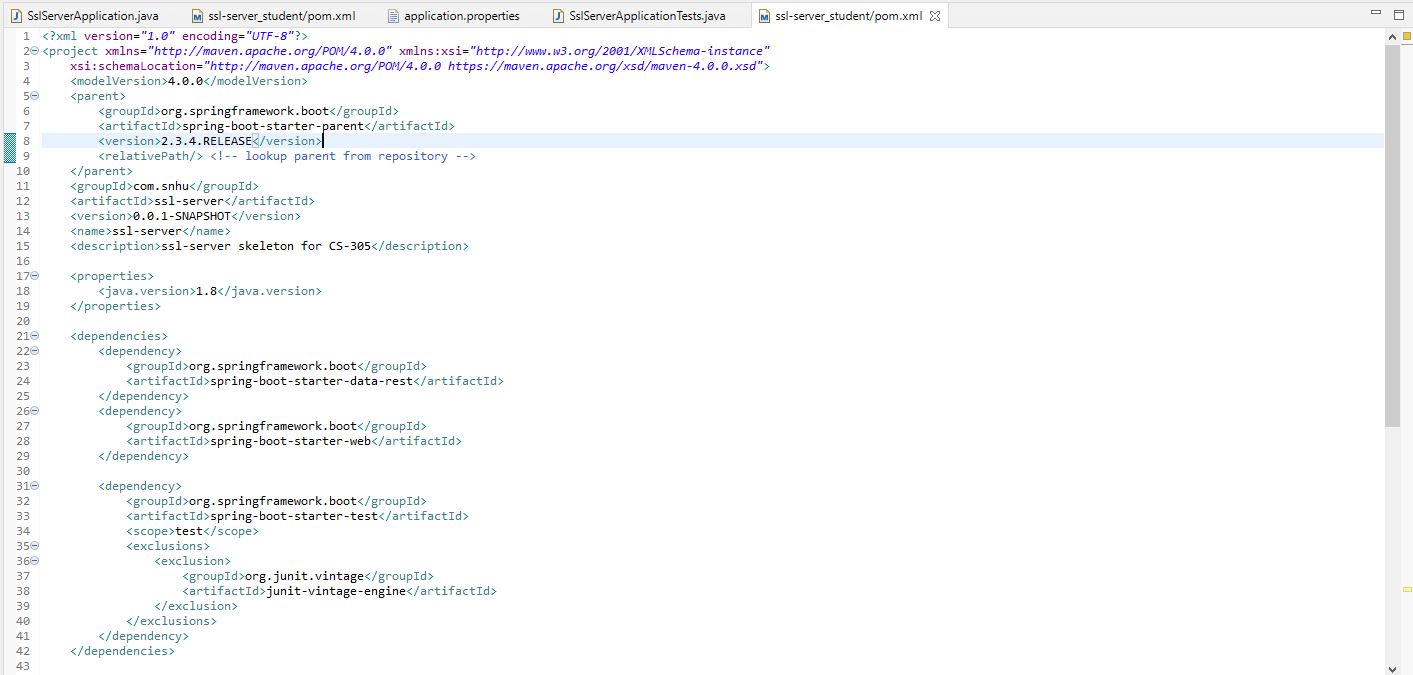
* I tried many different web browsers to show that I received a secure webpage, but I kept running into a communication error.

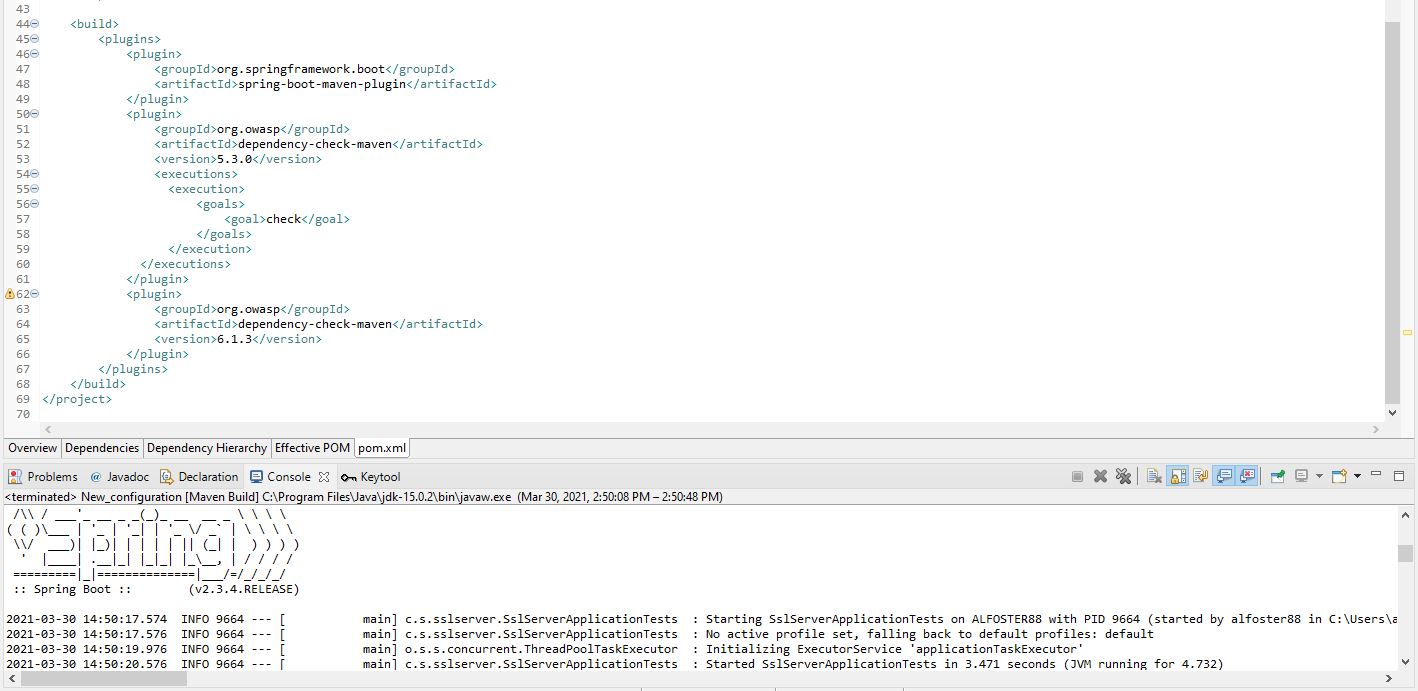
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## 5. Secondary Testing

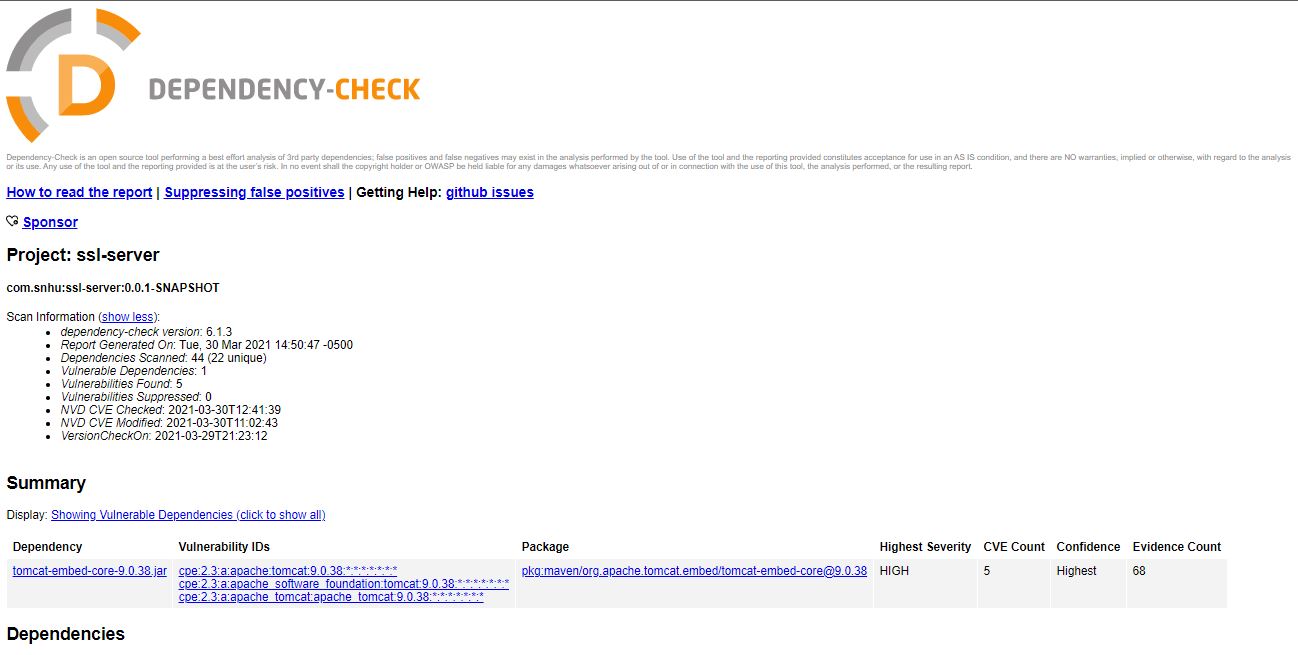
Complete a secondary static testing of the refactored code using the dependency check tool to ensure code complies with software security enhancements. You only need to focus on the code you have added as part of the refactoring. Complete the dependency check and review the output to ensure you did not introduce additional security vulnerabilities.

* The refactored code executed without errors and the POM file had been updated to the latest version of the spring-boot version “2.3.4. RELEASE”.





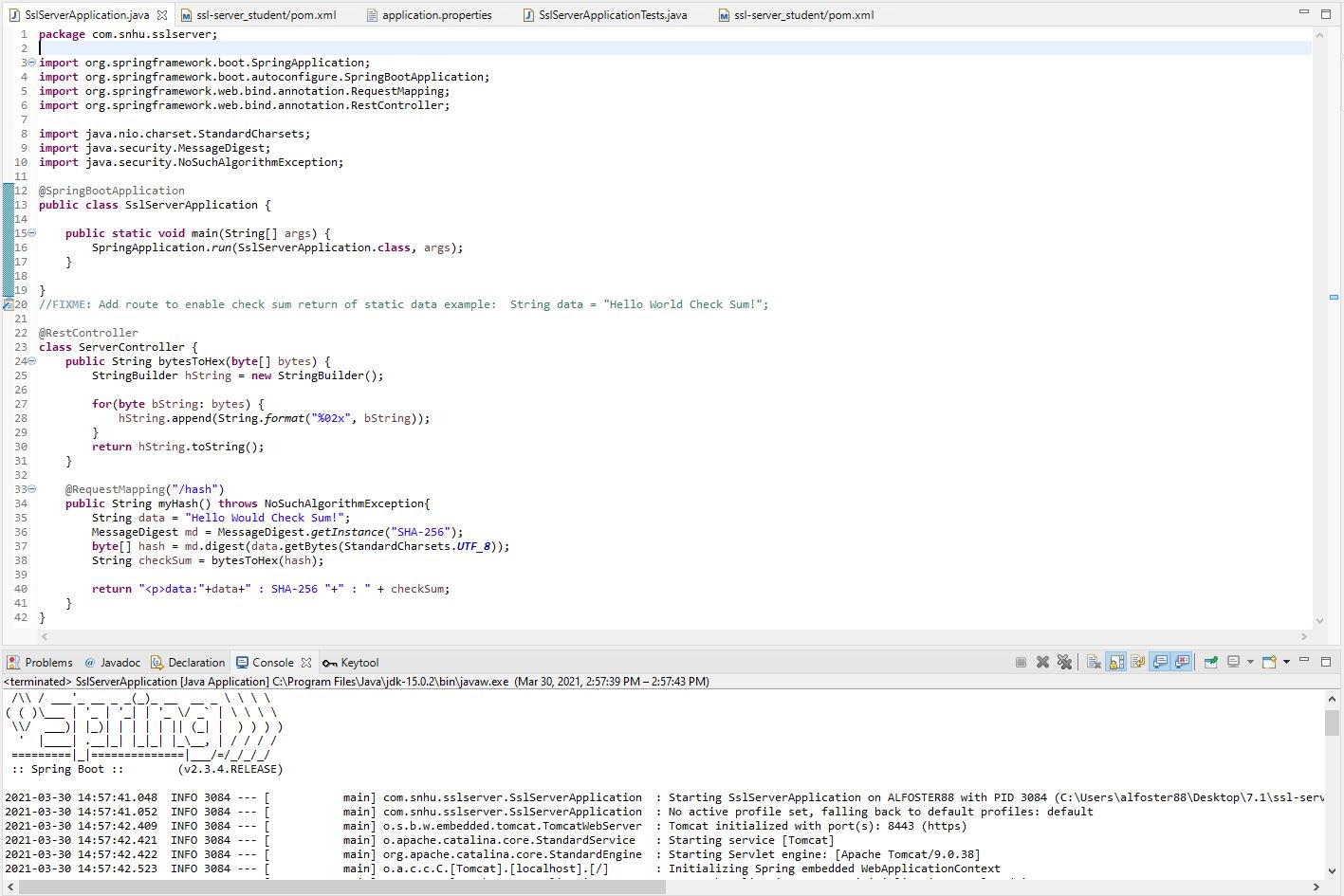
* The dependency check report demonstrates that the code refactoring to the HTTPS had one dependency issue.

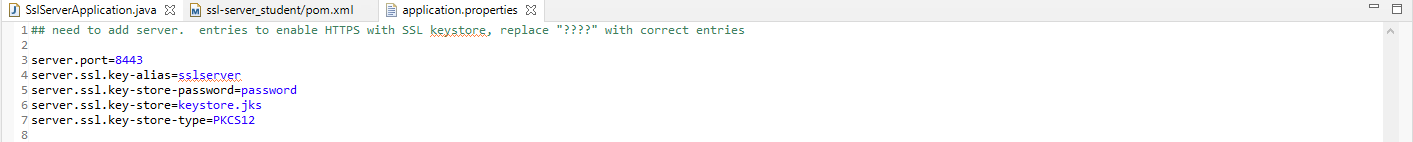


## 6. Functional Testing

Identify syntactical, logical, and security vulnerabilities for the software application by manually reviewing code.

* The refactored code executed without errors for the functional testing. I believe that there are a few minor areas that are of risk and should be aware to the client.





## 7. Summary

Discuss how the code has been refactored and how it complies with security testing protocols. Be sure to address the following:

* **Refer to the Vulnerability Assessment Process Flow Diagram and highlight the areas of security that you addressed by refactoring the code.**

After reviewing the security vulnerability assessment process flow the following areas where identified as necessary for review in the following areas of security; APIs, cryptography, code quality, input validation, and client/server. For the components of the vulnerability assessment are the API that allows for a safe communication with the interface. The cryptography that use the RSA and SHA2 hash function for generating the checksum. The code quality that uses the review and code for the best quality benefits. The input validation that uses the hash function and checksum value.

* **Discuss your process for** **adding layers of security to the software application and the value that security adds to the company’s overall wellbeing.**

The process for adding security layers starts by understanding what the product is and what is it required to do. For ensuring the code is secure from any major risk and errors, the spring-boot version will be updated and by adding a checksum for the input validation and a self-signed certificate this will allow the usage of the HTTPS protocol.

Having secure communications are very important to this application because, if the application becomes unsecure communications then the attacker can see the data and have access to confidential information. This will cause a security breach which can damage the relationship and loss trust between the owner and consumer. Maintaining security in the application which will help protect the product and its assets and to keep the trust and business between the two.

* **Point out best practices for maintaining the current security of the software application to your customer.**

The best practices to maintain current security is to frequently check the code for vulnerabilities, especially after making any changing to the functions. Then identify the data and the areas of security to see if the data or dependency is required for the code to run correctly.

**8. References**

Detlefsen, August; Manico, Jim. (2014). *Iron-Clad Java,* from (Text).

Loshin, Peter; Cobb, Michael. (2020). *Encryption*, from (Web).

https://searchsecurity.techtarget.com/definition/encryption

TutorialsPoint. (2021). TutorialsPoint. *Cryptography Hash functions*, from (Web).

https://www.tutorialspoint.com/cryptography/cryptography\_hash\_functions.htm

Mukherjee, Lumena. (2020). *5 Differences Between Symmetric vs Asymmetric Encryption*, from (Web).

https://sectigostore.com/blog/5-differences-between-symmetric-vs-asymmetric-encryption/

Wikipedia. (2016). *Cryptographic hash function*, from (Web).

https://en.wikipedia.org/wiki/Cryptographic\_hash\_function

Inc, O. (2017). *Java Security Standard Algorithm Names,* from (Web). https://docs.oracle.com/javase/9/docs/specs/security/standard-names.html