# CS 305 Module Two Written Assignment Template

**Frederick Brehm**

**5/15/2024**

**Southern New Hampshire University**

**CS 305**

## Areas of Security

For this project my team must assess the potential for security risks and create a mitigation plan. There are many types of vulnerabilities that can occur throughout code for a web application. An incredibly effective way out where to begin is the VAPFD. I can see three important areas for this web application where we will need to focus on security:

API’s

Input Validation

Code Quality/Code Error

I chose these three areas as we are looking for the first line of defense when creating this code. The other 3 areas don’t need to be utilized at this moment. Having an API for client to server communications, input validation for filtering and code quality/code error to ensure minor mistakes are the three areas to focus on.

## Areas of Security Justification

An API is a collection of communication protocols and subroutines used by various programs to communicate between them. API is basically the link between the client/user, middle ground, and the backend. APIs are very important for web applications as they are considered safe in terms of attacks as it includes authorization credentials and an API gateway to limit access to minimize security threats.

Input validation is crucial as it allows and accepts what constitutes good data and rejects everything else. Input validation is important in conjunction with API, as API is the ability for the web application to communicate, and input validation is the first line of defense. Input validation is a programming technique that limits what input a web application will legally accept.

Code quality and code error go hand in hand in my opinion, with code quality taking priority. Code quality is going to ensure that the developers are providing readability and organization for other programmers and testers to be clear on how the code is supposed to perform. Developers need to focus on utilizing the proper anti’s when creating certain security precautions in development. Ensuring that the quality of code is good will determine how secure the web application is once completed.

## Code Review Summary

After looking at the source code I have determined that we need to focus on the Plug ins section of the VAPFD and I believe API. I could not find which section of the second row would cover incorrect code. Looking at the Pom.xml file is using an outdated version. This is not necessarily anything drastic, but it needs to be updated soon. Having the current spring version is important as it is best practice to always write in the current framework. Outdated framework could have vulnerabilities that have since been addressed and patched. Without utilizing a current version then the developer may have to manually write and fix these issues wasting time for the developer and the progression of the project.

The secondary issue would be the mistakes that are in the current code. This would be good to address in a manner of pair programming or pair review. Pair programming would offer better time efficiency and knowledge growth as both developers will be working on the code in the same room and can discuss their reasonings. Code review on the other hand can limit the amount of progress and review that is done on the code. Code review tends to happen once another developer who is knowledgeable in that area can create time throughout their day to review the code. However, this can prolong the amount of time the project takes to complete and there is no beneficial gain to the developer writing the code if they are not there during the review process.

## Mitigation Plan

As I mentioned above, the main way to correct these errors and create a mitigation plan is to ensure that the developer is using a current version of the plug in for the Pom.xml. This will ensure that any previous vulnerabilities have been patched and that the developer has the best chance of limiting the number of mistakes being made. Finally, ensuring that developers are utilizing correct code and taking their time throughout developing the program. This could include pair programming, pair review, and iterative testing. I believe that these concepts and opportunities will provide the developer with a steady and successful foundation in creating a successful working product.

References

GeeksforGeeks. (2024, February 16). *What is an API (application programming interface)*. https://www.geeksforgeeks.org/what-is-an-api/