Homework 3: Group OR Individual Activity: Secure Coding Project

Introduction

The goal of the assignment is to create a sample program related to known types of vulnerabilities. As part of this project, you will create:

* A sample program that includes one or more vulnerabilities
* A test suite of programs / scripts that exercise the code vulnerabilities
* A revised sample program with all known vulnerabilities removed
* Documentation about the nature of the sample program, the known vulnerabilities, the test cases, and discussion of the corrections made to remove the vulnerabilities

Instructions

Create sample program with one or more known vulnerabilities. As you are creating the program, think like developers in their "poor habits" and like "bad guys" with how your vulnerability might not be easily tested, but yet exploited. Your program should be between 100 and 10,000 lines of code in length. You may use any of the following languages:

* Java
* C#
* C++
* "C"
* PHP
* JavaScript

Your sample program can include any of the following vulnerability types, but if you would like to include others, you may propose them:

* Number handling (integers)
* Tainted data handling (input validation)
* Poor error handling (unhandled exceptions)
* Resource drains (memory leaks)
* Injection (command injections)
* Concurrency handling (race conditions)
* Buffer overflows
* Null pointer errors

You will be expected to accomplish this secure coding project in two (2) stages:

* One page project proposal explaining the purpose of the sample program and expected vulnerabilities with justification
* Sample program archive (zip) containing source code and executables with/within vulnerabilities and test suite to exercise your programs and final documentation

Grading Criteria (350 Points)

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| Meeting Timelines | 10% |
| Source Code and Executables that can be Successfully Tested | 50% |
| Documentation | 30% |
| Comments, Grammar, Readability, and other Technical and Professional Related Issues | 10% |
| TOTAL | 100% |