**Discussion Question: Coding: Defensive and Secure.**

For this module's discussion board assignment, select **one** of the following to discuss:

* **Explain how exception handling works with a specific language of your choice. Provide an example of the code.**
* Find at least two applications that act as code analyzers. Do they analyze statically or dynamically? Which would you prefer? Why?
* In Chapter 8, the text mentions input validation. Provide a description and an example for at least three types of data validation checks.
* What are some security provisions to manage sessions? Describe at least two and which attack they can guard against.

***Before you submit your thread, put your name in the subject line.***

Exception handling is a valuable piece of knowledge to possess when programming. Depending on the programming language being utilized, exceptions are handled differently. The focus of this discussion will be on exception handling in Java. There are different ways to handle exceptions and errors in Java.

According to Oracle (2019), “an exception is an event that occurs during the execution of a program that disrupts the normal flow of instructions (sect. What Is an Exception?). An exception may be caused by “wrong data entered by the user, hardware failure, network connection failure, or a database server that is down” (Pankaj, 2022).

Within Java, there is the ability to use catch, try, or finally, blocks when handling exceptions (Oracle, 2019). An exception can also be thrown using a throw statement or throwable class (Oracle, 2019). A throw statement detects when an error happens. A try-with-resource statement declares resources or a resource object (Oracle, 2019). A benefit of exception handling is identifying the error in a program by specifying potential issues that may be occurring. If an error occurs, another course of code could be executed instead. An exception is a good way to anticipate user actions and prepare for what should happen next (Pankaj, 2022). However, a runtime exception occurs when something is wrong within a program (Pankaj, 2022). An error code can be printed in this case or others. Some exception classes can be invoked, like IOException, FileNotFoundException, and EOFException (Pankaj, 2022).

Here is a code example provided by (Pankaj, 2022):

package com.journaldev.exceptions;

import java.io.FileNotFoundException;

import java.io.IOException;

public class ExceptionHandling {

public static void main(String[] args) throws FileNotFoundException, IOException {

try {

testException(-5);

testException(-10);

} catch(FileNotFoundException e) {

e.printStackTrace();

} catch(IOException e) {

e.printStackTrace();

} finally {

System.out.println("Releasing resources");

}

testException(15);

}

public static void testException(int i) throws FileNotFoundException, IOException {

if (i < 0) {

FileNotFoundException myException = new FileNotFoundException("Negative Integer " + i);

throw myException;

} else if (i > 10) {

throw new IOException("Only supported for index 0 to 10");

}

}

}

**References**

Oracle. (2019). *Lesson: Exceptions (The JavaTM Tutorials > Essential Classes)*. Oracle.com. https://docs.oracle.com/javase/tutorial/essential/exceptions/index.html

Pankaj. (2022, October 7). *Exception Handling in Java | DigitalOcean*. Www.digitalocean.com. https://www.digitalocean.com/community/tutorials/exception-handling-in-java

**Assignment Requirements and Grading:**

1. An initial post of the diagram is due by **Thursday, 11:59 p.m., CT**.
2. Submit your post by clicking on the **Assignment Link** above, then **Create Thread**. You must create a thread in order to view your peers' posts.
3. A minimum of three (3) responses, **to the original threads of other students**, of 100-200 words each are due by **Sunday, 11:59 p.m., CT**.
4. To view the rubric grading criteria, click on the following link: [Discussion Board Grading Rubric](https://content.bellevue.edu/cst/csd/rubricdbv3.pdf).

**(50 points)**

Nardos, you did a really good job on your discussion post for this week. I also wrote about exception handling in Java for my discussion post. There are different types of exceptions that can be used in Java beyond the Arithmetic Exception. Understanding exactly what causes a program to error is a game-changer when coding. It helps element the guessing game that occurs without it. Some additional exceptions that can be imported into Java are IOException, FIleNotFoundException, and EOFException. Exception handling also assists with invalid input from users and provides other courses for the program to take if it runs into these errors.

Hi, Nima! I think your post for this discussion was very well said! Understanding exception handling is vital for all programmers, but knowing how to throw exceptions in front-end programming languages like JavaScript is formative for web developers. A somewhat less mentioned benefit of exception handling is time saved. When you do not have to spend additional time searching through code for errors and instead have it directly point out the problem, it is time-efficient and convenient for programmers. The code example you provided is a great reference when handling exceptions in JavaScript. Do you find error handling in JavaScript easier or more difficult than other languages?

Hello, Joe! Your post does a great job of explaining some security provisions to manage sessions and the attacks it guards against. I completely agree with you that understanding how to keep session management secure is a crucial component of web security. Even without it being intentional, leaving a session on for long periods of time makes it easier for an attacker to use someone’s personal account. This is even more so true for those who utilize an open computer that other people use. Our textbook has emphasized the importance of tokenization in software security, so including it as a safeguard is a fantastic idea!