Intro to Java Week 5 Research Assignment

**Points possible:** 30

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| **Category** | **Criteria** | **% of Grade** |
| **Accuracy** | Is the information accurate? | 25 |
| **Organization** | Is the essay clean and organized? Ideas are presented in a logical order. | 25 |
| **Citations** | Students reference and cite at least 5 sources. | 25 |
| **Completeness** | All requirements of the assignment are complete. | 25 |

**Instructions:** In however many words necessary, write a thorough essay response to each of the below prompts. Be sure to include at least 5 references for this assignment. Do not copy and paste text from the internet or any other source; use the information you find in your research, summarize, in your own words, the concepts. Plagiarism will result in a zero for the assignment as well as disciplinary actions. Push this document to your GitHub repository for this week. Add the URL for this week’s repository to this document where instructed and submit this document to your instructor when complete.

**What are the four pillars of Object Oriented Programming? Explain each pillar.**

**The four pillars of Objected Oriented Programming are Abstraction, Encapsulation, Inheritance, and Polymorphism. Abstraction hides information but is like a triangle and a table. Encapsulation is manipulating the data and bringing it together. Inheritance is enabling new objects to take over existing objects (inheriting from parent classes). Polymorphism is where the object can have many forms which can redefine methods for classes.**

**What is the relationship between a Class and an Object?**

**The relationship between a Class and an Object is that a Class is a blueprint of a Object and the Object is the instance of the Class. The Class determines what the Object does.**

**What are the differences between checked and unchecked exceptions?**

**Checked are exceptions that are checked at compile time, and the code must have a method with a checked exception. Checked exceptions are NOT checked at compiled time, and all exceptions are unchecked.**

**What are the differences between abstract classes and interfaces? When should you use one over the other?**

**Abstract classes are classes that define their use. Abstract classes fill in the blanks to what they have in common with in the code you type out.**

**Interfaces are like a contract and are an empty shell. A interface can just be a pattern and not do anything. Basically used to write a code to just look at versus doing.**

**What is unit testing and why is it important?**

**Unit testing is testing the code while the application is in the process of being created. It’s important to do unit testing because this can catch bugs in the development and determine if the code is successful or not.**

**What is your favorite thing you learned this week?**

**My favorite thing I learned this week was learning the OOP Concepts because of all the examples used while explaining the OOP Concepts. It was definitely throw back when DVD Player and DVD functionality was involved but it helped me understand the Concepts better.**

**References:**

**<https://www.quora.com/What-are-the-4-pillars-of-OOPs>**

**<https://medium.com/@hamzzza.ahmed95/four-pillars-of-object-oriented-programming-oop-e8d7822aa219>**

**<https://www.quora.com/What-is-the-relationship-between-class-and-object-in-Java>**

**<https://www.geeksforgeeks.org/checked-vs-unchecked-exceptions-in-java/>**

**<https://stackoverflow.com/questions/1913098/what-is-the-difference-between-an-interface-and-abstract-class>**

**<https://searchsoftwarequality.techtarget.com/answer/Is-unit-testing-an-important-aspect-of-software-development>**

**<https://promineotech.com/curriculum-content/courses/introToJava/week5.html>**

**URL to GitHub Repository:**

**<https://github.com/ash2042987/Week5>**