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.**

**1. abstraction - The things the user is concered about.**

**2. encapsulation - binding data and functions together.**

**3. inheritance - enables new objects to take on properties of exsisitng objects.**

**4. polymorphism - its the ability to redefine methods for specific classes.**

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

**A class is like the building plans and objects are like the physical building.**

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

**checked exceptions are looking for abnormalities during compiling and unchecked is for looking at errors caused by the programmer.**

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

**Main difference methods of a java interface are completely abstract and cannot have implementations. An abstract class can jave instance methods that implements a default behavior.**

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

**Unit tests provide concrete expressions of business requirments. They are a form of requirements as to how the system currently operates. It provides the programmer a debugging oppurtunity for deeper understanding of exsisting code.**

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

**I enjoyed learning about OOP.**

**References:**

[**https://www.google.com/search?q=differences+between+abstract+classes+and+interfaces&rlz=1C1CHBF\_enUS822US822&oq=differences+between+abstract+classes+and+interfaces&aqs=chrome..69i57j0l5.177j0j4&sourceid=chrome&ie=UTF-8**](https://www.google.com/search?q=differences+between+abstract+classes+and+interfaces&rlz=1C1CHBF_enUS822US822&oq=differences+between+abstract+classes+and+interfaces&aqs=chrome..69i57j0l5.177j0j4&sourceid=chrome&ie=UTF-8)

[**https://stackoverflow.com/questions/14011749/checked-vs-unchecked-exceptions-in-java**](https://stackoverflow.com/questions/14011749/checked-vs-unchecked-exceptions-in-java)

[**https://www.quora.com/What-is-the-relationship-between-class-and-object-in-Java**](https://www.quora.com/What-is-the-relationship-between-class-and-object-in-Java)

**URL to GitHub Repository:**