Intro to Java Week 4 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 differences between Lists, Sets, and Maps in Java?**

**The list allowed duplicate elements. Any number of duplicate elements can be added to a list without affecting anything. The set doies not allow duplicates. Set and all the classes that implements Set should have unique values. Map stored the elements as a key and value pair and does not allow duplicate keys while it does allow duplicate values.**

**List at least two different implementations for each collection (List, Set, and Map). When would you use one of the implementations over the other?**

**Set should be used of you do not plan on having any duplicates.**

**List should be used if there is a frequent search operations based on index of values.**

**List should be used if there is a need for mainting the insertion of order.**

**Map should be used if there is a database that requires a key a value mapping.**

**Write a line of code that shows how you would instantiate an ArrayList of String.**

**ArrayList<String> list = new ArrayList<String>();**

**list.add("C");**

**list.add("W");**

**list.add("B");**

**Write a line of code that shows how you would instantiate a HashSet of StringBuilder.**

**Set<String> C = new HashSet<>(Arrays.asList("W", "B"));**

**Write a line of code that shows how you would instantiate a HashMap of String, String.**

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

**Using key and value mapping correctly.**

**References:**

[**https://beginnersbook.com/2015/01/difference-between-list-set-and-map-in-java/**](https://beginnersbook.com/2015/01/difference-between-list-set-and-map-in-java/)

[**https://stackoverflow.com/questions/2041778/how-to-initialize-hashset-values-by-construction**](https://stackoverflow.com/questions/2041778/how-to-initialize-hashset-values-by-construction)

**URL to GitHub Repository:**

[**https://github.com/Cbraze/week4homework**](https://github.com/Cbraze/week4homework)