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?**

**Lists are ordered sequence which allow particular methods for the index to access elements and allow duplicates.**

**Sets don’t allow duplicates but allow null values. Sets are interfaces with restrictions.**

**Maps don’t allow duplicates, allows one null key and one null value, also, Maps are know to be the most useful class.**

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

**List, you’d use the following; ArrayList and LinkedList.**

**ArrayList is for functionality and flexibility when structuring your data.**

**LinkedList is for constant time and can be placed going forward and backward.**

**Set, you’d use the following; HashSet and LinkedHashSet**

**HashSet doesn’t have order and doesn’t allow duplicates.**

**LinkedHashSet maintains order and gets the elments in the same sequence.**

**Map, you’d use the following; HashMap and LinkedHashMap.**

**HashMap is for storing pairs and valuing its keys.**

**LinkedHashMap maintains the order of the HashMap.**

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

List<String> **employeeNames** = **new** ArrayList<String>();

employeeNames.add("Leon");

employeeNames.add("Malcom");

employeeNames.add("Alex");

employeeNames.add("Marrissa");

employeeNames.add("Rocky");

**for** (**int** **i** = 0; i < employeeNames.size(); i++) {

**System**.***out***.println(employeeNames.get(i));

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

**public** **static** **class** **StringidsBuilder**{

**public** **static** **final** **Object** ***NamesBuilder*** = **null**;

**public** **static** **PrintStream** *Location*;

**public** **static** **String** *firstName*;

**public** **static** **void** **main**(**String**[] args) {

**String** **ids1** = "Arizona";

**String** **ids2** = "LA";

**String** **ids3** = "Las Vegas";

**String** **ids4** = "Seattle";

**String** **ids5** = "Portland";

**System**.***out***.println(**StringidsBuilder**.*toString*(5));

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

Map<String, String> **employeeMap** = **new** HashMap<String, String>();

employeeMap.put(AZ,"Phoenix");

employeeMap.put(CA,"LosAngeles");

employeeMap.put(NV,"Las Vegas");

employeeMap.put(OR,"Portland");

employeeMap.put(WA,"Seattle");

employeeMap.put(Total,"ids");

**System**.***out***.println(employeeMap.get(6));

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

**My favorite thing I learned this week was Lists.**

**References:**

**<http://www.java67.com/2013/01/difference-between-set-list-and-map-in-java.html>**

**<https://www.cs.cmu.edu/~pattis/15-1XX/15-200/lectures/collectionsiii/lecture.html>**

**<https://promineotech.com/curriculum-content/courses/introToJava/week4.html>**

**<https://www.javaquery.com/2016/10/what-is-difference-between-list-set-and.html>**

**<https://stackoverflow.com/questions/4131655/what-is-the-difference-between-lists-arraylists-maps-hashmaps-collections-et>**

**<https://docs.oracle.com/javase/6/docs/api/java/util/List.html>**

**<https://docs.oracle.com/javase/6/docs/api/java/util/Set.html>**

**<https://docs.oracle.com/javase/6/docs/api/java/util/Map.html>**

**URL to GitHub Repository:**

**<https://github.com/ash2042987/week4>**