For this module’s discussion board assignment, select at least two (2) of the following topics for your initial post. In your writing, be sure to explain the what, how, and why of the selected topics. If necessary, provide code examples to further illustrate your thoughts.

* Inheritance
* Polymorphism
* ArrayList
* LinkedList
* HashMap
* HashSet

HashSets and HashMaps are functionally similar tools that are implemented in completely different manors. HashSets implement the Set interface, which does not allow duplicate objects (GeeksforGeeks, 2023). It uses the equals() and hashCode() methods to determine equality and rejects attempts to store duplicate values. HashMaps extend the Map interface and do allow duplicate, non-key, values. HashMaps use key-value pairs, which allow for quick retrieval of complex objects(GeeksforGeeks, 2023). See the example below if key-value pairs are not something you are familiar with. In theory HashSets are slower than HashMaps, but can be simpler to implement due to having fewer requirements for add operations.

In summary, HashMaps and HashSets provide similar functionality but in completely different ways. Depending on the data you are using you may find Sets to be more efficient than Maps or vice versa. HashMaps should be used when working with key-value pairs, while HashSets should be used when working with a collection of unique elements that need to be searched.

Key Value Pair Examples:

* A, Alpha
  + Data Type: Character, String
* Username, Profile bio
  + Data Type: String, String
* AccountID, Name
  + Data Type Integer, String

Note that you can not use primitive types in HashMaps or HashSets, as it works with objects. Because Integer, Character, and String all inherit from object, they can be used in the same HashMap.

References:

GeeksforGeeks. (2023, April 6). *Difference between HashMap and HashSet*. GeeksforGeeks. <https://www.geeksforgeeks.org/difference-between-hashmap-> and-hashset/#