My interpretation of the code example from this week’s discussion is that it is demonstrating the initialization of an “array list” and a “hash set”. My research led me to several online resources to learn more about the difference between the two.

While array lists and hash sets are both similar in that they are examples of collections in Java, they have a few key differences. One of which being that array lists allows for duplicate data and hash sets do not. Also, position is important and array lists as they will always be considered “in order” while hash sets are “unordered”. Furthermore, array lists allow for multiple null values whereas a hash set only allows for one null value.

Some of the advantages of an array list are that it allows for the selection of a single element by index. It also offers a lot of flexibility due to the loose requirements of populating an array list (null values, duplicate values etc.) Array lists are also capable of resizing themselves when the number of elements has been edited. However, in certain situations all that flexibility can cause performance issues as it can require heavy memory usage.

Hash sets also have some advantages. One being improved performance over an array list due to the stricter rules for data uniqueness in hash sets. That uniqueness is itself a strength. As we know from our databases class there are many scenarios where a data set needs every record/element to be unique. However, the unordered nature and lack indexes with hash sets can prove problematic for organizational reasons.

<https://www.geeksforgeeks.org/difference-between-arraylist-and-hashset-in-java/>

<https://www.tutorialspoint.com/difference-between-arraylist-and-hashset-in-java>

<https://stackoverflow.com/questions/31364862/adavantages-of-hashset-over-arraylist-and-vice-versa>