Shawn Bataju

October 1, 2022

Week 4 Research - Lists

Prompts

1. What are the differences between Lists, Sets, and Maps in Java?

- Lists: allow duplicates, add and store elements in order, allow null values
- Sets: do not allow duplicates, are unordered, can have one null value
- Maps: have key-value pairs where the values can be duplicated but the keys cannot

2. 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:

- ArrayList: Used in most cases
- LinkedList: Used when constantly adding or removing first or last elements

Set:

- HashSet: Used in most cases where order is not required
- TreeSet: It is slower but useful when order is important.

Map:

- HashMap: It is faster and not sorted.
- LinkedHashMap: It is used when the order of insertion is important compared to TreeMap which is useful for order of key.

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

- List<String> strList = new ArrayList<String>();

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

- Set<StringBuilder> str = new HashSet<StringBuilder>();

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

- Map<String, String> strMap = new HashMap<String, String>();

References:

- Lecture videos
- https://stackoverflow.com/questions/322715/when-to-use-linkedlist-over-arraylist-in-java
- https://docs.oracle.com/javase/tutorial/collections/implementations/list.html
- https://www.tutorialspoint.com/set-vs-hashset-vs-treeset-in-java#:~:text=A%20TreeSet%20is%20a%20set,an%20implementation%20of%20a%20Set.
- https://docs.oracle.com/javase/tutorial/collections/implementations/set.html
- https://docs.oracle.com/javase/tutorial/collections/implementations/map.html