Week4-Session2 Interview Questions

1. What is the difference between a Set and a List?

A **Set** is a collection that does not allow duplicate elements, while a List allows duplicate elements and maintains the order of insertion.

2. Name some classes that implement the Set interface.

Some classes that implement the **Set** interface are **HashSet**, **LinkedHashSet**, and **TreeSet**.

3. Explain the difference between HashSet, LinkedHashSet, and TreeSet.

HashSet uses hash codes to store elements, allowing for quick insertion and retrieval but not maintaining any specific order. **LinkedHashSet** maintains insertion order and uses a linked list to connect elements. **TreeSet** sorts elements in natural order or according to a custom comparator.

4. What happens if you try to add a duplicate element to a Set?

The element will not be added to the **Set**, and the **add()** method will return false.

5. Can a null element be added to a Set?

Yes, most implementations of the **Set** interface allow a single null element. However, some implementations like **TreeSet** do not allow null elements.

6. What is the Queue interface in Java?

The **Queue** interface is a part of the Java Collections Framework and represents a collection that orders its elements based on the First-In-First-Out (**FIFO**) principle.

7. Name some classes that implement the Queue interface.

Some classes that implement the **Queue** interface are **LinkedList**, **ArrayDeque**, and **PriorityQueue**.

8. What is the significance of the remove() method in a Queue?

The **remove()** method removes and returns the head element of the queue. It throws an exception if the queue is empty.

9. What is the difference between poll() and remove() methods in a Queue?

Both methods are used to remove the head element from a Queue. The difference is that **poll()** returns null if the queue is empty, while **remove()** throws an exception.

10. What is the default ordering for elements in a PriorityQueue?

By default, a **PriorityQueue** orders elements in their natural order. For example, numbers are ordered in ascending order, and strings are ordered lexicographically.