

1. **What is a Map in Java?**

A Map is an object that maps keys to values. It cannot contain duplicate keys, and each key can map to at most one value.

2. **What are the commonly used implementations of Map in Java?**

The commonly used implementations of Map in Java are:

- **HashMap**: Provides constant-time performance for basic operations.
- **TreeMap**: Implements the NavigableMap interface and provides guaranteed $\log(n)$ time cost for the basic operations.
- **LinkedHashMap**: Maintains a doubly-linked list running through all of its entries, which defines the iteration ordering.

3. **What is the difference between HashMap and TreeMap?**

- **HashMap**: Does not maintain any order of its elements.
- **TreeMap**: Maintains elements in a sorted order based on the natural ordering of its keys or by a specified comparator.

4. **How do you check if a key exists in a Map in Java?**

You can use the `containsKey(Object key)` method to check if a key exists in a Map.

5. **What are Generics in Java?**

Generics enable types (classes and interfaces) to be parameters when defining classes, interfaces, and methods. This allows for type-safe code and eliminates the need for type casting.

6. **What are the benefits of using Generics in Java?**

- **Type Safety**: Ensures that you can only use the specified type.
- **Elimination of Type Casting**: Reduces the need for explicit type casting.
- **Code Reusability**: Allows for the creation of generic algorithms that work on collections of different types.

7. **What is a Generic Class in Java?**

A generic class is a class that can operate on objects of various types while providing compile-time type safety. It is defined with a type parameter.

8. **What is a Type Parameter in Java Generics?**

A type parameter is a placeholder for a specific type that is specified when an instance of a generic class or method is created.

9. **What is a Generic Method in Java?**

A generic method is a method that can operate on objects of various types. It is defined with a type parameter that is specified when the method is called.

10. **What is the difference between ArrayList and ArrayList?**

- **ArrayList:** A resizable array implementation of the List interface.
- **ArrayList:** A generic version of ArrayList that can hold objects of any specified type.