



# Review

## ▼ ✓ Challenge #1

Scored

☰ Your Answers

📝 Your Notes (Editable)

### 1. What is the purpose of the Java Collection framework?

- ☒ To provide a standard set of interfaces and implementations for storing and manipulating collections of objects.
- ☐ To provide a standard set of interfaces and implementations for manipulating the file system.
- ☐ To provide a standard set of interfaces and implementations for networking in Java.
- ☐ To provide a standard set of interfaces and implementations for multithreading in Java.

### 2. What is the difference between a List and a Set in the Java Collection framework?

- ☒ A List is ordered and allows duplicates, while a Set is unordered and does not allow duplicates.
- ☐ A List is unordered and allows duplicates, while a Set is ordered and does not allow duplicates.
- ☐ A List is ordered and does not allow duplicates, while a Set is unordered and allows duplicates.
- ☐ A List is unordered and does not allow duplicates, while a Set is ordered and allows duplicates.

### 3. What is Java Generics?

- ☒ A type argument that can be any type.
- ☐ A type argument that can be any subtype of a specified type.
- ☐ A type argument that can be any supertype of a specified type.
- ☐ A type argument that can be any type except for a specified type.



4. Which collection class guarantees the insertion order of its elements?

- ☒ HashSet
- ☐ TreeMap
- ☐ ArrayList
- ☐ TreeSet

5. What is the purpose of the Comparator interface in Java?

- ☐ To compare two objects for equality.
- ☒ To sort elements in a collection based on a specific order.
- ☐ To convert a collection to an array.
- ☐ To serialize a collection of objects.

6. What is the difference between ArrayList and LinkedList in the Java Collection framework?

- ☐ ArrayList is a resizable array implementation, while LinkedList is a doubly-linked list implementation.
- ☐ ArrayList is a doubly-linked list implementation, while LinkedList is a resizable array implementation.
- ☐ ArrayList is a singly-linked list implementation, while LinkedList is a resizable array implementation.
- ☒ ArrayList is a resizable array implementation, while LinkedList is a singly-linked list implementation.

7. What is the difference between List and Set in Java?

LIST: is an ordered collection of elements where each element has an index to access it. Duplicate elements are allowed in a List. Examples are ArrayList, LinkedList, and Vector.

SET: is an unordered collection of distinct elements. Duplicate elements are not allowed in a Set.



## 8. What is Collection and Generics in Java?

**COLLECTION:** is a framework in Java that provides an architecture to store and manipulate a group of objects.

**GENERICS:** in Java allows you to create classes, interfaces, and methods that operate on objects of specified type. It provides compile-time type-safety, which helps to detect and eliminate errors at compile time rather than at runtime.

## 9. What are the types of Collections in Java? Explain 3 of them.

1. **ARRAYLIST:** is a resizable array implementation in Java that stores elements based on indexes. It allows fast random access and is good for storing and manipulating data in a list structure.

2. **HASHMAP:** is a data structure in Java that stores key-value pairs, allowing fast retrieval of values based on keys. It uses hashing techniques to efficiently store and retrieve data.

3. **LINKEDLIST:** is a type of data structure in Java where elements are linked using pointers. It allows for efficient insertion and deletion operations but may be slower for random access compared to ArrayList.

## 10. What is the difference between a Queue and a Stack in Java?

A queue is a data structure that implements the First In First Out (FIFO) principle, meaning the first element added to the queue will be the first one to be removed. While stack is a data structure that follows the Last In First Out (LIFO) principle, meaning the last element added will be the first one to be removed.

## 11. What is the difference between Comparable and Comparator in Java?

**COMPARABLE** is an interface in Java that is used to sort objects based on their natural ordering.

**METHOD** is `compareTo()`

**COMPARATOR** is an interface in Java that is used to define custom sorting orders for objects. It allows the user to define multiple ways of sorting objects based on different criteria.

**METHOD** is `compare()`



## 12. What is the syntax for Generics in Java?

```
class ClassName<T> {}
```

## 13. What is the difference between Collection and Collections?

The difference between collection and collections in Java are;

COLLECTION is an interface that represents a group of objects known as elements. It provides a way to store, organize, and manipulate these elements. Examples of Collection implementations include List, Set, and Queue.

COLLECTIONS is a utility class in Java that provides static methods for working with Collection objects. These methods include sorting, searching, shuffling, and synchronizing collections, among others. For example, the Collections.sort() method can be used to sort a List collection in natural order.

## 14. What Are Some Advantages of Using Generic Types?

Type safety, Code reusability, Performance and Code readability

## Your Comments

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