**COLLECTIONS**

**CONCEPTS LEARNED**

1. ArrayList.
2. LinkedList.
3. HashSet.
4. LinkedHashSet.
5. HashMap.
6. TreeMap.
7. Generics.
8. Advantage of Generics.
9. Program 1.
10. Program 2.

The java collections is a framework that provides an architecture to store and manipulate the group of objects. Java Collections can achieve all the operations that you perform on a data such as searching, sorting, insertion, manipulation, and deletion.

## **ARRAYLIST**

The ArrayList class implements the List interface. It uses a dynamic array to store the duplicate element of different data types. The ArrayList class maintains the insertion order and is non-synchronized. The elements stored in the ArrayList class can be randomly accessed.

## **LINKED LIST**

LinkedList implements the Collection interface. It uses a doubly linked list internally to store the elements. It can store the duplicate elements. It maintains the insertion order and is not synchronized.

## **HASHSET**

HashSet class implements Set Interface. It represents the collection that uses a hash table for storage. Hashing is used to store the elements in the HashSet.It contains unique items.

## **LINKEDHASHSET**

LinkedHashSet class represents the LinkedList implementation of Set Interface. It extends the HashSet class and implements Set interface. Like HashSet, It also contains unique elements. It maintains the insertion order and permits null elements.

## **HASHMAP**

In HashMap, we have a key and a value pair<Key, Value>.

## **TREEMAP**

TreeMap can be a bit handy when we only need to store unique elements in a sorted order.

# **GENERICS IN JAVA**

The Java generics programming is introduced in J2SE 5 to deal with type-safe objects.

Before generics, we can store any type of objects in collection i.e. non-generic. Now generics, forces the java programmer to store specific type of objects.

## **ADVANTAGES**

There are mainly 3 advantages of generics. They are as follows:

**1) Type-safety :** We can hold only a single type of objects in generics. It doesn’t allow to store other objects.

**2) Type casting is not required:** There is no need to typecast the object.

List<String> list = **new** ArrayList<String>();

This says that the arraylist can accept only string.

**PROGRAM 1**

Given an array of dates. Sort them in ascending and descending order based on the

user inputs.(Take the format as DD-MM-YYYY).

**SOLUTION**

# **PROGRAM 2**

Given an array of names standing for a student council election. A name in array represents a vote casted to the candidate. Print the name of student who won. If there is tie, print lexicographically smaller name.

Input : Input : votes[] = {john, johnny, jackie,johnny,john,jackie,jamie, jamie, john,johnny,jamie&quot,johnny,john};

Output : John

## **SOLUTION**