Collection Framework → Data Structure in Java

Variable

int a=10;

a=20;

array

int abc[]={10,20,30,40};

structure : structure is a type of user defined data type which help to store more than one of different types. But java doesn't support only C or C++ support.

```
class Employee {
        int id;
        Strig name;
        float salary;
}
Employee emp = new Employee();
emp.id=100;
emp.name="Steven";
emp.salary=12000;
```

array object.

Employee employees[]=new Employee[10];

empoyees[0]=new Employee();

employee[0].id=100;

empoyees[1]=new Employee();

employee[1].id=101;

empoyees[2]=new Employee();

employee[2].id=102;

int num[]=new int[10];

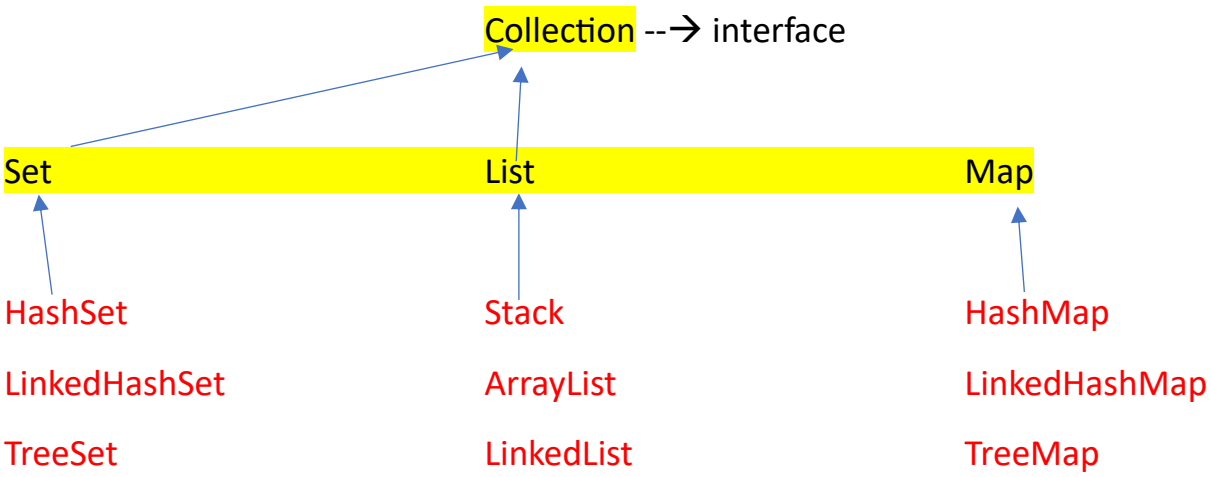
limitation of array of primitive type or object type is

1. Fixed in memory size.
2. It will allow to store same type of values. Like int, float, char, or any user defined object of that type.
3. No pre defined method to add, remove and search etc.

Collection Framework : collection framework provided set of classes and interface which help to add any types of value ie int, float, char, double as well as user defined object. It provided lot of pre defined method we can add, remove, search and iterate very easily.

All classes and interface is part of util package.

Collection framework hierarchy



Set, List and Map are interfaces. Set and List internally extends Collection. Map doesn't.

Set : it doesn't allow duplicate. Set doesn't provide index position.

HashSet, LinkedHashSet and TreeSet are predefined classes which internally implements Set interface.

List : it allow duplicates. List allow index position to access the value.

Stack, ArrayList and LinkedList are predefined classes which internally implements List interface.

Map :it allow to store the information in key-value pairs like JSON. Key must be unique and value may be duplicate. In map using key we get the value.

HashMap

LinkedHashMp

TreeMap

HashSet : HashSet is a type of set class which internally implements Set interface. HashSet display the elements unorder manner.

LinkedHashSet : LinkedHashSet class which internally extends HashSet class. This class doesn't provide any extra methods. LinkedHashSet maintain the order.

TreeSet TreeSet is a type of Set class which internally implements SortedSet interface and SortedSet interface internally extends Set interface.

TreeSet by default display the element in sorting order ie Ascending order.

In TreeSet we need to store same types of values.

TreeSet provided few extra methods like subset, headset, tailset etc.

Stack : Stack is a type of data structure which provide the features to push, pop, peek functionality.

Push → to add data inside a stack container.

Pop → It is use to remove top most elements.

Peek → it is use to check top most elements values.

Method in stack memory.

Converting in fix, post fix, mix fix expression we use stack algorithms.

ArrayList

Normal Array Vs ArrayList

1. Normal array fixed in memory size. ArrayList provide dynamic memory.
2. In normal array in java we can store same types of values. But ArrayList we can store same as well as different types of values.
3. In normal array adding and deleting elements in between more complex. But using ArrayList we can do same task simple way.