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Lab Assignment – 9 (JP)

* Aim:
Write a Java program to show the use of collection frameworks in Java.

* Objectives:

1. To study concept of collection framework.

* Theory:

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

Java collection frameworks provides many interfaces (set, list, Queue, Deque) and classes (Arraylist, Vector, Linkedlist, Priority Queue, Hashset, LinkedHashset, Treeset.

The Collection framework represents a unified architecture for storing and manipulating a group of objects.
1. Interfaces and its implementation.
2. Algorithm.

2. Methods of collection framework.

add(object): This method is used to add an object to collection.
addAll(collection c): This method adds all elements in given argument to collection.
clear(): Removes all elements.
Contains(object O): Returns true if object O is in collection.
containsAll(collection c): Returns true if object are present in collection.
equals(object O): Compares for equality.
hashcode(): Method returns hashcode value for collection.
isEmpty(): returns true is collection has no elements.
iterator(): method returns iterator over collection.
max(): returns object with maximum value in framework.
remove(object O): removes object O.
Size(): returns size of collections.
toArray(): returns an array with all elements present in collection.

- Platform: Open Source Java programming tool like Eclipse editor / Netbeans.

- Conclusion:
Thus studied the concept of collection framework.

* FAQ:

1. What is the difference b/w Arraylist and LinkedList.

Ans

Arraylist	LinkedList
→ Arraylist internally uses a dynamic array.	→ LinkedList internally uses a doubly linkedlist.
→ Manipulation with arraylist is slow because it internally uses an array.	→ manipulation is faster with linkedlist as it internally uses an array.
→ Arraylist can act as list only.	→ LinkedList can act as list & queue.
→ Arraylist is better for storing and accessing.	→ LinkedList is better for manipulating data.
→ The memory location is contaigious.	→ memory location for elements is not contaigious.

2. What is the difference b/w hashset and treeset?

Ans

Hashset	Treeset
→ Hashset is implemented using hashtable.	→ Treeset is implemented using a tree structure.
→ Hashset allows a null object.	→ Treeset does not allow null object
→ Hashset has equal method.	→ Treeset has compare method
→ Does not allow heterogeneous object.	→ Does allow heterogeneous objects.
→ Hashset does not maintain any order.	→ Tree set maintains an Object in sorted order.

3. List down primary interfaces provided by java collection framework?

Ans Core collection interfaces provided by Java collection frameworks are:

i) Collection: Collection is root of collection hierarchy.
ii) List: List interface extends collections interface.
iii) Set: Set interface extends collection interface.
iv) Sorted set: Sorted set interface extends set interface.
v) Queue
vi) Deque
vii) Map
viii) Sorted map.

4. What do you understand by Iterator in Java collection framework.

Ans An iterator is a object that can be used to loop through collections. Its called iterator because iterating is technical term for looping.