Assignment No. 13.

Title :- implement different data structure with the help of java collection librabries

Problem Statement :- write a java programs for the implementation of different data structure using java collection librubries (STL) at least 5 data structure are used to design a suitable application.

Objective :-

i) To understand the concept of Java collection librabries.
ii) To learn the method of different Java collection librubries classes.

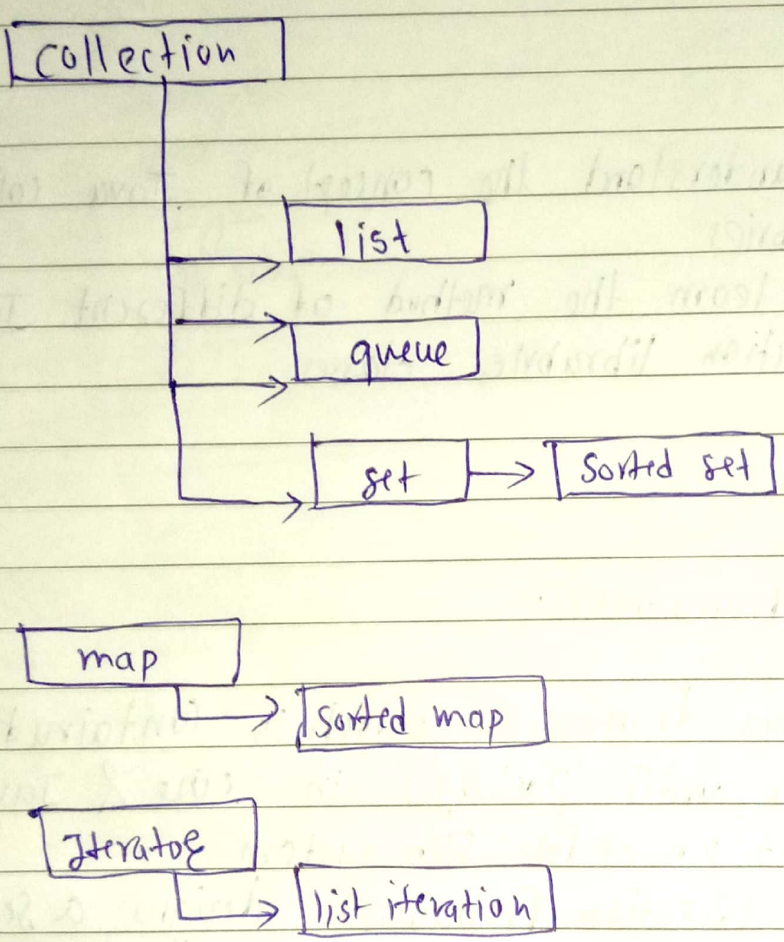
Theory :-

collection framework :-

i) In java framework which is contained in the Java until packages in core & Java's must powerful sub-system.
ii) The collection framework design a set of interfaces & their implementation to manipulate collection which serve as set of words in a dictionary as a collection of mails.

iii) The collection framework also allow us to store, retrieve & update a set of objects.

iv) it provide an API to work with the data structure, such as lists, trees, maps & sets.



Different classes:-

The collection available in the collection framework implement the collection framework interfaces & sub-interfaces.

class	Name of interfaces
AbstractCollection	collection
AbstractList	list
AbstractQueue	Queue
LinkedList	List,
ArrayList	List
AbstractList	Set
EnumSet	Set
HashSet	Set
TreeSet	Set
PriorityQueue	Queue
HashTable	Map
Stack	List, serializable
Vertue	List, serializable

i) ArrayList :- arraylist extends the abstract list class & implements such as list, clavarable & Seriazable.

Using arrayList we can create dynamic array in java applⁿ.

Constructors :-

1. ArrayList() :- The capacity of list is initialised to the ten

2. ArrayList (collection c) :- Creates c list to which element of the speciffic colle are added.

3. ArrayList (int capacity) :-
creates empty list & set capacity to specified value.
add() method used to add element in ArrayList.

ii) Linked list :-
The linkedlist class extends Abstract Sequential class & implements the list interface.

Construction :-
1) linkedList()
2) linkedList (collection c)

methods :-

i) addfirst (object obj)
ii) addLast (object obj)
iii) getfirst()
iv) getLast()
v) ~~Resume~~ removeFirst()
vi) ~~Revers~~ removeLast()

iii) Hashset :- The hashset class is used to create a collection & store it in a hash Table each collection refers to a unique value called hash code.

Constructors :-

i) Hashset() - empty hashset
ii) Hashset(collection c) - add element c
iii) Hashset (int capacity) - initialize the capacity of Hashset
iv) Hashset (int cap, float filratio)

4) TreeSet() :-

The tree set class implements the set interface. the sorted elements are stored in a tree structure.

this class allow us to access & retrive element from a tree in less time.

Constructors :-

i) TreeSet() - will stact the element in ascending order.
ii) TreeSet (Collection c) :- builds a treeset, which containg a collection of ele

5) PriorityQueue :-

priority queue is used to store the data ascending to their priorities.

priorityQueue implements Queue interface.

Methods :

1. push() - it is used to push element in Queue.
2. pop() - it is used to remove element from Queue.

Algorithm :

1) import java.util.*;
2) Define a class Datastructure
3) Define 5 methods for 5 data structures using pre-defined func in STL.
4) Define main method.
5) Ask user for entee a choice.
6) Call appropriate mathod based on choice
7) Stop.

Conclusion :-

Java collection Librabries Contain different classes & interfaces that can be used to implemunt any application. It provides various predefined method which can be us to reduce the amount of code in program. Thus we have implemented various classes in Java collection for various data structure.