SDL

31147

Assignment No: 1

Title: Collection & generics

Problem statement:
Develop Java Application for any system using collection framework & generics.

Objective:
1) To understood collection frameworks & generics.
2) To study the different type of data structures available.

Outcomes:
1) Development of application which uses collection frameworks & generics
2) Implementation of primitive operation on data structures.

S/W & H/W requirements:
Windows/Fedora, JDK, Eclipse IDE / VS code.

Theory:
Java collection Framework:
It is a set of classes & interfaces that implement commonly data structures
It is unified architecture for reporting & manipulating collection, storing the group of objects.
Java collection can achieve all the operations that you perform on a data such as searching, sorting, insertion, manipulation & deletion.

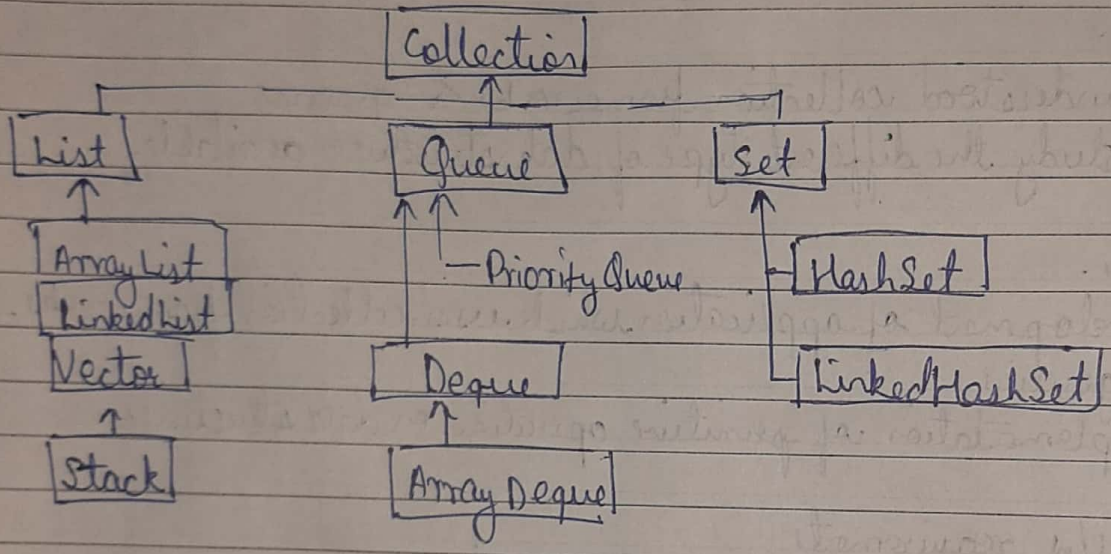
Collection class:
1) The vector class is similar for a traditional Java array, accept it has dynamic size.
2) List: ordered collection of objects.
3) set: Same as list except, unordered and duplicate entries not allo
4) Linked list: Doubly linked list to store elements. Fast manipulation & acts as a list & queue both.

ArrayList : Dynamic array to store the elements. It does manipulate

Queue : It use when we want, groups of individual object before passing.

Map : Key - Value pair storage.

Hierchary of collection Framework.



Generics in Java:

It is a facility for generic programming & design to extend Java's type system.

Facilities storage Type checks at compile time

A Java compiler applies strong checking to generic code & issues errors if the code violates of type safety.

Examples of Generic class.

```
public class Box<T> {
        private T t;
        public void set (T t){
                this.t = t;
        }
        public T get (){
                return T;
        }
}
```

```
Box<Integer> integerBox = new Box<Integer>();
    integerBox.set(new Integer(20));
System.out.println("Integer value" + integerBox.get());
```

Output : Integer Value 20

Conclusion :

After successfully completed this assignment learnt about generics and the data structure in Java available in collection framework.