Day-10

Agenda

- Collection Framework & Generics In Java
- IO Streams, Collections, Streams, Functional Programming

Collection Framework

- The Java collections framework is a set of classes and interfaces that implement commonly reusable collection data structures.

- The Java Collections Framework is a collection of interfaces and classes which helps in storing and processing the data efficiently.

- This framework has several useful classes which have tons of useful functions which makes a programmer task super easy.

- Java Collection means a single unit of objects. Java Collection framework provides many interfaces (Set, List, Queue, Deque) and classes (Array List, Vector, LinkedList, Priority Queue, HashSet, LinkedHashSet, TreeSet).

- A collections framework is a unified architecture for representing and manipulating collections. All collections frameworks contain the following −
  - **Interfaces** − These are abstract data types that represent collections. Interfaces allow collections to be manipulated independently of the details of their representation. In object-oriented languages, interfaces generally form a hierarchy.
  - **Implementations, i.e., Classes** − These are the concrete implementations of the collection interfaces. In essence, they are reusable data structures.
  - **Algorithms** − These are the methods that perform useful computations, such as searching and sorting, on objects that implement collection interfaces. The algorithms are said to be polymorphic: that is, the same method can be used on many different implementations of the appropriate collection interface.

- The Collection framework represents a unified architecture for storing and manipulating a group of objects. It has:
    1. Interfaces and its implementations, i.e., classes
    2. Algorithm

IO Streams

- Java brings various Streams with its I/O package that helps the user to perform all the input-output operations.
- These streams support all the types of objects, data-types, characters, files etc to fully execute the I/O operations.