Bootcamp Training

Java Spring AWS Frontend Training

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GLOBAL SOLUTION ARCHITECTS

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Agenda: Day – 5: **ADVANCED COLLECTIONS IN JAVA**

- Properties
- Maps
  - Hash Map, Linked Hash Map
  - Sorted Map and Tree Map
  - Hash table and Hash Function
  - Hash Map vs Hash table vs Hash
- Thread Safe Collections
- The Collections Class: sorting and searching

Map interface

- Map interface provides mapping of key/value pairs.
  - This key/value pairs are unique.
  - A static inner interface named Entry is declared inside the Map interface for referring to each key/value pair.
  - This Map is inherited by an interface SortedMap to access the elements stored in Map in a sorted order.
  - AbstractMap class inherits the Map interface.
  - This class is inherited by concrete classes like HashMap; EnumMap, etc.
  - TreeMap also inherits this class as well as the interface SortedMap.
- Most of the interfaces and classes in the *java.util* package use Generics.

HashMap

- HashMap, alike HashSet uses hashing as a technique to store Key/value pairs so that the values can be searched efficiently according to the key.
- There order is not guaranteed by HashMap.
- The HashMap does not allow null key and null value pair to be stored.

Hashtable

- It inherits Dictionary class and implements the Map interface.
- The important points about Java Hashtable class are:
- A Hashtable is an array of list. Each list is known as a bucket. The position of bucket is identified by calling the hashcode() method. A Hashtable contains values based on the key.
- It contains only unique elements.
- It may have not have any null key or value.
- It is synchronized.

Properties class in Java

- The **properties** object contains key and value pair both as a string. The java.util.Properties class is the subclass of Hashtable.
- It can be used to get property value based on the property key. The Properties class provides methods to get data from properties file and store data into properties file. Moreover, it can be used to get properties of system.

Advantage of properties file

Recompilation is not required, if information is changed from properties file: If any information is changed from the properties file, you don't need to recompile the java class. It is used to store information which is to be changed frequently.

Collections class

- Collections class contains a number of static methods that operate on Collection
  - like copy a Collection,
  - reversing the elements of a Collection,
  - replacing an element with another and soon.
- Let us take an example.

Random class

- Used to generate random numbers
  - Random r = new Random();
  - Random r = new Random(seed);
  - A seed is a number used to initialize a pseudorandom number generator
- int randomInt = r.nextInt(n);
  - generate random integers between 0 and some limit (n-1).

Queries?