Java Collections - II

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Sorting Collections

An array can be sorted by using Arrays.sort()

Arrays.sort(array name);

Ex: Arrays.sort(salaries);

A collection can be sorted using Collections.sort()

Collections.*sort(collection name);*

Ex : Collections.sort(cities);

Sorting user defined objects - Comparable

•User defined objects are sorted based on an attribute.

• Ex : Based on empId, bookId etc.

•Use Comparable interface for natural comparison

•Every Object will have an natural comparison, for example employee's are by default sorted by their ID's and String's are sorted alphabetically in ascending order.
•Override compareTo() method by implementing Comparable interface

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Comparable Example

```
public int compareTo(Object otherEmployee){


    int age = ((Employee) otherEmployee).getAge();

    if(this.getAge() > age)
        return 1;
    else if ( this.getAge() < age )
        return -1;
    else
        return 0;

}
```

Comparator

To get different views of employee list :

- one view sorted by empId and one by designation

•By having Employee implementing Comparable, we get only one chance to implement the compareTo( ) method.

Solution:

•Use Comparator interface.
•A Comparator is an external class – one per attribute to compare.

•We can make as many of these as we like – one to compare empid, one to compare designation.

Override compare(Object , Object) method

Comparator Example

```
public class AgeComparator implements Comparator{

    public int compare(Object emp1, Object emp2){

        int emp1Age = ((Employee)emp1).getAge();        // downcasting
        int emp2Age = ((Employee)emp2).getAge();

        if(emp1Age > emp2Age)
            return 1;
        else if(emp1Age < emp2Age)
            return -1;
        else
            return 0;
    }

}
```

Utility Classes

Date

StringTokenizer

Scanner

Calendar etc.

Ex1 : Date today = new Date();// time stamp

Ex 2 :

```
SimpleDateFormat sdf = new SimpleDateFormat("dd/MM/yyyy");
String today= sdf.format(new Date());
System.out.println(today);
```

Manual Dates

```
String expectedPattern = "MM/dd/yyyy";
SimpleDateFormat formatter = new SimpleDateFormat(expectedPattern);

  String userInput = "10/22/2009";
  Date date = formatter.parse(userInput);

  // prints out "Tue Sep 22 00:00:00 EDT 2009"
  System.out.println(date);
```

StringTokenizer

Tokenizes the string object and places the tokens in the “same object”

```
import java.util.StringTokenizer;

public class MyStringTokenizer {
    public static void main(String a[]){
        String quote =
         “Success is – People searching for you in Google but no in Facebook";

        StringTokenizer quoteTknzr= new StringTokenizer(quote,“  ");
        while(quoteTknzr.hasMoreTokens()){
            System.out.println(quoteTknzr.nextToken());
        }
    }
}
```


return
THANK
YOU
control