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Teknik Informatika - STEI ITB

Collections

Collections Algorithm

Pemrograman Berorientasi Objek

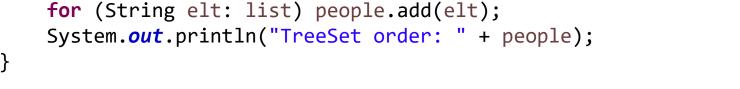


Algorithm

- Sorting, mengurutkan elemen
- Shuffling, kebalikan dari sorting (mengacak urutan)
- Routine Data Manipulation: reverse, fill, copy, swap, addAll
- Searching, mencari elemen
- Composition: frequency, disjoint
- Finding Extreme Value: min, max



```
import java.util.*;
                   public class SetTest {
                       public static void main(String[] args) {
                          String[] list = { "John", "Penelope", "April", "Zachary", "George" };
                          System.out.println("entry order: " + Arrays.toString(list) + "\n");
                          Set<String> people;
Contoh
                          for (String elt: list) people.add(elt);
                          System.out.println("HashSet order: " + people);
                          // print the set by iteration
                          for (String person: people)
                              System.out.println("\t" + person);
                          System.out.println();
                          people = new LinkedHashSet<String>();  // put into a LinkedHashSet
                          for (String elt: list) people.add(elt);
                          System.out.println("LinkedHashSet order: " + people + "\n");
                          people = new TreeSet<String>();
                                                              // put into a TreeSet
```



```
import java.util.*;
                  public class MapTest {
                      static class Pair<T1,T2> { // declared static to work within main
                          T1 first; T2 second;
                          Pair(T1 first, T2 second) { this.first = first; this.second = second; }
                          public String toString() {    return first + "=" + second; }
                      public static void main(String[] args) {
                          List<Pair<String,Integer>> list = new ArrayList<Pair<String,Integer>>();
                          list.add(new Pair<String,Integer>("John",33));
Contoh
                          list.add(new Pair<String,Integer>("Stephen",71));
                          list.add(new Pair<String,Integer>("Melissa",15));
                          list.add(new Pair<String,Integer>("George",40));
                          list.add(new Pair<String,Integer>("Alison",27));
                          System.out.println("entry order: " + list + "\n");
                          Map<String,Integer> age;
                          age = new LinkedHashMap<String,Integer>(); // as a LinkedHashMap
                          for (Pair<String,Integer> p: list) age.put(p.first, p.second);
                          System.out.println("LinkedHashMap order: " + age.entrySet());
                          System.out.println(" keys order: " + age.keySet() + "\n");
```



Contoh

```
System.out.println("iteration type 1"); // iterate on the entrySet
for (Map.Entry<String,Integer> entry: age.entrySet())
   System.out.println("\tkey=" + entry.getKey() + "\tvalue=" + entry.getValue());
System.out.println();
System.out.println("iteration type 2"); // iterate on the keySet
for (String key: age.keySet())
   System.out.println("\tkey=" + key + "\tvalue=" + age.get(key));
System.out.println();
age = new HashMap<String,Integer>();  // as a HashMap
for (Pair<String,Integer> p: list) age.put(p.first, p.second);
System.out.println("HashMap order: " + age.entrySet());
age = new TreeMap<String,Integer>();  // as a TreeMap
for (Pair<String,Integer> p: list) age.put(p.first, p.second);
System.out.println("TreeMap order: " + age.entrySet());
```



```
import java.util.*;
public class SortTest {
   public static void main(String[] args) {
       // create list of random integers and sort them
       Random r = new Random();
       List<Integer> list = new ArrayList<Integer>();
       for (int i=0; i<10; i++)
           list.add(new Integer(r.nextInt() % 100));
       System.out.print("the list: "); System.out.println(list);
       Collections.sort(list);
       System.out.print("sorted: "); System.out.println(list);
```





Contoh

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