QUIZ 4

TAs :
Due Date : 10.04.2022 (23:59:59)

Generic Collections

Goal: Learn how to use various Java Generic Collections APIs

Tasks: Read contact information from input file **contacts.txt** and store it to various data structures using java **Collection** classes, then store back to a file following the directions below. Element of each data structure must be stored as an object of class **Contact** that has the following four String type instance variables:

```
public class Contact implements Comparable<Contact> {

    private String socialSecurityNumber;
    private String firstName;
    private String lastName;
    private String phoneNumber;
```

1. Store contacts to an **ArrayList**, then write the contacts to file **contactsArrayList.txt** iterating the ArrayList
2. Create class **LastNameComparator** that implements **Comparator** to sort contacts by last name. Use class **LastNameComparator** to sort ArrayList using **Collections.sort**. Then write the contacts to file **contactsArrayListOrderByLastName.txt.**
3. Store contacts to a HashSet, then write the contacts to file contactsHashSet.txt iterating the HashSet
4. Store contacts to a TreeSet, then write the contacts to file contactsTreeSet.txt iterating the TreeSet.
5. Use class LastNameComparator to store contacts in the order of last name with TreeSet. Then write the contacts to file contactsTreeSetOrderByLastName.txt.
6. Store contacts to a HashMap using a phone number as a key and a Contact object as a value. Then write the contacts to file.txt iterating the HashMap.
    - Your class must implement interface Comparable for class Contact to provide natural order for TreeSet. Please use phone number as a sort key for natural order.
    - You are expected to produce the output for each store type as specified above, separately.
    - You must submit your work with the file hierarchy as stated below:

```
- <studentid>.zip
    - <src>
        - Main.java, *.java
```

Execution and Test

The input file is going to be given as program argument. In order to test your program, you should follow the following steps:

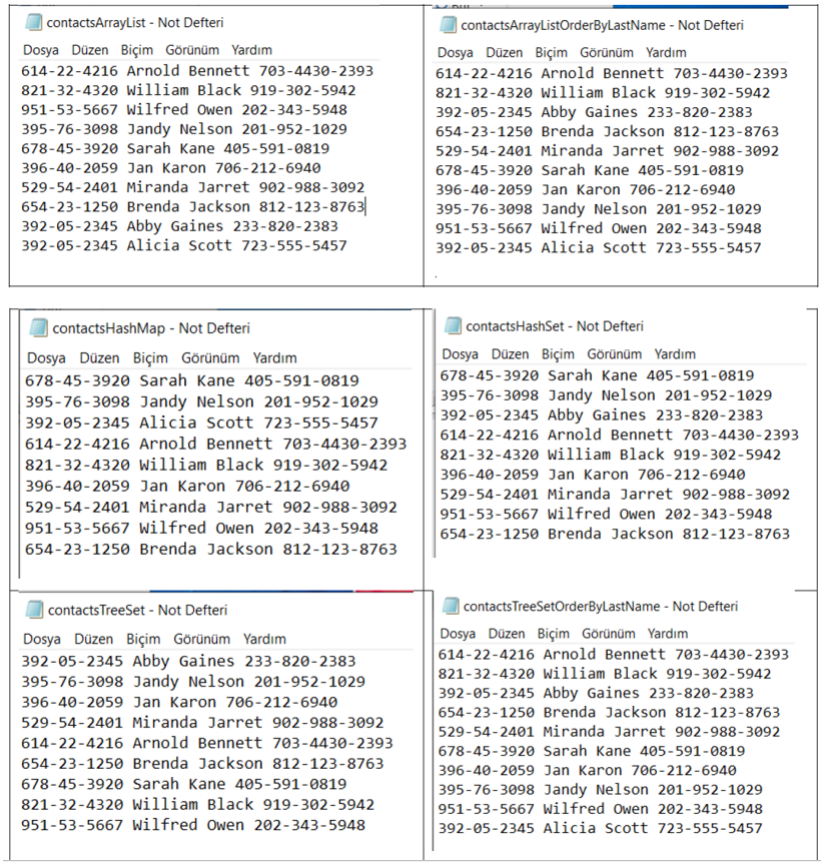
- Upload your java files to your server account (dev.cs.hacettepe.edu.tr)
- Compile your code (javac Main.java or javac *.java)
- Run your program (java Main contacts.txt)
- Control your output data and format.

Input and output format

Phone number *[space]* name *[space]* surname *[space]* social security number *[newline]*
Phone number *[space]* name *[space]* surname *[space]* social security number *[newline]*
Phone number *[space]* name *[space]* surname *[space]* social security number *[newline]*
....

Example Input File

Example Output File



Important Notes

- Do not miss the submission deadline.
- Compile your code on dev.cs.hacettepe.edu.tr before submitting your work to make sure it compiles without any problems on our server.
- Save all your work until the assignment is graded.
- The assignment must be original, individual work. Duplicate or very similar assignments are both going to be considered as cheating. You can ask your questions via Piazza and you are supposed to be aware of everything discussed on Piazza. You cannot share algorithms or source code. All work must be individual! Assignments will be checked for similarity, and there will be serious consequences if plagiarism is detected.