

Programming III

Laboratory 8-9

Objectives

- Files
- Serialization

Exercises

1. Create a class Christmas Tree class that has like attributes a price, a type (artificial or natural) and a height. Add a transient field that contains the price reduced with 10%.
 - a) Create 10 objects, display them.
 - b) Create a method that serialize the objects into a file
 - c) Create a method that reads the objects from the file and display them(reads each of the 10 records from the file)
2. Create a text file that contains one integer on each line.
 - a) Use LineNumberReader to read the file and display the even numbers from the files that are stored on odd lines
 - b) Use Scanner to read the file and calculate the arithmetic and geometric mean of the numbers stored in the file.
3. Use File class to display the content of a directory. Read the directory path from standard input. For each file in the directory display the name, relative path, the file size. For each subdirectory display the number of files contained and its content.
4. Use NIO API in order to:
 - a) Copy one file from one directory to another
 - b) To filter all files with an extension read from standard input
 - c) Delete the content of a directory recursively
 - d) Use WatchService API to react to file writing in a directory
 1. If a new file is added and has the '.txt' extension then display the information about file name, size and permissions
 2. Otherwise automatically delete the file from the directory
 - e) Use NIO to display a zip file content

5. Create a CSV (Comma Separated Values) file that stores objects of type Chair that has like attributes producer, fabric and price. Provide a method that reads the file content and creates a list of chairs, sorts the list decreasing based on chairs price and write the list of chairs in a JSON file format. For each distinct processor create a text file that contains the list of chairs it produces.

6. Using RandomAccessFile class, write a function
 - a) I.
 1. that creates a file with integer numbers.
 2. that displays the content of the file
 3. that replace the negative numbers from the file with their absolute value
 - b) II
 1. Create a class Concert that has a name, a starting time and a distribution list, that contains the names of the singers.
 2. Add to the class methods for writing/reading a concert object using random access file.

7. Define a class date that contains like attributes year, month, day and use StringTokenizer class to parse the following date formats “DD/LL/YYYY” (11/11/2018) and “DD Month YYYY” (11 December 2018). Add methods that allow to display the date in different formats. Use java Format class to do the same thing.