**Homework: Text Files**

**Problem 1. Odd lines**

* Write a program that reads a text file and prints on the console its odd lines.

**Problem 2. Concatenate text files**

* Write a program that concatenates two text files into another text file.

**Problem 3. Line numbers**

* Write a program that reads a text file and inserts line numbers in front of each of its lines.
* The result should be written to another text file.

**Problem 4. Compare text files**

* Write a program that compares two text files line by line and prints the number of lines that are the same and the number of lines that are different.
* Assume the files have equal number of lines.

**Problem 5. Maximal area sum**

* Write a program that reads a text file containing a square matrix of numbers.
* Find an area of size 2 x 2 in the matrix, with a maximal sum of its elements.
  + The first line in the input file contains the size of matrix N.
  + Each of the next N lines contain N numbers separated by space.
  + The output should be a single number in a separate text file.

*Example:*

| **input** | **output** |
| --- | --- |
| 4  2 3 3 4  0 2 3 4  3 7 1 2  4 3 3 2 | 17 |

**Problem 6. Save sorted names**

* Write a program that reads a text file containing a list of strings, sorts them and saves them to another text file.

*Example:*

| **input.txt** | **output.txt** |
| --- | --- |
| Ivan  Peter  Maria  George | George  Ivan  Maria  Peter |

**Problem 7. Replace sub-string**

* Write a program that replaces all occurrences of the sub-string start with the sub-string finish in a text file.
* Ensure it will work with large files (e.g. 100 MB).

**Problem 8. Replace whole word**

* Modify the solution of the previous problem to replace only **whole words** (not strings).

**Problem 9. Delete odd lines**

* Write a program that deletes from given text file all odd lines.
* The result should be in the same file.

**Problem 10. Extract text from XML**

* Write a program that extracts from given XML file all the text without the tags.

*Example:*

<?xml version="1.0"><student><name>Pesho</name><age>21</age><interests count="3"><interest>Games</interest><interest>C#</interest><interest>Java</interest></interests></student>

**Problem 11. Prefix "test"**

* Write a program that deletes from a text file all words that start with the prefix test.
* Words contain only the symbols 0…9, a…z, A…Z, \_.

**Problem 12. Remove words**

* Write a program that removes from a text file all words listed in given another text file.
* Handle all possible exceptions in your methods.

**Problem 13. Count words**

* Write a program that reads a list of words from the file words.txt and finds how many times each of the words is contained in another file test.txt.
* The result should be written in the file result.txt and the words should be sorted by the number of their occurrences in descending order.
* Handle all possible exceptions in your methods.