Exercise: Streams, Files and Directories

Problems for exercises and homework for the "CSharp Advanced" course @ Software University.

Problem 1. Even Lines

Write a program that reads a **text** file and prints on the console its **even lines**. Line numbers start from 0. Use **`StreamReader`**. Before you print the result replace `{"-", ",", ".", "!", "?"}` with "@" and reverse the order of the words.

Examples

text.txt	output
-I was quick to judge him, but it wasn't his fault. -Is this some kind of joke?! Is it? -Quick, hide here. It is safer.	fault@ his wasn't it but him@ judge to quick was @I safer@ is It here@ hide @Quick@

Problem 2. Line Numbers

Write a program that **reads** a **text file** and inserts **line numbers** in front of **each** of its **lines and count all the letters and punctuation marks**. The result should be **written** to **another** text file. Use the static class **`File`**.

Examples

text.txt	output.txt
-I was quick to judge him, but it wasn't his fault. -Is this some kind of joke?! Is it? -Quick, hide here. It is safer.	Line 1: -I was quick to judge him, but it wasn't his fault. (37)(4) Line 2: -Is this some kind of joke?! Is it? (24)(4) Line 3: -Quick, hide here. It is safer. (22)(4)

Problem 3. Word Count

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 **text.txt**. Matching should be **case-insensitive**. Write the results in file **actualResults.txt**. **Sort** the words by **frequency** in **descending** order and then compare the result with the file **expectedResult.txt**. Use the **`File`** class.

Examples

words.txt	text.txt	actualResult.txt	expectedResult.txt
quick is fault	-I was quick to judge him, but it wasn't his fault. -Is this some kind of joke?! Is it? -Quick, hide here. It is safer.	quick - 2 is - 3 fault - 1	is - 3 quick - 2 fault - 1

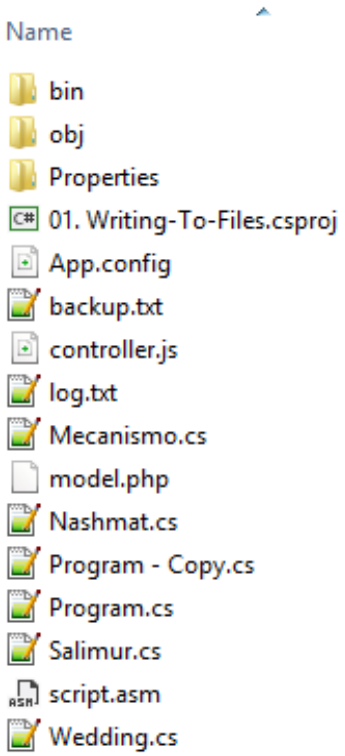
Problem 4. Copy Binary File

Write a program that copies the contents of a binary file (e.g. image, video, etc.) to another using **`FileStream`**. You are **not allowed** to use the **`File`** class or similar helper classes.

Problem 5. Directory Traversal

Write a program that traverses a given **directory** for **all files** with the given **extension**. Search through the **first level** of the **directory only** and write information about each **found** file in **report.txt**. The files should be **grouped** by their **extension**. **Extensions** should be **ordered** by the **count** of their files **descending**, then by **name alphabetically**. **Files** under an extension should be **ordered** by their **size**. **report.txt** should be saved on the **Desktop**. Ensure the desktop path is always valid, regardless of the user.

Examples

Input	Directory View	report.txt
.		.cs --Mecanismo.cs - 0.994kb --Program.cs - 1.108kb --Nashmat.cs - 3.967kb --Wedding.cs - 23.787kb --Program - Copy.cs - 35.679kb --Salimur.cs - 588.657kb .txt --backup.txt - 0.028kb --log.txt - 6.72kb .asm --script.asm - 0.028kb .config --App.config - 0.187kb .csproj --01. Writing-To-Files.csproj - 2.57kb .js --controller.js - 1635.143kb .php --model.php - 0kb

Problem 6. Zip and Extract

Write a program that **creates** a **zip** file in a given **directory** and **extracts** it in **another** one. Use the **copyMe.png** file from your resources and zip it in a directory of your choice. **Extract** the zip file in another directory, again, by your choice.

Hint:

Use the **`ZipFile`** class.