# Exercises: Strings, Dictionaries, Lambda and LINQ

Problems for exercises and homework for the [“Programming Fundamentals” course @ SoftUni](https://softuni.bg/courses/programming-fundamentals).

You can check your solutions here: <https://judge.softuni.bg/Contests/209/Strings-Dictionaries-Lambda-and-LINQ-Exercises>

## Censor Your Email Address

You have some text that contains your email address. You’re sick of spammers, so you want to **hide** it. You decide to **replace all characters** in it with asterisks ('\*') **except the domain**. Assume the email address will always be in format **[username]@[domain]**; you’ll need to replace username with asterisks of equal length and keep the domain unchanged.

In the example below, your email is given on the first line and the text is given on the second line.

In order to accomplish the task, you may find these steps useful:

* **Split** the email into two parts – username and domain
* Create the **replacement** string by concatenating a string containing '\*' (with length equal to username.Length) with '@' and the domain.
* **Replace** all occurrences of your email with the replacement string.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| pesho.peshev@email.bg  My name is Pesho Peshev. I am from Sofia, my email is: pesho.peshev@email.bg (not pesho.peshev@email.com). Test: pesho.meshev@email.bg, pesho.peshev@email.bg | My name is Pesho Peshev. I am from Sofia, my email is: \*\*\*\*\*\*\*\*\*\*\*\*@email.bg (not pesho.peshev@email.com). Test: pesho.meshev@email.bg, \*\*\*\*\*\*\*\*\*\*\*\*@email.bg |

## Reverse String

Write a program that reads a string from the console, reverses it and prints the result back at the console.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| sample | elpmas |
| 24tvcoi92 | 29iocvt42 |

## String Length

Write a program that reads from the console a string of maximum 20 characters. If the length of the string is less than 20, the rest of the characters should be filled with \*. Print the resulting string on the console.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Welcome to SoftUni! | Welcome to SoftUni!\* |
| a regular expression (abbreviated regex or regexp and sometimes called a rational expression) is a sequence of characters that forms a search pattern | a regular expression |
| C# | C#\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |

## Extract Sentences

### Write a program that extracts from a text all sentences that contain a particular word. We accept that the sentences are separated from each other by the character "." and the words are separated from one another by a character which is not a letter.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| in  We are living **in** a yellow submarine. We don't have anything else. Inside the submarine is very tight. So we are drinking all the day. We will move out of it **in** 5 days. | We are living in a yellow submarine  We will move out of it in 5 days |

## URL Parser

Write a program that parses an URL in following format:

**[protocol]** ://**[server]**/**[resource]**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| http://www.abc.com/video | [protocol]=”http”  [server]=”www.abc.com”  [resource]=”video” |
| https://www.softuni.bg/Resources/Materials | [protocol]=”https”  [server]=”www.softuni.bg”  [resource]=”Resources/Materials” |
| ftp://www.su.us/TestResource | [protocol]=”ftp”  [server]=”www.su.us”  [resource]=”TestResource” |

## Reverse Words in Sentence

### Write a program that reverses the words in a given sentence without changing punctuation and spaces.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| C# is not C++ and PHP is not Delphi | Delphi not is PHP and C++ not is C# |
| The quick brown fox jumps over the lazy dog | dog lazy the over jumps fox brown quick The |
| Pack my box with five dozen liquor jugs | jugs liquor dozen five with box my Pack |

## To Uppercase

### A text is given. Write a program that modifies the casing of letters to uppercase at all places in the text surrounded by <upcase> and </upcase> tags. Tags cannot be nested.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| We are living in a <upcase>yellow submarine</upcase>. We don't have <upcase>anything</upcase> else. | We are living in a YELLOW SUBMARINE. We don't have ANYTHING else. |

## Palindromes

Write a program that extracts from a given text all palindromes, e.g. ABBA, lamal, exe and prints them on the console on a single line, separated by comma and space. Use spaces, commas, dots, question marks and exclamation marks as word delimiters. Print only **unique** palindromes, **sorted** lexicographically.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Hi,exe? ABBA! Hog fully a string. Bob | a, ABBA, exe |

## Capitalization

### Write a program which takes input string and capitalizes the first character of each word in a String, and does not affect the others.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| jon skeet | Jon Skeet |
| old mcdonald | Old Mcdonald |
| miles o'Brien | Miles O'Brien |

## Palindrome Index

### Given a string of lowercase letters, determine the index of the character whose removal will make the string a palindrome. If the string is already a palindrome, then print −1. There will always be a valid solution.

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| aaab | 3 | If we remove letter “b” at index 3 we will get a palindrome “aaa” |
| baa | 0 | Remove “b” at index 0 to get a palindrome |
| aaa | -1 | “aaa” is already a palidrome |

## \*Common Strings

### You are given two strings, A and B. Find if there is a substring that appears in both A and B.

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| hello  world | yes | The letter “o” is common between both strings, hence the output is YES. Furthermore the letter “l” is common, but you only need 1 common substring |
| hi  world | no | Both words do not have common substring |
| soft  softuni | yes | Substring “soft” is common between both strings |