# More Exercise: String and Text Processing

Problems for exercises and homework for the ["Technology Fundamentals with PHP" course @ SoftUni](https://softuni.bg/courses/technology-fundamentals).

You can check your solutions in [Judge](https://judge.softuni.bg/Contests/1341/).

## Value of a String

Write a program which finds the **sum** of the **ASCII** **codes** of the **letters** in a given **string**. Your tasks will be a bit harder, because you will have to find the **sum** of **either** the **lowercase** or the **uppercase** letters.

On the **first** line, you will receive the **string**.

On the **second** line, you will receive **one of two possible inputs**:

* If you receive “**UPPERCASE**” 🡺 find the **sum** of **all** **uppercase** **English** **letters** in the previously received string
* If you receive “**LOWERCASE**” 🡺 find the **sum** of all **lowercase** **English** **letters** in the previously received string

You should **not** sum the **ASCII** codes of any characters, which is **not** letters.

At the end print the sum in the following format:

* The total sum is: {sum}

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| HelloFromMyAwesomePROGRAM  LOWERCASE | The total sum is: 1539 |
| AC/DC  UPPERCASE | The total sum is: 267 |

## Serialize String

You have been tasked to serialize a string. The serialization is done in a special way, in which a character from that string is saved with the indexes at which it is found.

The input will consist of a single input line, containing a single string, which may consist of **ANY ASCII** character. Your task is to serialize the string in the following way:

{char}:{index1}/{index2}/{index3}

The char will be the **character**, and the indexes, will be the **indexes** it is **found** at in the **string**.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| abababa | a:0/2/4/6  b:1/3/5 |
| avjavamsdmcalsdm | a:0/3/5/11  v:1/4  j:2  m:6/9/15  s:7/13  d:8/14  c:10  l:12 |

## Deserialize String

Write a program, which takes the **output** from the **previous task** and turns it back into a **string**.

Until you receive the line “**end**”, you will receive several lines of input on the console, in the following format:

* "{letter}:{index1}/{index2}/{index…}/{indexN}"

Your task is to take every **letter** and its **index** and **form a string** out of them.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| a:0/2/4/6  b:1/3/5  end | abababa |
| a:0/3/5/11  v:1/4  j:2  m:6/9/15  s:7/13  d:8/14  c:10  l:12  end | avjavamsdmcalsdm |

## Ascii Sumator

Write a program that prints a **sum of all characters between two given characters** (their **ascii code**). On the **first line** you will get a **character**. On the **second line** you get **another character**. On the **last line** you get a **random string**. Find all the characters **between the two given** and **print their ascii sum**.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| .  @  dsg12gr5653feee5 | 363 |
| ?  E  @ABCEF | 262 |
| a  1  jfe392$#@j24ui9ne#@$ | 445 |

## Treasure Finder

Write a program that **decrypts a message** by a given **key** and gathers information about hidden **treasure type** and its **coordinates.** On the **first line** you will receive a **key (sequence of numbers).** On the **next few lines until you receive "find"** you will get lines of **strings**. You have to **loop through every string** and **decrease the ascii code of each character** with a **corresponding number of the key** sequence. The way you choose a key number from the sequence is just **looping through it**. If the **length of the key** sequence is **less than the string** sequence, you start **looping from the beginning of the key.** For more clarification see the example below. **After decrypting** the message you will **get a type of treasure and its coordinates.** The **type** will be **between** the symbol **'&'** and the coordinates will be between the symbols **'<'** and **'>'**. For each line **print the type and the coordinates** in format:  
**"Found {type} at {coordinates}".**

### Example

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comment** |
| 1 2 1 3  ikegfp'jpne)bv=41P83X@  ujfufKt)Tkmyft'duEprsfjqbvfv=53V55XA  find | Found gold at 10N70W  Found Silver at 32S43W | We start looping through the first string and the key. When we reach the end of the key we start looping from the beginning of the key, but we continue looping through the string. (until the string is over)  The first message is: **"hidden&gold&at<10N70W>"** so we print we found gold at the given coordinates  We do the same for the second string  **"thereIs&Silver&atCoordinates<32S43W>"**(starting from the beginning of the key and the beginning of the string) |

## Melrah Shake

You are given a **string** of random characters, and a **pattern** of random characters. You need to “shake off” (**remove**) all of the **border** occurrences of that pattern, in other words, the **very** **first** **match** and the **very last match** of the pattern you find in the string.

When you successfully shake off a match, you **remove** from the pattern the character which corresponds to the **index** equal to **the pattern’s length / 2**. Then you continue to shake off the border occurrences of the new pattern until the pattern becomes **empty** or until there is **less** than the - needed for shake, matches in the remaining string.

In case you have found at least **two** matches, and you have successfully shaken them off, you print "Shaked it." on the console. Otherwise you print "No shake.", the remains of the main string, and you end the program. See the examples for more info.

### Input

* The input will consist only of two lines
* On the first line, you will get a string of random characters
* On the second line, you will receive the pattern and that ends the input sequence

### Output

* You must print "Shaked it." for every time you successfully do the melrah shake
* If the melrah shake fails, you print "No shake.", and on the next line you print what has remained of the main string

### Constraints

* The two strings may contain **ANY** ASCII character
* Allowed time/memory: 250ms/16MB

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| astalavista baby  sta | Shaked it.  No shake.  alavi baby |
| ##mtm!!mm.mm\*mtm.#  mtm | Shaked it.  Shaked it.  No shake.  ##!!.\*.# |

## SoftUni Bar Income

Let`s take a break and visit the game bar at SoftUni. It is about time for the people behind the bar to go home and you are the person who has to draw the line and calculate the money from the products that were sold throughout the day. Until you receive a line with text "end of shift" you will be given lines of input. But before processing that line you have to do some validations first.

**Each valid order** should have a **customer, product, count and a price:**

* Valid customer's name should be **surrounded by '%'** and must **start with a capital letter**, followed by **lower-case letters**
* Valid product **contains any word character** and must be **surrounded by '<' and '>'**
* Valid count is an **integer**, **surrounded by '|'**
* Valid price is any **real number followed by '$'**

The parts of a valid order should appear in the order given: **customer, product, count and a price**.

Between each part there can be other symbols, except (**'|', '$', '%' and '.'**)

For each valid line print on the console: "{customerName}: {product} - {totalPrice}"

When you receive "end of shift" print the total amount of money for the day **rounded to 2 decimal places** in the following format:"Total income: {income}"**.**

## Input / Constraints

* Strings that you have to process until you receive text "end of shift".

## Output

* Print all of the valid lines in the format "{customerName}: {product} - {totalPrice}"
* After receiving "end of shift" print the total amount of money for the day rounded to 2 decimal places in the following format: "Total income: {income}"
* Allowed working **time** / **memory**: **100ms** / **16MB**.

## Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comment** |
| %George%<Croissant>|2|10.3$  %Peter%<Gum>|1|1.3$  %Maria%<Cola>|1|2.4$  end of shift | George: Croissant - 20.60  Peter: Gum - 1.30  Maria: Cola - 2.40  Total income: 24.30 | Each line is valid, so we print each order, calculating the total price of the product bought.  At the end we print the total income for the day |
| %InvalidName%<Croissant>|2|10.3$  %Peter%<Gum>1.3$  %Maria%<Cola>|1|2.4  %Valid%<Valid>valid|10|valid20$  end of shift | Valid: Valid - 200.00  Total income: 200.00 | On the first line, the customer name isn`t valid, so we skip that line. The second line is missing product count.  The third line don`t have a valid price.  And only the forth line is valid |