

Programming Software Systems

Lab 3

Pointes, strings and arrays

(cont.)

Exercises (1)

- 1) Write a program that will count lines, words, and characters given in the input
- 2) Write a program to print a histogram of the frequencies of different characters in its input. It is easy to draw the histogram with the bars horizontal; a vertical orientation is more challenging:

input: hello world

output:

h .

e .

l ...

o ..

w .

r .

d .

Exercises (2)

1. Update previous solution, so that output characters are sorted by frequencies in decreasing order. If characters have the same frequency, sort by ASCII codes in increasing order.

input: hello world

output:

l ...

o ..

d .

e .

h .

r .

w .

Exercises (3)

1. Write a program which deletes duplicate elements from array of integers.

input: 0 1 1 3 1 1 4 2 5 4 0 0 5 output: 0 1 3 4 2 5

2. Write a program to make such a pattern like a pyramid with numbers increased by 1

input: 4 output:

1
23
456
78910

Exercises (4)

1. Write a program to find Strong Numbers* within a range of numbers.

Input:

Starting range of number: 1

Ending range of number: 200

Output: The strong numbers are: 1, 2, 145

* If the sum of factorial of the digits in any number is equal to the given number, then the number is called a STRONG number.

Exercises (5)

1. Write a program that will try to find a user password using bruteforce. User password can be at least 1 symbol and at most 3 symbols and contains only ASCII characters

input:

password = u4!

output:

found = u4!

number of attempts = ...