

# Lab 4.4.1 String manipulation: pangrams

### Objectives

Familiarize the student with:

- string manipulation;
- accessing single characters.

#### Scenario

A pangram is a sentence that uses every letter of the alphabet at least once. The most popular English pangram is "The quick brown fox jumps over the lazy dog." It contains 35 letters and each letter is used at least once. Write code to check whether a given string is a pangram or not. Try to write the shortest code possible. You can use the string class and arrays. Remember not to count spaces and other special characters. At the end of this program you should print how many times each letter has been used.

#### **Example input**

The quick brown fox jumps over the lazy dog

#### Example output

Pangram

- a-1
- b-1
- c-1 d-1
- e-3
- f-1
- g-1
- h-2 i-1
- j-1
- k-1 l-1
- m 1
- n-1
- p-1
- q-1 r-2
- s 1
- t-2
- u-2 w-1
- v-1
- x-1
- z-1

#### **Example input**

quick brown fox jumps over lazy dog

## Example output

Not pangram a-1 b-1 c-1 d-1 e-1 f-1 g-1 h-0 i-1

j-1 k-1 l-1 m-1 n-1 o-4 p-1 q-1 r-2 s-1 t-0 u-2 w-1 v-1 x-1 y-1