Tutorial 5

Homework revision

Lecture revision

1. What is array
2. How to declare an array in C#

Programming exercise I– FunPro statistics

The task is to calculate statistics for a module

1. Create new Windows application called FunProStatistics
2. Grab user input using TextBox (user is expected to enter comma separated list of marks)
3. Declare variables to store statistics (e.g. noOfMarksLess30, noOfMarks30To40 etc.)
4. In a loop calculate the statistics
5. Display the result in message box

Programming exercise II– Mirrored arrays

Write a program that produces a mirrored version of any one-dimensional array. In the mirrored array all elements change the places – the first one becomes the last one, the second element becomes the second last element and so on

1. Create new Windows application called MirroredArrays
2. Copy the code from previous exercise to grab array elements
3. Create another array of the same size and in a loop insert input from the first array in reverse order
4. Display reversed result

Programming exercise III– Text analysis

Your task is to write a program producing different kind of statistics for a given text. You should analyse the text entered by user and calculate the following:

* Number of words (word is a piece of text separated by space)
* Number of vowels (any of ‘A’, ‘E’, ‘I’, ‘O’, ‘U’. Do not consider ‘Y’ as vowel)
* Number of consonants (any of ‘B’, ‘C’, ‘D’, ‘F’, ‘G’, ‘H’, ‘J’, ‘K’, ‘L’, ‘M’, ‘N’, ‘P’, ‘Q’, ‘R’, ‘S’, ‘T’, ‘V’, ‘W’, ‘X’, ‘Y’, ‘Z’)

HINT 1: Words could be separated by single space or multiple spaces

HINT 2: Consider using ToUpper() or ToLower() functions to make checks easier.

1. Create new Windows application called TextAnalysis
2. Grab user input (text to analyse) via TextBox
3. Declare variables to store number of words, vowels and consonants
4. Create loop to go through each character of the input text and increment corresponding vaiable in case of match
5. Produce result via MessageBox in the following format:

Number of words: #

Number of vowels: #

Number of consonants: #

Home work

Merge arrays

Given two one-dimensional integer arrays **A** and **B**. Write a program to merge them into a single sorted array **C** that contains unique items of arrays **A** and **B**, in ascending order.

1. Create new Windows application called MergeArrays
2. Grab user input (elements for each of the arrays)
3. Declare the result array with dimension that equals to the sum of the previous two ones
4. Using nested loops merge the arrays:
   1. Loop through the elements of A.
   2. For each element of A loop through the elements of C – you should not add an element if it was already added so that only unique elements will be present
   3. Do the same for array B
5. Check the last used element of the result array (loop through the elements of C and check if it is not 0, the last non-zero element is the last used)
6. Redim array so that only used elements are present. Be sure to preserve the values
7. Sort the array using Array.Sort method
8. Show the result to the user.