Lab#1 – Generics and Extension methods

Due Date: Midnight of the second Friday

Purpose: The purpose of this lab is to help you:

- Understand generic class and generic method
- Understand extension method

Instructions: Be sure to read the following general instructions carefully:

This lab must be completed individually. Submit your solution **through the dropbox**. You must name your submission according to the following pattern: **studentID(yourlastname)_Labnumber.zip**. e.g., 300123456(**smith)_LAB#1**.zip

Rubric

	Functionality	Marks
Q1	1. GUI	2
	2. Search method 2.1 Implementation (3 marks) 2.2 Invocation 2.2.1 use array of integers (1 mark) 2.2.2 use array of students (1 mark)	3 +1+1
	3. Student class	2
	4. Overall (i.e., Usability and readability, etc.)	1
Q2	1. Implementation	2
	2. Consume the extension method	2

Question 1[10 marks]

Implement a generic method, ***Search***, that searches the specified element within an array using linear search algorithm. Method ***Search*** should compare the search key with each element in its array parameter until the search key is found or until the end of the array is reached. If the search key is found, return its location in the array; otherwise return -1. Write a **WinForm** app to accept user's input for the array elements and searches specified element. The array could be either an integer array or a student array. Display all array elements to help use to perform search functionality.

[Hint: use (IComparable<T>) in the where clause for method Search so that you can use method CompareTo() to compare the search key to the elements in the array]

Question 2[4 marks]

Implement an extension method for class ***StringBuilder*** to count the number of words contained in a ***StringBuilder*** object. For example, if a ***StringBuilder*** object ***sb***="This is to test whether the extension method count can return a right answer or not", the number of words contained in ***sb*** is 16.