Name, Surname   :
Number   :
Course Code   : SEN233
Course Name   : VISUAL PROGRAMMING

Exam   :   ○ Quiz   ● Midterm   ○ Final
Date   :16.11.2013

Question Number	1	2	3	**4**	**Total**
Mark					

Note: Exam duration is 60 minutes only.

Questions

Defination: In computer science, a stack is a particular kind of abstract data type or collection in which the principal (or only) operations on the collection are the **addition of an entity to the collection, known as push** and **removal of an entity, known as pop**. The relation between the push and pop operations is such that the stack is a Last-In-First-Out (LIFO) data structure. In a LIFO data structure, the last element added to the structure must be the first one to be removed. This is equivalent to the requirement that, considered as a linear data structure, or more abstractly a sequential collection, the push and pop operations occur only at one end of the structure, referred to as the top of the stack. Often a **peek or top** operation is also implemented, returning the value of the top element **without removing it**.

A stack may be implemented to have a bounded capacity. If the stack is full and does not contain enough space to accept an entity to be pushed, the stack is then considered to be in an overflow state. The pop operation removes an item from the top of the stack. A pop either reveals previously concealed items or results in an empty stack, but, if the **stack is empty,** it goes into underflow state, which **means no items are present in stack to be removed**.

A stack is a restricted data structure, because only a small number of operations are performed on it. The nature of **the pop** and **push operations** also means that stack elements have a natural order. Elements are removed from the stack in the reverse order to the order of their addition. Therefore, the lower elements are those that have been on the stack the longest. [source: http://en.wikipedia.org/wiki/Stack_(abstract_data_type)]

1- (50p)Write a **class** preforming
    a-) bool isEmpty(), **b-)** int pop(), **c-)** push(int), **d-)** int top(), **e-)** listofStack(), Stack opertations.
2- (15)Write a function to reverse a string?

3-(25)What is the output of the code??

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
namespace ConsoleApplication3
{
    class Program
    {
        static void Main(string[] args)
        {
            int j;
            int[] one = new int[5];
            int[] two = new int[10];
            for (j = 0; j < 5; j++){
                one[j] = 5 * j + 2;}
            Console.WriteLine("One contains: ");
            for (j = 0; j < 5; j++){
                Console.WriteLine(one[j] + " ");}
            Console.WriteLine();
            for (j = 0; j < 5; j++)
            {   two[j] = 2 * one[j] - 1;
                two[j + 5] = one[4 - j] + two[j];    }
            Console.WriteLine("Two contains: ");
            for (j = 0; j < 10; j++){
                Console.WriteLine(two[j] + " ");}
        } }}
```

4-(10)What is the output of the code??

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace ConsoleApplication4
{
  class Program
  {
    static void Main(string[] args)
    {
      int[] d = new int[10]{1,2,124,23,56,97,34,8970,987,6};
      int e1 = d[0], e2 = d[0], z = 0; ;
       foreach (int e in d)
       {
         if (e > e1) e1 = e;
         if (e < e2) e2 = e;
         z = z + e;
       }
       Console.WriteLine("e1 : {0}", e1);
       Console.WriteLine("e2 : {0}", e2);
       Console.WriteLine("z : {0}", z/d.Length);
}}}
```

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