SEMESTER LAB CONTINUOUS EVALUATION

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SUBJECTCODE: .NET

Lab 1: Tasks on C# Basics Concepts

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Learning outcomes:

- Familiarity with C# Basic concepts.
- Outcome related to second session

IN-LAB:

1. Write a C# code to implement the simple calculator?

TASK1: It's required to create a simple calculator with addition and subtraction operations for two integer numbers

For example, how to find the sum of given integer values **a** and **b**. You have a skeleton code:

```
public static int Add(int a, int b)
{
    //TODO Delete line below and write your own solution
    throw new NotImplementedException();
}
```

Solution:

```
namespace week2
{
    internal class Program
    {
        //task1
        static void add(int a,int b)
        {
            Console.WriteLine("Sum of ", a, " and ", b, "=");
            Console.WriteLine( a + b);
        }
        static void sub(int a, int b)
        {
            Console.WriteLine("Subration of ", a, " and ", b, "=");
            Console.WriteLine(a - b);
        }
        static void mul(int a, int b)
        {
            Console.WriteLine("Multiplaction  of ", a, " and ", b, "=");
            Console.WriteLine(a * b);
        }
        static void div(int a, int b)
        {
            Console.WriteLine("Divison of ", a, " and ", b, "=");
            Console.WriteLine(Convert.ToDouble( a) / b);
        }
        static void clac()
        {
            int n;
            do
            {
                Console.WriteLine("1.Add\n2.subract\n3.Multiply\n4.Divide\n0.Exit");
                Console.WriteLine("Enter :");
                n = Convert.ToInt32(Console.ReadLine());
                Console.WriteLine("Enter the numbers:");
                int a=0, b=0;
                if (n != 0)
                {
                    a = Convert.ToInt32(Console.ReadLine()); b =
Convert.ToInt32(Console.ReadLine());
                }
```

```
            switch (n)
            {
                case 1:

                    add(a,b);break;
                case 2:
                    Console.WriteLine("Enter the numbers:");
                    sub(a,b); break;
                case 3:
                    Console.WriteLine("Enter the numbers:");
                    mul(a,b); break;
                case 4:
                    Console.WriteLine("Enter the numbers:");
                    div(a, b); break;
            }
        }while(n!=0);

    }

    //task2
    static int num(int n)
    {
        if (n == 0) return 0;
        else if (n < 0) return -n;

        else return n*n;
    }

    //task3
    static int maxnum(int n)
    {
        int a = n / 10;
        int b = n % 10;
        int c = a % 10;
        a = a / 10;
        if (a > b)
        {
            if (b > c) { return a * 100 + b * 10 + c; }
            else { return a * 100 + c * 10 + b; }
        }
        else
        {
            if (a > c) { return b * 100 + a * 10 + c; }
            else return b * 100 + c * 10 + a;
        }
    }
    static void Main(string[] args)
    {

        Console.WriteLine("////////////////******//////////////");
        clac();

        Console.WriteLine("////////////////******//////////////");
        num(12);

        num(-13);
        num(0);

        Console.ReadLine();
        Console.WriteLine("!!!!!!!!!!!!!!++++---__________---++++!!!!!!!!!!!!!!!");
        maxnum(156);


    }
}
}
```

OutPut:

```
Multiplaction  of
30
1.Add
2.subract
3.Multiply
4.Divide
0.Exit
Enter :
2
Enter the numbers:
5
5
Enter the numbers:
Subration of
0
1.Add
2.subract
3.Multiply
4.Divide
0.Exit
Enter :
4
Enter the numbers:
5
6
Enter the numbers:
Divison of
0.8333333333333334
1.Add
2.subract
3.Multiply
4.Divide
0.Exit
Enter :
0
Enter the numbers:

!!!!!!!!!!!!!!++++---__________---++++!!!!!!!!!!!!!!
```

2.Write a C# code to solve the TASK2 and TASK3.

TASK2: For a given integer *n* calculate the value which is equal to:

1. squared number, if its value is strictly positive;
2. modulus of a number, if its value is strictly negative;
3. zero, if the integer n is zero.

Example

```
n = 4      result =  16
n = -5     result =  5
n = 0      result = 0
```

TASK3: Find the maximum integer, that can be obtained by numbers of an arbitrary three-digit positive integer *n* permutation (100<=n<=999).

Example

```
n = 165    result =  651
```

Solution:

```
static int num(int n)
{
    if (n == 0) return 0;
    else if (n < 0) return -n;

    else return n*n;
}
static void Main(string[] args)
{
    num(12);

    num(-13);
    num(0);


}
```

Output:


```
Task3;
     static int maxnum(int n)
```

```
{
    int a = n / 10;
    int b = n % 10;
    int c = a % 10;
    a = a / 10;
    if (a > b)
    {
        if (b > c) { return a * 100 + b * 10 + c; }
        else { return a * 100 + c * 10 + b; }
    }
    else
    {
        if (a > c) { return b * 100 + a * 10 + c; }
        else return b * 100 + c * 10 + a;
    }
}
static void Main(string[] args)
{


    maxnum(156);


}
```

```
651

C:\Users\purna\source\repos\week2\week2\bin\Debug\net8.0\week2.exe (process 16168) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

POST-LAB

1. Implement a proper calculator with all the functionalities like addition, subtraction, multiplication, division and square root.

Solution:

```
namespace week2
{
    internal class Program
    {
        //task1
        static void add(int a,int b)
        {
            Console.WriteLine("Sum of ", a, " and ", b, "=");
            Console.WriteLine( a + b);
        }
        static void sub(int a, int b)
        {
            Console.WriteLine("Subration of ", a, " and ", b, "=");
            Console.WriteLine(a - b);
        }
        static void mul(int a, int b)
        {
            Console.WriteLine("Multiplaction  of ", a, " and ", b, "=");
            Console.WriteLine(a * b);
        }
        static void div(int a, int b)
        {
            Console.WriteLine("Divison of ", a, " and ", b, "=");
            Console.WriteLine(Convert.ToDouble( a) / b);
        }
        static void clac()
        {
            int n;
            do
            {

Console.WriteLine("1.Add\n2.subract\n3.Multiply\n4.Divide\n0.Exit");
                Console.WriteLine("Enter :");
                n = Convert.ToInt32(Console.ReadLine());
                Console.WriteLine("Enter the numbers:");
                int a=0, b=0;
                if (n != 0)
                {
                     a = Convert.ToInt32(Console.ReadLine()); b =
Convert.ToInt32(Console.ReadLine());
                }
                switch (n)
                {
                    case 1:

                        add(a,b);break;
                    case 2:
                        Console.WriteLine("Enter the numbers:");
                        sub(a,b); break;
```

```
                case 3:
                    Console.WriteLine("Enter the numbers:");
                    mul(a,b); break;
                case 4:
                    Console.WriteLine("Enter the numbers:");
                    div(a, b); break;
            }
        }while(n!=0);

    }

    //task2
    static int num(int n)
    {
        if (n == 0) return 0;
        else if (n < 0) return -n;

        else return n*n;
    }

    //task3
    static int maxnum(int n)
    {
        int a = n / 10;
        int b = n % 10;
        int c = a % 10;
        a = a / 10;
        if (a > b)
        {
            if (b > c) { return a * 100 + b * 10 + c; }
            else { return a * 100 + c * 10 + b; }
        }
        else
        {
            if (a > c) { return b * 100 + a * 10 + c; }
            else return b * 100 + c * 10 + a;
        }
    }
    static void Main(string[] args)
    {

        Console.WriteLine("///////////////******///////////////");
        clac();

        Console.WriteLine("///////////////******///////////////");
        num(12);

        num(-13);
        num(0);

        Console.ReadLine();
        Console.WriteLine("!!!!!!!!!!!!!!++++---__________---
++++!!!!!!!!!!!!!!!!");
        maxnum(156);


    }
}
}
```