

# ASSIGNMENT #1

## SUBJECT & BASIC INFORMATION

- ➡ A company wants to transmit data over the telephone, but they are concerned that their phones may be tapped. Write down the code of a C# program that inputs an encrypted four-digit integer and decrypts it to form the original number with the following requirements
- All their data are transmitted as four-digit integers, so read a four-digit integer entered by the user. If the user inputs a wrong data (number as three digits, sting, etc.), then warn the user to input a new number.
  - Define a **CRYPT** class
    - ✚ Add **number** data member and a related property for this class
    - ✚ Define a default constructor with no parameters
    - ✚ Define a constructor setting a valid (as four-digits) **number** which is input from the keyboard
    - ✚ Define an **inputNumber()** method which inputs the number from the keyboard and checks whether it is valid or not.
    - ✚ Write an encryption method named **encryptNumber()** that returns the encrypted number. Encrypt it as follows:
      - replace each digit by (the sum of that digit plus 7) modulus 10.
      - swap the first digit with the third, and swap the second digit with the fourth.
    - ✚ Write a decryption method named **decryptNumber** that inputs the encrypted number and returns the original number.
    - ✚ Write a **printEncryptedNumber()** method that prints the encrypted number on the screen
    - ✚ Write a **printDecryptedNumber()** method that prints the decrypted number on the screen
  - Create an **input** object from the **CRYPT** class and call necessary functions in order to get the sample output screen below.

## ➡ SAMPLE SCREEN OUTPUT

```
Enter a four-digit number:123
Enter a four-digit number:345
Enter a four-digit number:1234
Encrypted Message.....: 0189
Decrypted Message.....: 1234
```

## RULES & EVALUATION

- ➡ All code should be included in a single C# file (.cs)
- ➡ The C# file should include this comment lines below at the beginning of the file

```
//*****
//**
//**      STUDENT NAME.....:      **
//**      STUDENT NUMBER.....:     **
//*****
```

- ➡ There should be comment lines for some operations (methods, specific calculations, etc.)
- ➡ **Deadline:** Control SABIS system
- ➡ A **honor-code page** should be prepared for each assignment
  - ✚ It should include a cover including student information (name, surname, number, lecturer, course name, ...)
  - ✚ At the end of the page, there should be an '**honor code**' signed by the student.
- ➡ You should upload **only your C# file (.cs) and your report (in pdf format)** together before deadline.