Assignment – 1 - Data Security, Encoding, Encryption and Privacy

Date of Assignment : May 22 - 25, 2023 (WEEK 3)
Date of Submission : June 2, 2023 (WEEK 4)

Build .**NET Core Console Application**. Add the code from class notes or write your own code to perform the following tasks.

Tasks

1. Add code that would receive a string from the user through the console.
    For example: string fullName = Console.ReadLine();

2. Add the Class file called **BinaryConverter.cs**. Write the code and Convert you're your fullName to Binary. Output the Binary result to the Console. Perform encoding and decoding.

    ```
    Enter String : (Your name) = Nital Shah
    Binary = 0100111001101001011101000011000010110110000100000001010011011010000110000101101000
    ConvertBinaryToString = Nital Shah
    ```

3. Add the another class file called **HexadecimalConverter. Convert your name to Hexadecimal format.**

    ```
    Enter String : (Your name) = Nital shah
    Nital shah as Hexadecimal: 4E6974616C2073686168
    Nital shah from Hexadecimal to String: Nital shah
    ```

4. Add the another class file called **Base64Converter**. Write the code to convert your full name to Base64. Execute the code and print the results.

    ```
    Base64 of nital shah =>: bml0YWwgc2hhaA==
    ```

5. Add the another class file called **EncryptDecrypt.cs**. Write the code to encrypt your full name. Add another function that would receive a encrypted version of your name as input and print decrypted string. Execute the code and print the results.

    ```
    Enter text that needs to be encrypted..
    nital shah
    Encrypted data: ????⊞????rty?E
    Decrypted data: nital shah
    ```

Evaluation
- Do not use the C# methods (inbuilt methods to do this)
- Don't copy code from Google, previous batch

Task	Mark
Execute the tasks from the class notes with no change to min change	60 - 65%
Modify some of the code with proper explanation using comment lines	65 – 70%
Write your own code for decoding without using in-built approach	70 – 80%
Customize the application in a way that reflects on your knowledge of the subject	80 - 100%

How to submit
Submit your code (class files) and screenshot of your output to Blackboard
Linked Resources

- ASCII binary decimal hexadecimal - https://www.youtube.com/watch?v=Zy-yDEgTJdg
- Ascii Table - ASCII character codes and html, octal, hex and decimal chart conversion - http://www.asciitable.com
- Ascii Text to Hexadecimal Converter - https://www.binaryhexconverter.com/ascii-text-to-h...
- ASCII text,Hex,Binary,Decimal,Base64 converter - https://www.rapidtables.com/convert/number/ascii-h...
- c# - Conversion of hexadecimal string to string - Code Review Stack Exchange - https://codereview.stackexchange.com/questions/979...
- c# - How can I convert a hex string to a byte array? - Stack Overflow - https://stackoverflow.com/questions/321370/how-can...
- Decimal, binary, hex & ASCII conversion table - http://www.prepressure.com/library/technology/asci...
- Hexadecimal - Wikipedia - http://en.wikipedia.org/wiki/Hexadecimal
- ASCII - Wikipedia - http://en.wikipedia.org/wiki/ASCII
- Ascii Table - ASCII character codes and html, octal, hex and decimal chart conversion - http://www.asciitable.com
- Binary converter - http://www.rapidtables.com/convert/number/binary-c...
- Converting Numbers into Binary for Beginners & Some fun with ASCII - YouTube - https://www.youtube.com/watch?v=huI5N02AHKM
- Binary to Text (ASCII) Conversion - http://www.roubaixinteractive.com/PlayGround/Binar...
- Convert string to binary and binary to string in C# | Fluxbytes - https://www.fluxbytes.com/csharp/convert-string-to...
- C# Binary Serialization | Serialization and Deserialization | Part 1 - YouTube - https://www.youtube.com/watch?v=WHKPcA_xvE0