BDAT 1001 Thursday Information Encoding Standards **Name**: Shubham Chawla

Assignment 1 **Student ID**: 200493036

The original code has been modified as stated below:

Task 1

Take user input for their **Full Name** as well as their **Birth Month**. User would have to enter 1 for Full Name Conversion and 2 for Birth Month conversion. The string entered (1 or 2) was converted to Int using **'int.parse'** method.

```
Console.Write("What would you like to convert? Enter '1' for name and '2' for birth month: ");
choice = Console.ReadLine();

// Converting User's Choice into int
if (int.Parse(choice) == 1)
    opt = name;
else
    opt = month;
```

Used a do while loop to encase the **Program.cs** code to allow to user to restart the program from the console itself by entering 'y'

```
do
{
    Console.WriteLine("                                    Assignment 1 BDAT 1001-01 Shubham Chawla 200493036");

    Console.Write("\nPress any key to exit or 'y' to perform another conversion: ");
    yesNo = Console.ReadLine().ToLower();

} while (yesNo.Equals("y"));
```

Task 2 – Binary Encoding and Decoding

Modifications were done to the loop structure from foreach to for. Used String Array indexing.

```
for (int i=0; i < option.Length; i++)  // Modification in the for loop
{
    string binarycollector = "";
    int number = (int)option[i];          // Used stringarray for indexing instead of character
```

Task 3 – Hexadecimal Encoding and Decoding

Modifications were done to the loop structure from foreach to for. Used String Array indexing.

```
    public string StringToHexadecimal(string option)
    {
        string hexastring = "";
        for(int i = 0; i < option.Length; i++)  //Modification
        {
            int x = (int)option[i];   //Modification
```

Task 4 – Base64 Encoding and Decoding

Ternary Operator was used instead of standard if-else ladder, which reduced the size of the code.

```
        paddingCount = (stringlength % 3) == 0 ? 0 : 3 - (stringlength % 3); // Modification - Used a Ternary Operator
        blockCount = (stringlength % 3) == 0 ? stringlength / 3 : (stringlength + paddingCount) / 3;
```

Used ternary operator again to minimize the code lines.

```
        return ((b >= 0) && (b <= 63)) ? lookupTable[(int)b] : ' '; //Modification
    }
```

Task 5 – Encryption and Decryption

Used Unicode Encoding method.

```
Console.Write("\n4. Encryption and Decryption\n");
int[] key = Encoding.Unicode.GetBytes(plaintext).Select(x => Convert.ToInt32(x)).ToArray(); //Used Unicode here
```

Output Full Name and Birth Month Conversion in continuation.

Input1: Shubham Chawla, Input2: April

User chose full name conversion in the first case by entering ‘1’ and then they entered ‘y’ to perform another conversion where they chose birth month conversion by entering ‘2’. The output is in continuation.