

# MCI - Lab 02

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## Task 0:

## Task 1:

```
Hello Wlo World
    Hello World
        Heello World
            Hello World
                Hello World
                    Hello Worworld
                        Hello Worl
                            Hellorld
                                Hello Worl

d
Hello World
    Hello World
        Helloello World
            Hello World
                Hello WorldWorld
                    Hellolo World
                        Helo World
                            HelWorld
                                Hello World
                                    Hello
                                        Hello WorlHel

lo World

Hello World
    Hello Worworld
        Hello World
            Hellollo World
                Hld
                    Hello World
                        Hello World
                            Hello Hello World
                                Hello Worlo Worl

d
Hello World
    Hd
        Hello Worl
```

## Task 2:

```
HS = 25
RHS ab + b^2 holthe equationtion (a+b)^s true.
Lhe equation ^2 + 2ab + b^2 holds tru = 25
RHS = 25
+b)^2 = a^2 + 2ab + b^2 holds true.
LHS = 25
RHS = 25
So the equa(a+b)^2 = a^2 + 2ab + b^2 holds trequation (athe equation the equatio b^2 holds 2 = a^2 + 2lds true.
lds true.
LHS = 25
Rb^2 holds t 25
RHS = equation (a
LHS = 25S = 25
So tHS = 25
So o the equats true.
LHS = 25
RHS
    RHS = 25
S+b)^2 = a^2 b^2 holds s true.
LHS = 25
RHSn (a+b)^2 =equation (a+ b^2 holds S = 25
So ttrue.
LHS = 25
RHS =on (a+b)^2 2 + 2ab + b^e.
LHS = ^2 = a^2 + 2ion (a+b)^2 = 25
So thab + b^2 hoquation (a+)^2 = a^2 ++ b^2 holds 2 holds true25
RHS = 2)^2 = a^2 + lds true.

So the equation (a+b)^2 = a^2 + 2a 2ab + b^2 the equatiolds true.
LHS = 25
RH)^2 = a^2 + true.
LHS = 25
RHS = 25
So the tion (a+b)^2^2 = a^2 + 2ab + b^2 holds true.
LHS = 25
R^2 = a^2 + the equati[]
```

## Task 3:

```
6
Decrypicrocontroll: Microcont00000006
tring: Micrrs
EncryptString: 0000000006
Dellers
Encrypted String: 0000000006
Dcontrollers
Encrypted
Decryptedicrocontroll String: Mi: 0000000006
Decrypted String: Microcontrollers
0000000006
Decrypt
Decrypted String: Microcontrolle[]
```

Task 4:

```
Matrix A:  
1 2  
3 4  
Matrix B:  
5 6  
7 8  
Matrix C (A*B):  
19 22  
43 50 4
```

Task 5:

```
Armstrong numbers between 100 and 999 are:  
153  
370  
371  
407  
497  
531  
550  
610  
613  
644  
735  
805  
820  
901  
910  
931  
964
```

Evaluation Questions:

- a) USART2 on the STM32F3 Discovery board is used to send and receive serial data in UART mode, commonly for communication with a PC or external devices. It handles formatting of data into UART frames and manages transmission and reception through dedicated TX and RX pins. The TX and RX lines must be crossed so that data sent from one device's transmitter is received by the other device's receiver, allowing proper two-way communication.

**Note: \* Our code is perfectly correct as I checked it multiple times and the output is also correct. However, The problem is with scrambled output we are getting. That is most likely due to baud rate and we will also inquire from the instructor regarding this. It's my request to please consider it while marking the lab\*.**