

Challenge Name: RUBXSCUBE

Dev: Aman Narnaware

Category: Cryptography

Level: Medium

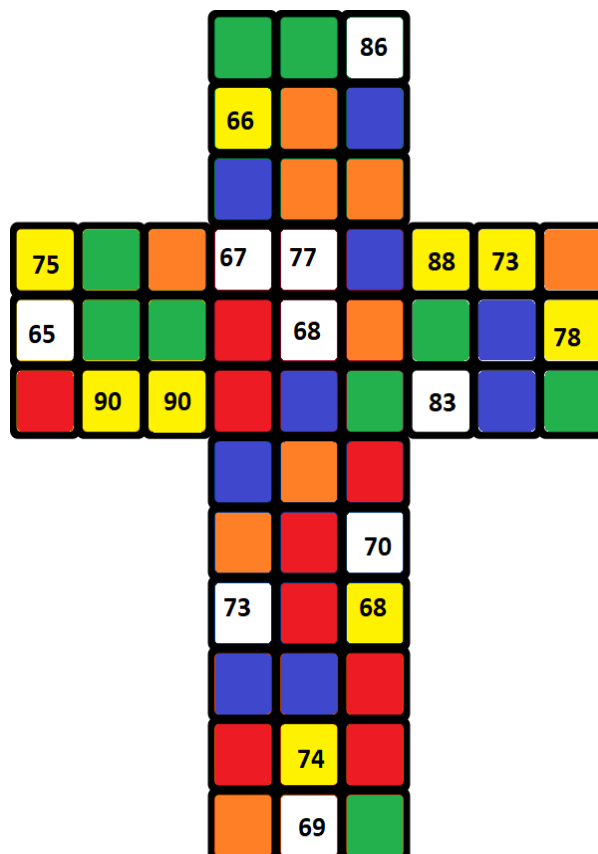
Flag format: VishwaCTF{FLAG}

Description:

My friend "Hill" is obsessed with the rubix cube. He's so obsessed that he wanted to get a world record for solving a 3x3 cube. But he's been trying to send me a message between all of his practices

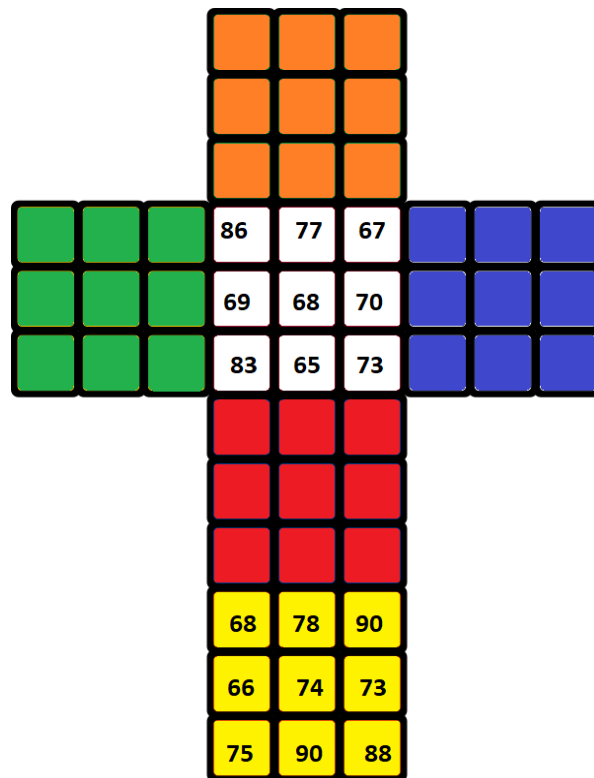
Can you find the message he wants to send?

Attached Files:



Writeup:

- 1) Open the unsolved.png to find layout of unsolved cube.
- 2) You can use any online cube solver to solve the cube, You'll get the layout like this:



- 3) From the above image you can get the following ascii number in order:

86 77 67 69 68 70 83 65 73 68 78 90 66 74 73 75 90 88

- 4) Convert the ascii to plain text you get:

VMCEDFSAIDNZBJIKZX

- 5) In the challenge description there is a hint given about "Hill". [Hill Cipher](#)

- 6) We can also get the key used to solve the cipher from the challenge name itself !

RUBXSCUBE

7) Converting it to 3x3 matrix:

R	U	B		17	20	1
X	S	C	=	23	18	2
U	B	E		20	1	4

8) We can use [dcode](#) to solve the cipher using the above key:

Search for a tool

★ SEARCH A TOOL ON dCODE BY KEYWORDS:
e.g. type 'sudoku'

★ BROWSE THE FULL dCODE TOOLS' LIST

Results

VMCEDFSAIDNZBJIKZX

17	20	1
23	18	2
20	1	4

abc =ABCDEFGHIJKLMNOPQRSTUVWXYZ

WORLDRECORDSPEEDDD

Hill Cipher - [dCode](#)

Tag(s) : Poly-Alphabetic Cipher

HILL CIPHER

Cryptography > Poly-Alphabetic Cipher > Hill Cipher

HILL DECODER

★ HILL CIPHERTEXT (?)

VMCEDFSAIDNZBJIKZX

☐ TRY/BRUTEFORCE ALL 2x2 MATRIX (VALUES < 10 + LATIN ALPHABET) (?)

☒ I KNOW THE NxN MATRIX NUMBERS/VALUES

17	20	1
23	18	2
20	1	4

↑ 3 × ↔ 3 RESIZE

EMPTY

FILL WITH 0

☒ ALPHABET (26 LET. A=0) ABCDEFGHIJKLMNOPQRSTUVWXYZ

☐ ALPHABET (26 LET. A=1) ZABCDEFGHIJKLMNOPQRSTUVWXYZ

☐ ALPHABET (27 CHAR. A=0) ABCDEFGHIJKLMNOPQRSTUVWXYZ_

You get output:

WORLDRECORDSPEEDDD

9) Use the mentioned flag format.

Flag:

VishwaCTF{WORLDRECORDSPEEDDD}