

Cubic Conundrum

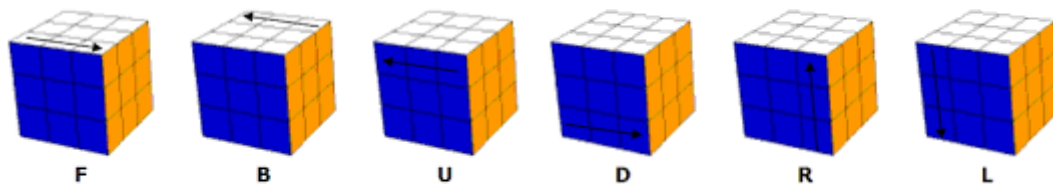


First, a primer on rubik's cube language:

For this challenge, the side with blue in the centre is the front, and white is the top.

There are 6 main moves that can be performed:

F	Rotate front clockwise
R	Rotate right side clockwise
U	Rotate top clockwise
L	Rotate left side clockwise
D	Rotate bottom clockwise
B	Rotate back clockwise



A ' symbol indicates to perform the move counterclockwise, and a 2 indicates to perform it twice.

Plaintext data is encoded in base 4, with the top left of the blue side representing the most significant digit and the bottom right the least significant digit. Using this scheme, one cube represents two characters.

1	2	3
4	Blue centre	5
6	7	8

First character Second character

The colours in these squares represent the following digits:

white-0	orange-1
yellow-2	red-3

My friend and I already generated a shared key for encryption which he says I can get the decryption key from, but now I have to figure out how to decrypt the data and get his message.

Encryption key: R' D U' L U2

Ciphertext (each line tells how to get from a solved cube to the encrypted data of one cube):

D2 F2 D' F2 D L2 U' L2 U2 F U2 R' D B' L2 D F2 R2 U L2
R2 L2 U L2 F2 U F2 D' R2 D2 F' U' R' U R U' R' L U' L'
D' B2 D2 L2 B2 D U B2 R' F' D B' R D U2 F L2 B' U B'
B2 D2 U' F2 L2 D' L2 F U R' F D' U2 R D2 U L B' D L'
D2 R2 U' L2 U2 L2 U2 B2 L' D F' B2 D L U F2 U2 B' L F'

Make sure to wrap your flag in magpie{ }.