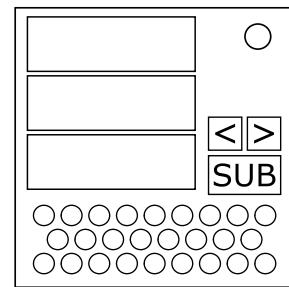


## On the Subject of The Off White Cipher

"Faze Banks Supreme Off-White Hoodie NFT Selling for 50.23 Ethereum"

Each of the three displays displays a message.

Take the encrypted word on the top screen and follow the mechanics down below:



### Step 1: Composite Spinning/Jumping Leapfrog Orphanage Cipher

For this step an orphanage must be opened. The orphanage consists of a  $5 \times 5$  grid. Initially the orphanage starts off as the uninteresting grid featured below.

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	Y	Z

Take the 4 letters on the middle screen. These are your orphans. They will enhance and modify the orphanage according to their personalities. Each letter is the first name of an orphan.

For each orphan in order, find its shape in the below tables. Rotate this shape 180 degrees about its center to translate the shaded cells to new positions.

Annie	Bartholomew James Quimshire	Crusty McGoblin	Denzel	Evanie
Fletcher	Gunther	Hilbert	Isma	Jub-Jub
Kontraction	Ljubljana	Mustard	Nicholas	Orphanicus
Pleasant Park	Queen Elizabeth II	Rhojus	Sal Vulcano	Tariq
Undertale	Victoria	Wankel	X A A-12	Yonkers
Zzz_W33DM4St3R44_zzZ				

After performing 4 rotations, the resulting grid is the used orphanage.

Split the encrypted word into pairs.

For each pair, find both letters in the orphanage. Make Letter 1 jump directly over Letter 2 on the Orphanage such that the path taken by Letter 1 has it's midpoint located at Letter 2. Then make Letter 2 jump over Letter 1 in the same way. Wrap around the orphanage if needed (all orphanages are torodial).

The two positions that each letter lands on are the decrypted positions.

### Example

Orphans: LVQX

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	Y	Z

L→

A	B	C	Q	E
F	N	H	I	J
K	L	M	G	O
P	D	R	S	T
U	V	W	Y	Z

V→

Z	B	C	Q	E
F	N	H	I	J
K	L	M	G	O
P	D	R	S	T
U	V	W	Y	A

Q→

Z	B	C	Q	E
Y	N	H	I	J
S	L	M	P	O
G	D	R	K	T
U	V	W	F	A

X→

Z	B	C	Q	E
Y	K	H	D	J
S	L	M	P	O
G	I	R	N	T
U	V	W	F	A

Encrypted word: KEVAFK

Pair 1:

K jumped over E = W  
E jumped over W = G

Pair 2:

V jumped over A = W  
A jumped over W = U

Pair 3:

F jumped over K = T  
K jumped over T = C

New Encrypted Word: WGWUTC

Z	B	C	Q	E
Y	K	H	D	J
S	L	M	P	O
G	I	R	N	T
U	V	W	F	A

Z	B	C	Q	E
Y	K	H	D	J
S	L	M	P	O
G	I	R	N	T
U	V	W	F	A

### Step 2: McDonald's™ Chicken Nugget Big Mac Cipher

- You're currently working at McDonald's™ and you can only sell Chicken Nuggets and Big Macs. A box of Chicken Nuggets costs 31£. A Big Mac costs 41£.
- Take your encrypted word and the 3 digits on the bottom screen. These 3 digits are the order number.
- Split your encrypted word into 3 pairs. Each of these three pairs corresponds to an order at McDonald's™, dictating the money paid.
- For each pair, convert the letters into their alphabetical positions. **If any letter is Z, its value is 0 here.** Add together the order number times 676, the first letter times 26, and the second letter (times 1).
- Repeat with the second digit and second order, and third digit with third order.
- These are the 3 amounts paid for each order. With this information, it is possible to deduce the items ordered for each order.
- For each amount paid, there are two corresponding letters. The first is the number of Chicken Nuggets ordered, converted to A1Z26. The second is the number of Big Macs ordered, converted to A1Z26. These numbers correspond to the decrypted letters for this pair.

**Tip:** you can determine the number of Chicken Nuggets ordered by multiplying the amount paid by 4, then moduloing by 41. The number of Big Macs can be deduced with this value.

Example

Encrypted Word: WGWUTC

Order Number: 010

$$W * 26 + G + 0 * 676 = 605 \text{ E}$$

$$W * 26 + U + 1 * 676 = 619 \text{ E}$$

$$T * 26 + C + 0 * 676 = 523 \text{ E}$$

$$(605 * 4) \% 41 = A$$

$$(605 - A * 31) / 41 = N$$

$$(619 * 4) \% 41 = N$$

$$(619 - N * 31) / 41 = U$$

$$(523 * 4) \% 41 = A$$

$$(523 - A * 31) / 41 = L$$

Decrypted Word: ANNUAL

Step 3: NFT-generating Money Laundering Cipher

The word will be already decrypted after the McDonald's™ Cipher. Great! However, we can't sell words on the black market to gain Ethereum.

An NFT consisting of a  $6 \times 6$  Bitmap must be generated from this word.

Follow the rules below to generate a string of digits from the word.

- Two sequences will be made.
  - The first is 6 digits long and consists of each letter in the decrypted word replaced by its alphabetic position modulo 10, leading zeros NOT removed.
  - The second is made by the product of all the alphabetic positions of the decrypted word, leading zeros ARE removed.
- Start with a copy of the first sequence and append a copy of the second sequence until the sequence is at least 12 digits long.
- This is the Generating sequence. Destroy the other two sequences now; they are classified.

- Reference the first three digits of the Generating sequence in the below table to get three colors.
- The letter in the table corresponds to one of black, Red, Green, Blue, White, Cyan, Magenta, or Yellow.

Digit	0	1	2	3	4	5	6	7	8	9
COLOR 1	K	R	G	B	W	C	M	Y	R	C
COLOR 2	M	K	R	G	B	W	C	M	Y	G
COLOR 3	B	Y	K	R	G	B	W	C	M	Y

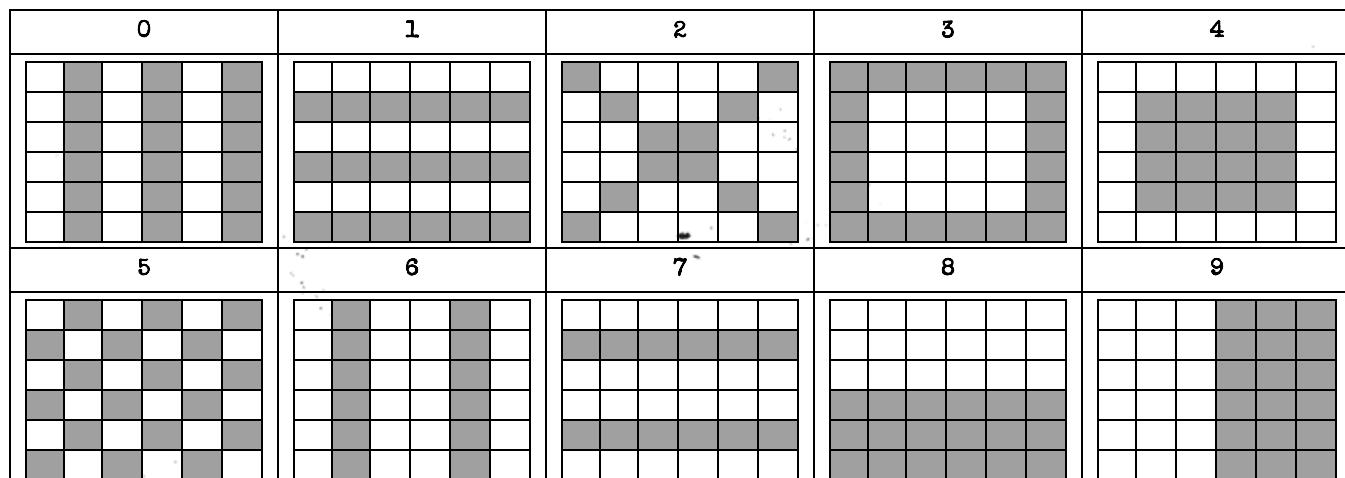
Next, take digits 4-11 of the Generating sequence and add or subtract 6 from them until they are in the range 1-6.

Split these eight digits into four pairs. Each of these pairs represents a coordinate in a  $6 \times 6$  grid, with the first in the pair being the column from left to right, and the second being the row from top to bottom.

You are now ready to begin creating the NFT that will cause your wife to leave you.

Follow these rules in this order:

- Fill the entire  $6 \times 6$  grid with COLOR 1.
- Draw the rectangle whose opposite corners are COORDINATE 1 and COORDINATE 2 and color it with COLOR 2.
- Draw the rectangle whose opposite corners are COORDINATE 3 and COORDINATE 4 and color it with COLOR 3. This may paint over the first rectangle.
- Using the twelfth digit of the Generating sequence, invert the RGB values of all squares that are highlighted in digit 12's corresponding grid:



Use the table below to invert a Color's RGB Values.

<b>Normal</b>	K	R	G	B	W	C	M	Y
<b>Inverted</b>	W	C	M	Y	K	R	G	B

Press the submit button (initially labelled with a 'l') to enter submission mode. Input the NFT and press submit once more. Upon a correct submission, the module will solve.

Please do this correctly; my ethereum is at stake.

### Example

Decrypted Word: ANNUAL

First Sequence: 144112

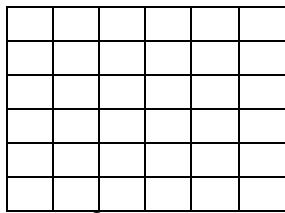
Second Sequence: 49392

14411249392 is not long enough.

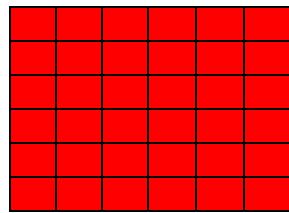
1441124939249392 is long enough!

144 → RBG

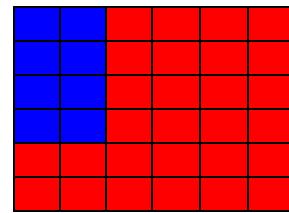
11249392 → 11243332 → (1,1) (2,4) (3,3) (3,2)



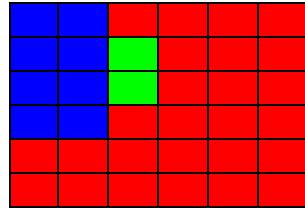
Fill  
Grid→



Rectangle  
1→



Rectangle  
2→



Modify according to  
digit 12→

