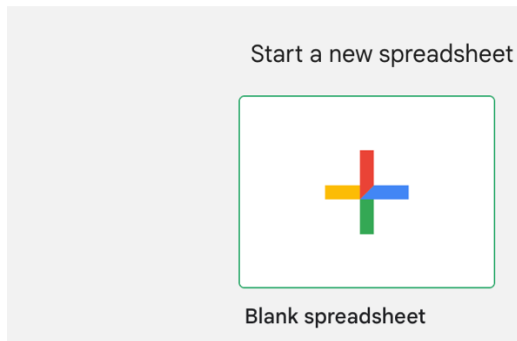


## ENR145 Google sheets cheat sheet for Hamming

Step 1: start a new spreadsheet



Step 2: fill 11 binary number into cells



	A
1	1
2	0
3	1
4	0
5	1
6	1
7	1
8	1
9	1
10	0
11	0

This will be your input data

Step 3: Find a 4x4 spot, create your extended hamming code

	A	B	C	D	E	F	G	H	I	J
1	1									
2	0									
3	1									
4	0									
5	1									
6	1									
7	1									
8	1									
9	1									
10	0									
11	0									
12										

1. DoubleClick any cell (I7 in this case)  
 2. Type "="  
 3. Then left click the cell (A1 in this case), press "Enter"  
 4. ... and assign A1's value over there

This is the spot I picked for my 4x4.

	A	B	C	D	E	F	G	H	I	J
1	1									
2	0									
3	1									
4	0									
5	1									
6	1									
7	1									
8	1									
9	1									
10	0									
11	0									
12										

Magic!

Step 4: figure out how to do Boolean operation in spread sheet

=XOR(	
XOR([logical_expression1,	
[logical_expression2, ...])	

XOR is XOR

A	B	A XOR B
1		

? =xor(E17,F17)

A	B	A XOR B
1	1	FALSE

Instead of 0 and 1, you will get FALSE and True

A	B	A XOR B	A AND B
1	1	FALSE	<code>=AND(E17,F17)</code>

AND is AND

A	B	A XOR B	A AND B
1	1	FALSE	TRUE

Instead of 0 and 1, you will get FALSE and True

But you can turn Boolean into 0 and 1 with the following trick: \*1

A XOR B	A AND B	Turn FALSE to 0	Turn FALSE to 0
FALSE	TRUE	<code>=G17*1</code>	0

A AND B	Turn FALSE to 0	Turn TRUE to 1	Turn TRUE to 1
TRUE		<code>=H17*1</code>	1

For more detailed support, check:

[https://support.google.com/docs/topic/9054603?hl=en&ref\\_topic=1382883&sjid=16522112893785578103-NC](https://support.google.com/docs/topic/9054603?hl=en&ref_topic=1382883&sjid=16522112893785578103-NC)