Baconian

March 14

Baconian Ciphers

- Binary (1s and 0s)
- Characters are grouped into five
- Good to memorize binary symbols
- Usually take a lot of time

Introduction to Binary

Values cannot surpass 2

000000 = 0

000001 = 1

000010 = 2

Introduction to Binary Cont.

```
Landmark
values;

00001 = 1

00010 = 2

00100 = 4

01000 = 8

10000 = 16
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← Can you see the pattern

Binary Pattern

There are 2 possible values for each number - 1 and 0

$$2^4 \quad 2^3 \quad 2^2 \quad 2^1 \quad 2^0$$

16 8 4 2 1

So for whatever value you have a 1, you add up the value of that place

For example; 10001 = 16 + 1 = 17

00110 = 4 + 2 = 6

Practice Converting Binary

11000

10101

00001

00101

10010

00100

00000

10001

11111

11101

Baconian Chart

Letter	A	B	C	D	E	F	G	H	I	J	K	L	M
Code	aaaaa	aaaab	aaaba	aaabb	aabaa	aabab	aabba	aabbb	abaaa	abaaa	abaab	ababa	ababb
Binary	00000	00001	00010	00011	00100	00101	00110	00111	01000	01000	01001	01010	01011

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
abbaa	abbab	abbba	abbbb	baaaa	baaab	baaba	baabb	baabb	babaa	babab	babba	babbb
01100	01101	01110	01111	10000	10001	10010	10011	10011	10100	10101	10110	10111

I/J and U/V represent the same number… how does that affect our calculations???

Adjusting for 24 letter Baconian

A - I/J (0-8)	Normal
K - U/V (9-19)	Result + 1
W - Z (20-23)	Result + 2

Practice (Write down the Letter);

10101	01000
10001	01010
00100	01110
00101	10111
01011	10010
00111	00000

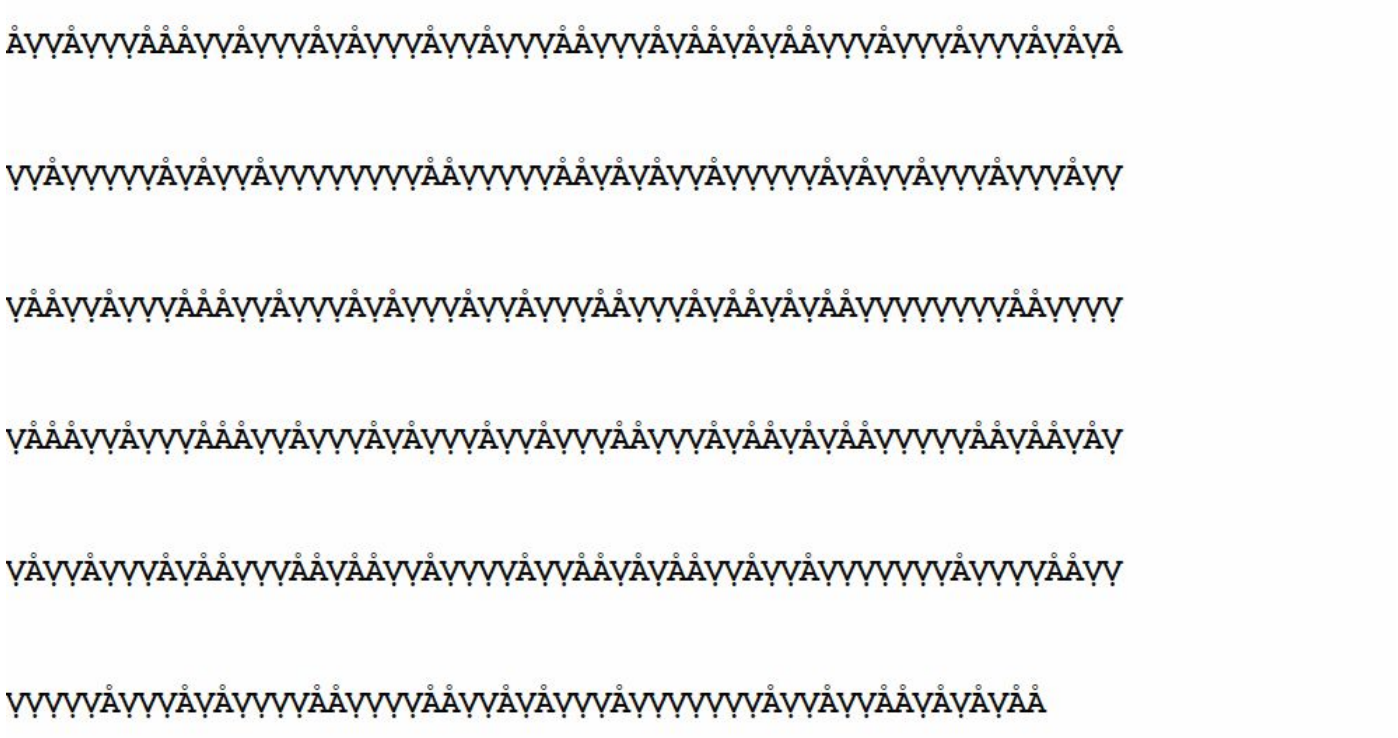
Baconian Practice Answers

Practice (Write down the Letter);

10101	X	01000	I/J
10001	S	01010	L
00100	E	01110	P
00101	F	10111	Z
01011	M	10010	T
00111	H	00000	A

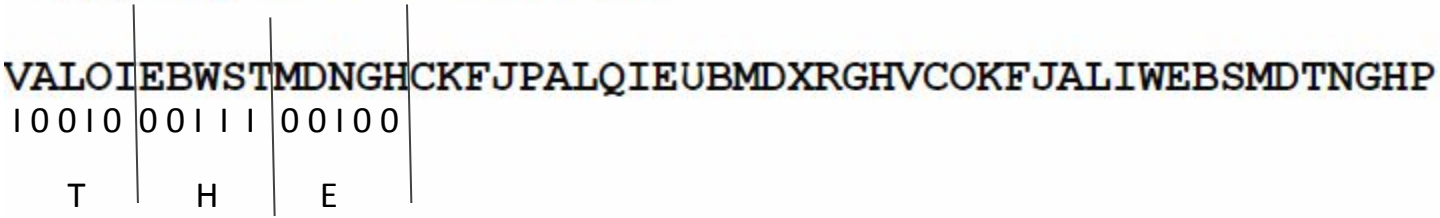
Example - Random Characters

3) **[100 points]** The following symbols hide a quote attributed to RSD which has been encoded as a Baconian Cipher.



Example - Half/Half of Alphabet

9) **[0 points]** Solve this Baconian cipher.



More Baconian Information

- Can take many forms
  - Letters (Even/Odd, Prime/Composite, certain letters, etc)
  - Symbols
  - Numbers (Even/Odd, Prime/Composite, etc.
  - A/B
- Tips
  - Try out combinations until one makes sense
    - One quick way to do this is to check the first two letters of the five character text. The first two letters cannot be BB or 11
    - Since, in a 24 letter Baconian cipher Z = 10111, you'll never have a cipher that has a five character sequence that starts with 11

***Go back to first example (Slide 19)