Problem of the Week
Problem A
Secret Message

Alicia and Bao want to send messages to each other without other people being able to read them. They set up a code that uses just 0s and 1s in the message. To decode the message it takes two steps:

1. Read the message, 4 digits at a time. Then look up each 4-digit code in the tables below and replace it with the given lowercase letter.

Code	0000	0001	0010	0011	0100	0101	0110	0111
Letter	a	b	c	d	e	f	g	h

Code	1000	1001	1010	1011	1100	1101	1110	1111
Letter	i	j	k	l	m	n	o	p

2. Read the new message, two consecutive letters at a time. Then look up each pair of lowercase letters in the tables below and replace them with the given uppercase letter. The word formed by these uppercase letters is the secret message.

Lowercase Letters	eb	ec	ed	ee	ef	eg	eh	ei	ij	ek	el	em	en
Uppercase Letter	A	B	C	D	E	F	G	H	I	J	K	L	M

Lowercase Letters	eo	ep	fa	fb	fc	fd	fe	ff	fg	fh	fi	fj	fk
Uppercase Letter	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

For example, if Alicia sent the code 0100111101001011, after the first step the message becomes epel, and after the second step Bao knows the message is OK.

Decode the following message:

0101001001000101010100110101000001000101010000110101010 0

Try writing and sending secret messages of your own.

Theme: Computational Thinking