



2017 acmicpc

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PRACTICE



C

Snowden

Time Limit

2 seconds

Memory Limit

64 MB

Edward Joseph Snowden is an American computer specialist who worked for the CIA and the NSA and leaked details of several top-secret United States and British government mass surveillance programs to the press. On June 14, 2013, United States federal prosecutors charged Snowden with espionage and theft of government property. Snowden had left the United States prior to the publication of his disclosures, first to Hong Kong and then to Russia, where he received temporary asylum and now resides in an undisclosed location. Snowden has defended his leaks as an effort *"to inform the public as to that which is done in their name and that which is done against them."* Some U.S. officials condemned his actions as having done "grave damage" to the U.S. intelligence capabilities while others, such as former president Jimmy Carter, have applauded his actions. Meanwhile, the media disclosures have renewed debates both inside and outside the United States over mass surveillance, government secrecy, and the balance between national security and information privacy. (http://en.wikipedia.org/wiki/Edward_Snowden)

On September 8, 2013, the chief executive organizer of ACM ICPC Thailand 2013 receives a ton of encoded document start with "GRAY" and follows by sequence of '0' and '1'. He know that "GRAY" is a cue to decode the document. So he asks you to interpret the sequence from Gray Code to Binary Code. He also tell you how to convert Binary Code X to Gray Code Y

$$Y[i] = \begin{cases} X[0] & i = 0 \\ X[i] \oplus X[i-1] & i > 0 \end{cases}$$



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INPUT

First line of input is a number of test cases $T \leq 100$. Each test case has one line of string of '0' and '1'. The length of string will not exceed 200 characters.

OUTPUT

For each test case, display one line of Binary string.

EXAMPLE

Input	Output
24	000
000	001
001	010
011	011
010	100
110	101
111	110
101	111
100	0000
0000	0001
0001	0010
0011	0011
0010	0100
0110	0101
0111	0110
0101	0111
0100	1000
1100	1001
1101	1010
1111	1011
1110	1100
1010	1101
1011	1110
1001	1111
1000	