Problem G – GATA-CAT

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A DNA sequence is a molecular chain composed of the four nucleobases: cytosine (C), guanine (G), adenine (A), and thymine (T). Those letters can be used to encode a genetic sequence as text.

Previously, we hypothesized that felines owe their traits to what we call their *CAT degree*. It's the number of times that their genetic sequence contains the nucleobases C-A-T in that order, ignoring other nucleobases between them. For instance, the sequences "`GACT`", "`GCAT`", and "`CCGAAGT`" have CAT degrees 0, 1, and 4, respectively.

It turns out that was only half the picture. Researchers from Latin America were surprised to find healthy cats with below-average CAT degrees. Upon further study, they determined that there is a second factor regulating feline traits, now known as *GATA degree*. Similar to CAT degree, it's the number of times that a genetic sequence contains the nucleobases G-A-T-A in that order, ignoring other nucleobases between them.

Today you'll be crafting fresh DNA sequences in the lab. We will ask you for short genetic sequences (at most 500 nucleobases) having specific GATA and CAT degrees. Please write a program to assist in our research.

Input

The first line contains an integer Q ($1 \leq Q \leq 1000$) indicating the number of sequences that must be crafted.

Each of the next Q lines contains two integers G and C ($0 \leq G, C \leq 10^6$), representing respectively the required GATA and CAT degrees.

Output

For each request in the input, output a line with a non-empty string of at most 500 uppercase letters "`C`", "`G`", "`A`", or "`T`", having the specified GATA and CAT degrees.

It can be proven that a valid answer exists under the given constraints. If there are multiple solutions, output any of them; there is no need to minimize the length of the strings.

Sample Input 1

```
4
1 1
2 3
18 1
2 1
```

Sample Output 1

```
CGATA
ATGGCATATC
GGAAATTTCAT
GATACAT
```

Sample Input 2

```
5
1 0
0 1
1 1
0 0
0 0
```

Sample Output 2

```
GATA
CAT
CGATA
T
TTTTTTTTTTT
```