10866   Magic Bitstrings

A bitstring, whose length is one less than a prime, might be **magic**. 1001 is one such string. In order to see the **magic** in the string let us append a non-bit x to it, regard the new *thingy* as a cyclic string, and make this square matrix of bits

each bit	1001
every 2nd bit	0110
every 3rd bit	0110
every 4th bit	1001

This matrix has the same number of rows as the length of the original bitstring. The m-th row of the matrix has every m-th bit of the original string starting with the m-th bit. Because the enlarged *thingy* has prime length, the appended x never gets used.

If each row of the matrix is either the original bitstring or its complement, the original bitstring is **magic**.

Input

Each line of input (except last) contains a prime number $p \leq 100000$. The last line contains '0' and this line should not be processed.

Output

For each prime number from the input produce one line of output containing the lexicographically smallest, non-constant **magic** bitstring of length $p-1$, if such a string exists, otherwise output 'Impossible'.

Sample Input

```
5
3
17
47
2
79
0
```

Sample Output

```
0110
01
0010111001110100
0000100001101010001101100100111010100111101111
```

Impossible
001001100001011010000001001111001110101010100011000011011111101001011110011011