Decimal to Binary
Problem ID: a07p06decimaltobinary

Write a Python function, `decimal_to_binary(decimal)`, that takes as input an integer and returns a string with its binary representation.

How do we get a binary string from an integer? The easiest method uses integer division by 2 on successive quotients and then collects the remainders. It is best illustrated by an example. Consider the integer 156:

- 156 divided by 2 gives the quotient 78 and remainder 0.

- 78 divided by 2 gives the quotient 39 and remainder 0.

- 39 divided by 2 gives the quotient 19 and remainder 1.

- 19 divided by 2 gives the quotient 9 and remainder 1.

- 9 divided by 2 gives the quotient 4 and remainder 1.

- 4 divided by 2 gives the quotient 2 and remainder 0.

- 2 divided by 2 gives the quotient 1 and remainder 0.

- 1 divided by 2 gives the quotient 0 and remainder 1.

Stop when reaching a quotient of 0. The binary equivalent is given by concatenating the remainders, in reverse order, so the last remainder is the most significant bit and the first is the least. In this example: 10011100.

You should implement the above algorithm using a loop and string methods.

Note that we are testing your code differently in this task, please only submit your function definitions, without any code outside the functions! The main python file, which handles input and output, is already provided. You can download and place the main file in the same directory as your python file. You can then run the main python file we provide to try out the samples.

Input

The input consists of one integer d, where $1 \leq d \leq 1\,000\,000$.

Output

The output should consist of one string, the binary representation of d.

Sample Input 1	Sample Output 1
8	1000

Sample Input 2	Sample Output 2
123	1111011

Sample Input 3	Sample Output 3
0	0