
Up and down

X57029_en

Assume a two-dimensional world. A fly is initially at position $(0,0)$, and it will make n unitary movements to the right, never going underground. At each step, it will either stay at the same height, go up one unit, or go down one unit. Generate all possible paths of the fly.

For instance, this is a possible path for $n = 11$:

To encode paths, use 'u' for going up, 'd' for going down, and 'h' for moving horizontally. The previous path is encoded "uududhdhuud".

Input

Input consists of an n between 1 and 11.

Output

Print all possible paths in alphabetical order.

Sample input 1

1

Sample output 1

h
u

Sample input 2

3

Sample output 2

hhh
hhu
hud
huh
huu
udh
udu
uhd
uuh
uhu
uud
uuh
uuu

Problem information

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