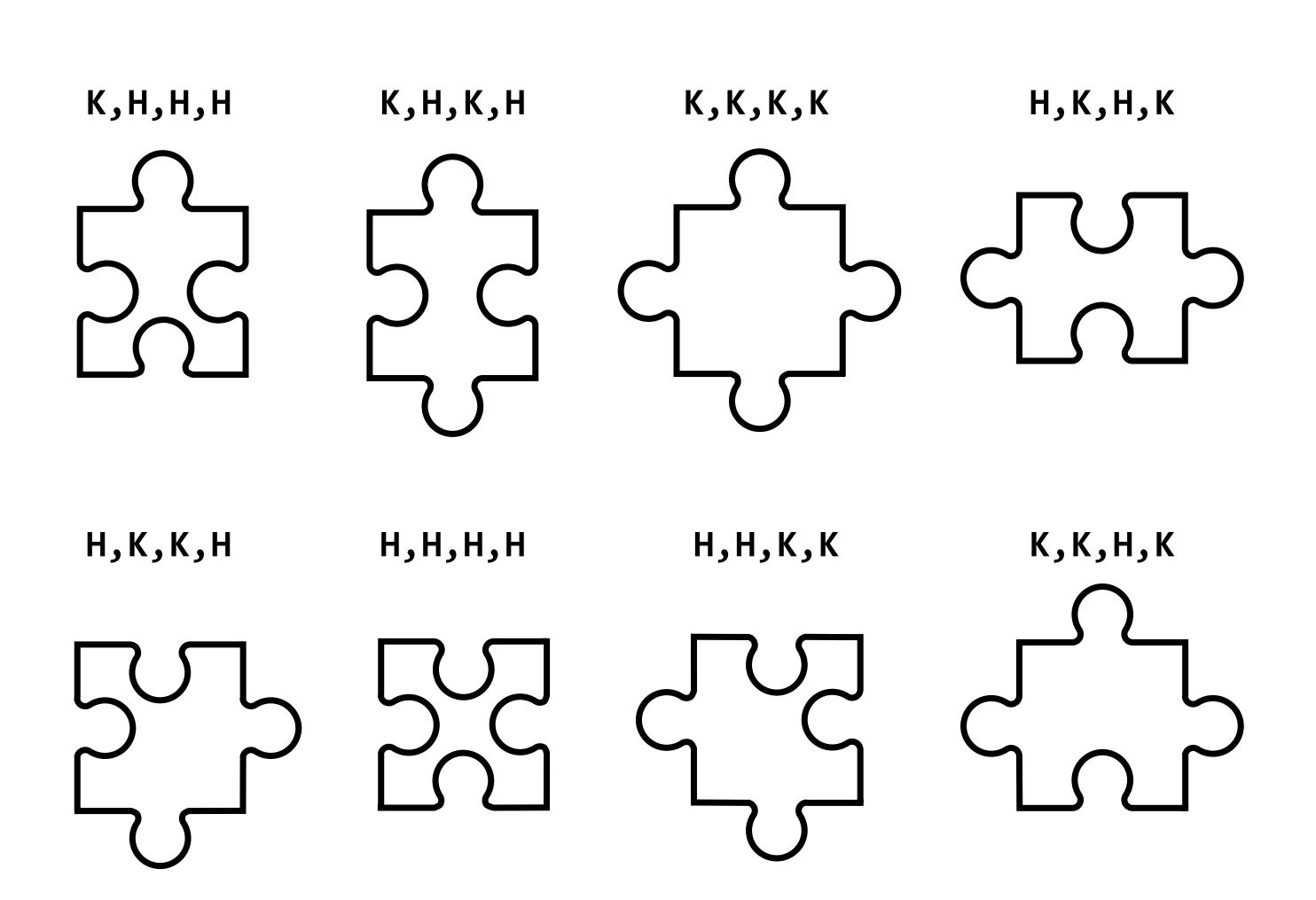


- Each piece is described by 4 characters.
- Each character describes one side of the piece.
- 'K' represents a knob,'H' represents a hole.
- The 4 characters that describe piece are given in this order: top, right, bottom, left.



Input

Name	Description	Example
N	An integer representing the number of pieces.	7 H,H,H,K K,H,K,K H,H,K,K H,K,H,K K,H,K K,H,H
Piece (repeated N times)	Each side of the piece is represented by a character. 'H' represents a hole. 'K' represents a knob.	

Output

Name	Description	Example
Piece Type Count (repeated up to N times)	An integer describing how often the piece type occurred, followed by 4 characters describing the piece type. The order of lines does not matter.	2 H,H,H,K 1 K,H,K,H 1 H,K,H,K 1 H,K,H,K 1 K,H,H,K 1 K,K,H,H





