**PROBLEM**: Given a rectangular puzzle board and 10 puzzle pieces, determine which pieces will fill the puzzle grid. Pieces are shaped as either a rectangle or the letter “L.”

Use the following rules in order to fill the puzzle board:

1. Pieces must be placed in the board from large to small. If multiple pieces have the same area, use the one with the largest width first.
2. The first puzzle piece is placed in the lower left hand corner of the grid. The following pieces are placed in the leftmost cell of the bottommost row where it will fit.
3. Continue to place pieces in the grid using the rules above until the grid is filled or no more pieces will fit.

Print the pieces in the order they fit into the board; if the board cannot be completely filled, print “NONE”. Pieces cannot be rotated or flipped in any way. The largest puzzle board will be 9x9.

Rectangular pieces are described by 2-character strings, the width followed by height. The “L” pieces are described by 3-character strings: width, height of the vertical part, the width of the vertical part; the base of the “L” has a height of 1.

**INPUT:**  There will be 11 lines of input. The first line will contain the 10 puzzle pieces: 2-character or 3-character numeric strings. The remaining 10 lines will each contain 2 integers, representing the width and height, respectively, of the puzzle board. Use only rectangular pieces for the first 5 boards; the last 5 boards can use the “L” shaped puzzle pieces.

**OUTPUT**: Print the pieces used to fill the puzzle board in the order they were used. If the board can’t be filled, print NONE.

**EXAMPLES:**

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| Board is 4x6.  Pieces added in the order:  44, 32, and 12. | Board is 4x4.  Pieces added in the order:  442, 23 | Board is 7x4.  Pieces added in the order:   44, 33, and 31. |

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| **SAMPLE INPUT:**   1. 12, 22, 32, 23 43, 31, 44, 33, 443, 11 2. 7, 4 3. 6, 3 4. 3, 2 5. 3, 5 6. 2, 2 7. 4, 4 8. 3, 3 9. 5, 3 10. 6, 2 11. 8, 4 | **SAMPLE OUTPUT:**   1. 44, 33, 31 2. 43, 23 3. 22, 12 4. 33, 32 5. NONE 6. 443, 12,11 7. 32, 31 8. 43,12, 11 9. 32, 22, 12 10. 44, 443, 12, 11 |

**TEST DATA**

***Each output is a sequence of numbers. The numbers must appear in the order listed, with no extra numbers and no missing numbers; commas are optional.***

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| **TEST INPUT:**   1. 12, 41, 33, 42, 23, 31, 11, 231, 442, 21 2. 1, 3 3. 4, 3 4. 5, 6 5. 5, 5 6. 3, 3 7. 4, 4 8. 2, 6 9. 5, 4 10. 2, 3 11. 8, 4 |  | **TEST OUTPUT:**   1. 12, 11 2. 33,12, 11 3. 33, 42, 23, 41, 12, 11 4. 33, 42, 23, 12 5. 23, 12, 11 6. 442, 23 7. 23, 231, 12 8. 442, 33, 11 9. 231, 12 10. 442, 33, 23, 41, 12, 11 |