

Eight queens puzzle

The **eight queens puzzle** is the problem of placing eight [chess queens](#) on an 8×8 [chessboard](#) so that no two queens threaten each other; thus, a solution requires that no two queens share the same row, column, or diagonal.

Input

Input will contain a description of a single chess board, given as eight lines of eight characters each. Input lines will consist of only the characters '.' and '*'. The '.' character represents an empty space on the board, and the '*' character represents a queen.

Output

Print a single line of output. Print the word "valid" if the given chess board is a valid solution to the eight queens problem. Otherwise, print "invalid".

Example

Input:

```
* .....  
  * .....  
 .. * .....  
 ... * .....  
 .... * .....  
 ..... * .....  
 ..... * .....  
 ..... * .....  
 ..... * .....  
 ..... * .....
```

Output:

```
invalid
```

Input:

```
* .....  
 ..... * .....  
 ..... * .....  
 ..... * .....  
 ..... * .....  
 ..... * .....  
 ..... * .....  
 ..... * .....  
 ..... * .....
```

Output:

```
valid
```