

Problem 7—B/W Photo Copyright

Professor Plum takes a lot of panoramic black-and-white photographs and posts them on his website. He is concerned about other people posting copies of his photographs without attribution to him. He is especially concerned about people posting cropped portions of his images, so he wants a program to detect if a candidate photograph C could be generated by cropping his own photograph T. If the photograph C is found within photograph T, then the program should report the row and column indexes within T where the upper-left corner of C was found. Assume the row and column indexes start at 0.

Input Format

The input consists of two black-and-white photographs: C followed by T. The first line of the file will consist of two positive integers: h_C and w_C which are the height and width of photograph C. h_C lines follow with each line containing w_C integer values separated by single spaces. These integer values all range from 0 to 255 and represent the intensity value of pixels within the black-and-white photograph.

After the last line of photograph C, is the dimension line for photograph T containing two positive integers: h_T and w_T which are the height and width of photograph T. h_T lines follow with each line containing w_T integer values separated by single spaces.

Output Format

Two outcomes are possible with each producing a single line. If C is not found in T, then the output line should be:

Photograph C was not found in T

If C is found in T starting at say row 25 and column 10, then the output line should be:

Photograph C was found in T starting at row 25 and column 10

Note: Input Sample and Output Sample are on the next page

Input Sample

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10 15
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
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20 25
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Output Sample

Photograph C was found in T starting at row 2 and column 7