Problem 3: Clean Edges

If you finished the Problem 2, you could see that the resulting edge is not bad. However, it creates small artifacts (edge fragments) that are not really edges. These artifacts should be cleaned up. A simple way to identify and remove the artifact is by size. For example, anything smaller than 3 pixels in width and 3 pixels in height. This is what we will do.

Write a program called `Problem3.java` that reads in a black-and-white image that was generated by the solution of Problem 2 and removes all artifacts that are no larger than at most 2×2 pixels. The program should also print out the number of artifacts removed.

An artifact is a small group of white pixels that are not directly adjacent to any other white pixels, vertically, horizontally, or diagonally. Removing this artifact means setting these pixels to black. The program should load the image using the provided `ImageRW` code (see Hints and Suggestions), remove all artifacts of size 2×2 pixels or smaller, and then write the resulting image to the specified output file (using the provided `ImageRW`) code.

The program should keep track of number of artifacts removed and print this out at the end of the program.

Input

The names of the input and out image files, separated by a white-space.

Output

The program produces the specified image file and prints out to the console a single integer, representing the number of artifacts removed. The integer should be terminated by a new-line.

Sample Input	**Sample Output**
`ball_ed.png ball_fin.png`	`12`