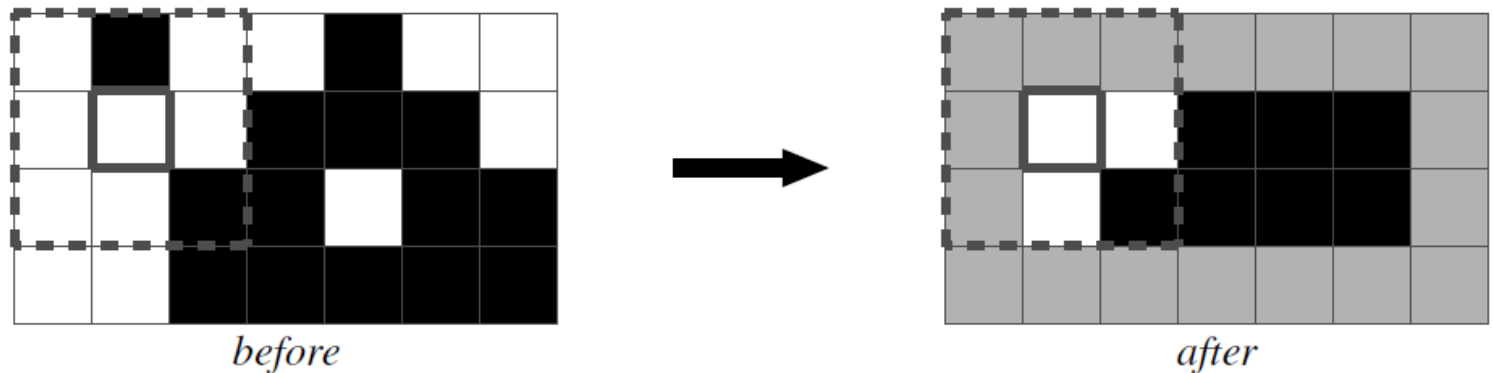# Problem C in Day 2:
Median Filter

Problem: H. Noda
Solutions: Y. Konishi and Y. Izumi
Slides: Y. Izumi

Problem in Brief

before → *after*

Note: *The colors of lightly-shaded pixels depend on outside of the region.*

f images need to be specially processed due to lack of the adjacent pixels. In this problem
images by repeating pixels on the edges as shown in the figure below. In other words
he same values as the nearest available pixels in the original images.

on the left edge

at the left-top corner
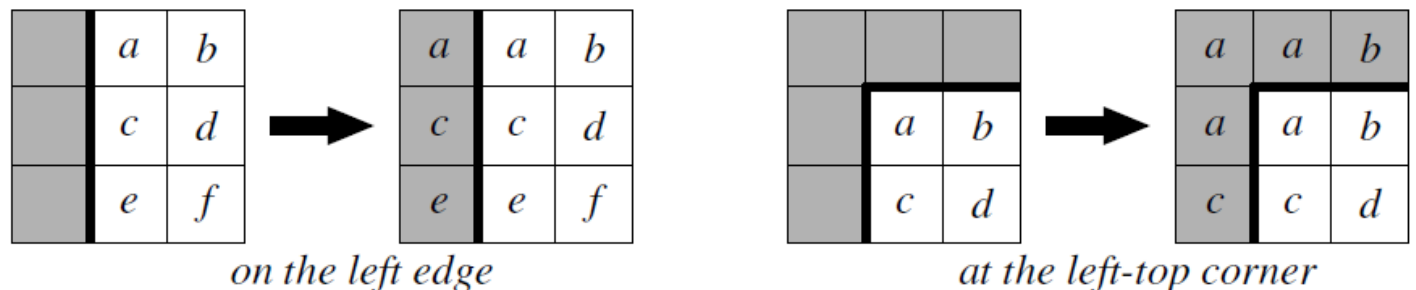
Summary

- # Submissions : 5
  - TwinTails (1), Wx (4)
- # Acceptances : 2
  - TwinTails (277 min), Wx (287 min)

How to Solve

- Determine line-by-line.
  - Each output scan line is affected only by the previous three scan lines.
- Update the following:
  - $m_i[s_{i-1}][s_i] = \min_{\{s\}} m_{i-1}[s_{i-2}][s_{i-1}]$
  - $M_i[s_{i-1}][s_i] = \max_{\{s\}} M_{i-1}[s_{i-2}][s_{i-1}]$
  - s_i = the i-th scan line
- The answer is:
  - $\max M_H[*][*] - \min m_H[*][*]$