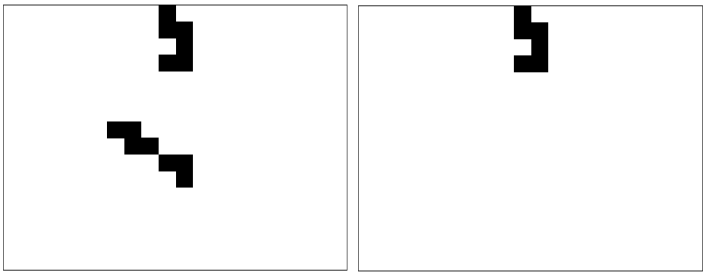
Department of Computer Science and Engineering
Indian Institute of Technology Jodhpur
CSL2020 - Data Structures and Algorithms

April 5, 2022

Lab - 11

1. In this exercise we will use DFS to replace all occurrences of 0's by 1's, which are completely surrounded by 1's from all sides in a binary image of size M × N. The idea is that we need to identify segments of 0's (connected components) for which at least one pixel is at the boundary of the image. Starting from the pixel at the boundary we need to apply DFS to find such segments. The other segments of 0's will be completely surrounded by 1's and should be replaced. Sample input (left) and output (right) images are shown below.



Your **C** program will receive input in the following format.

M N
M × N binary matrix with elements separated using empty space

Print the indices of 0's being replaced and not replaced as outputs. Also print the index (indices) of the pixel(s) with maximum depth in the segments of 0's which are connected to the boundary, where the pixel at the boundary has depth 0.