

## Q1. Write a program to find Number of Closed Islands

HARD

Given a 2D grid consists of 0s (land) and 1s (water). An island is a maximal 4-directionally connected group of 0's and a closed island is an island totally (all left, top, right, bottom) surrounded by 1's.

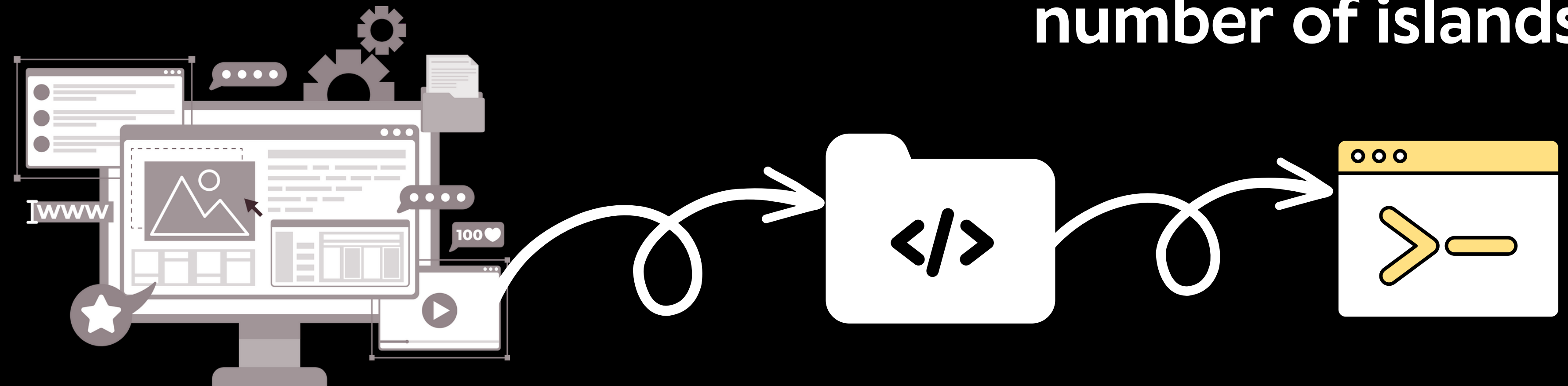
Return the number of closed islands.



# Inputs :

1. `[[0,0,1,0,0],[0,1,0,1,0],[0,1,1,1,0]]`
2. `[[1,1,1,1,1,1,1,0],[1,0,0,0,0,1,1,0],[1,0,1,0,1,1,1,0],  
[1,0,0,0,0,1,0,1],[1,1,1,1,1,1,1,0]]`

**Expected Output :**  
number of islands



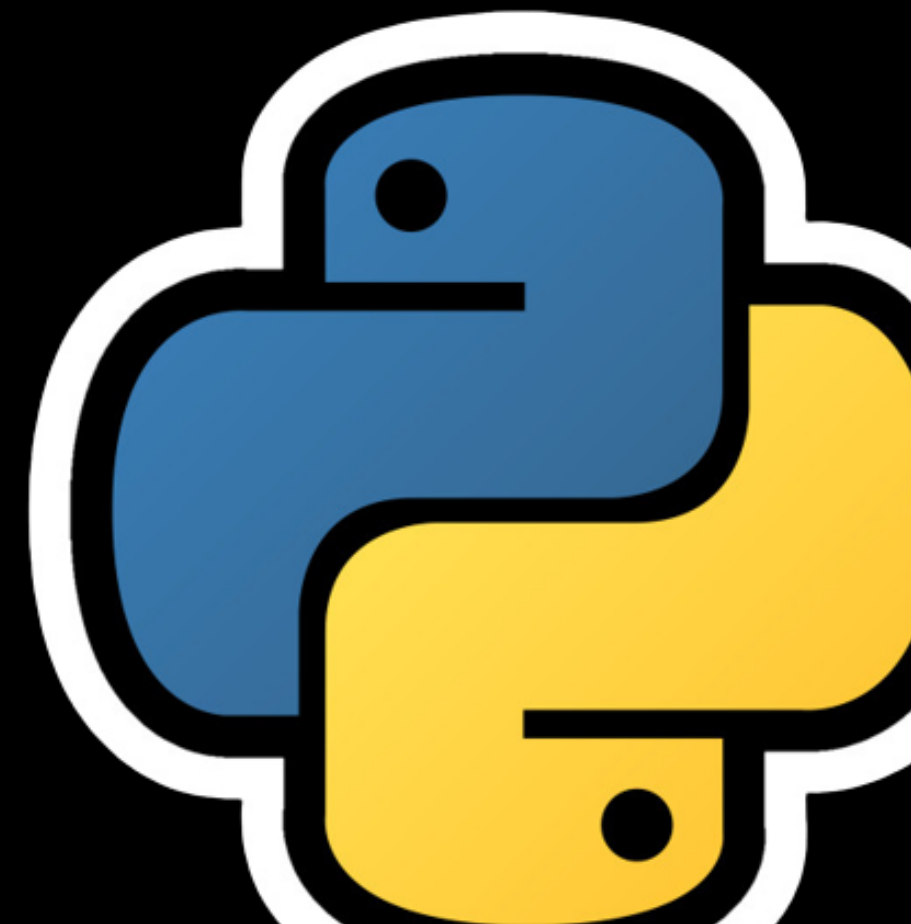
## Q2. Write a program for Regular Expression Matching

MEDIUM

Given an input string 's' and a pattern 'p', implement regular expression matching with support for '.' and '\*' where:

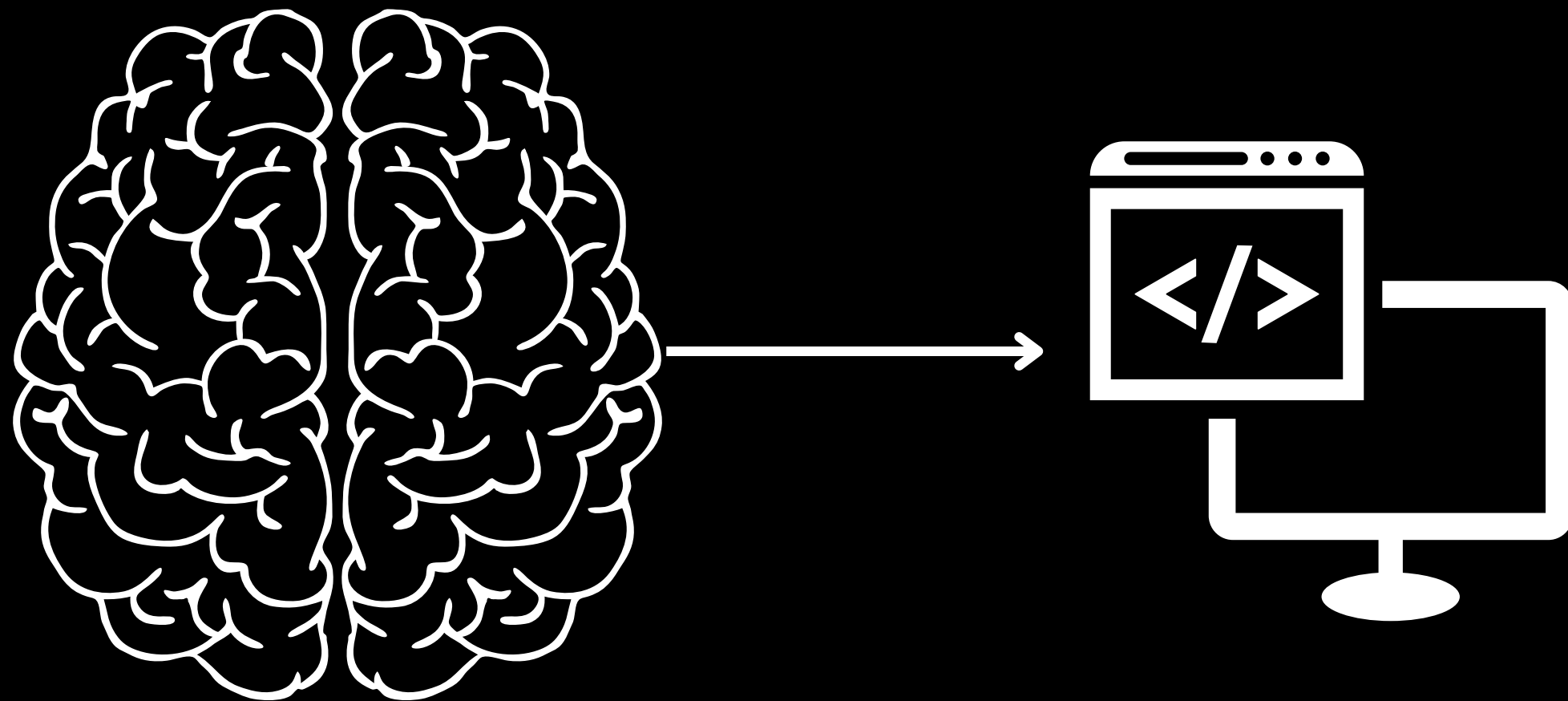
- '.' Matches any single character.
- '\*' Matches zero or more of the preceding element.

The matching should cover the entire input string (not partial).



# Inputs :

1. `s = "aa", p = "a*"`
2. `s = "ab", p = ".*"`



# Expected Output :

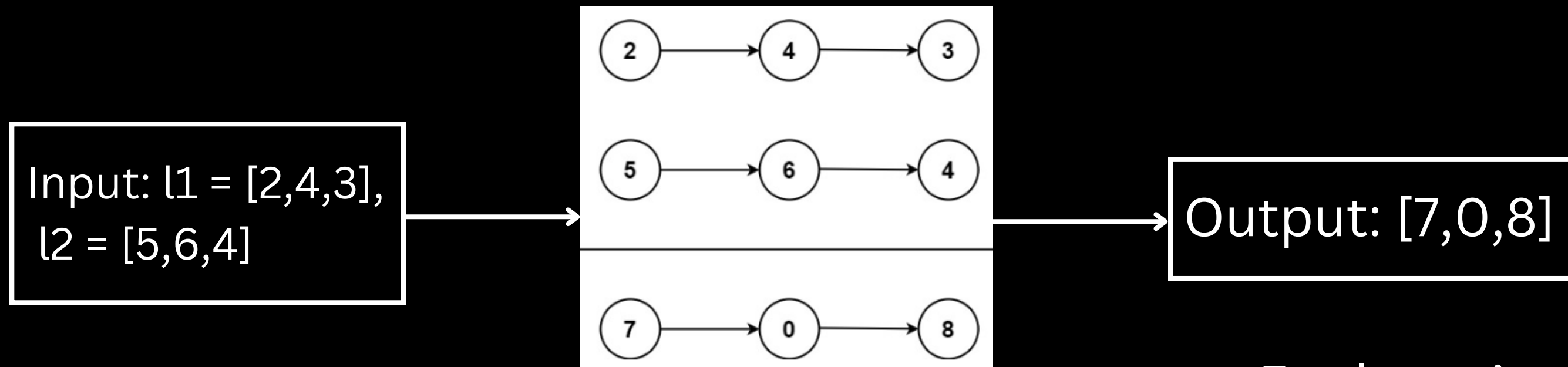
True Or False

### Q3. Write a program to Add Two Numbers

EASY

You are given two non-empty linked lists representing two non-negative integers. The digits are stored in reverse order, and each of their nodes contains a single digit. Add the two numbers and return the sum as a linked list.

You may assume the two numbers do not contain any leading zero, except the number 0 itself.



Explanation:  $342 + 465 = 807$ .

# Inputs :

1.  $l1 = [2, 4, 6]$  ,  $l2 = [3, 5, 6]$

2.  $l1 = [9, 9, 9, 9, 9, 9, 9]$  ,  $l2 = [9, 9, 9, 9]$

**Expected Output :**  
Single list as the sum

