Project 2: Test Cases

Problem 1

Note: indices of the test case matrices start from 1, not 0.

Test case 1.

1, 0, 1, 0, 0

1, 0, 1, 1, 1

1, 1, 1, 1, 0

1, 1, 0, 1, 0

Output: square size = 2, indices [2,3]; [1,3]

Test case 2.

1, 1, 1, 1, 1, 1

1, 1, 1, 1, 0, 0

1, 1, 1, 1, 1, 1

1, 1, 1, 0, 0, 0

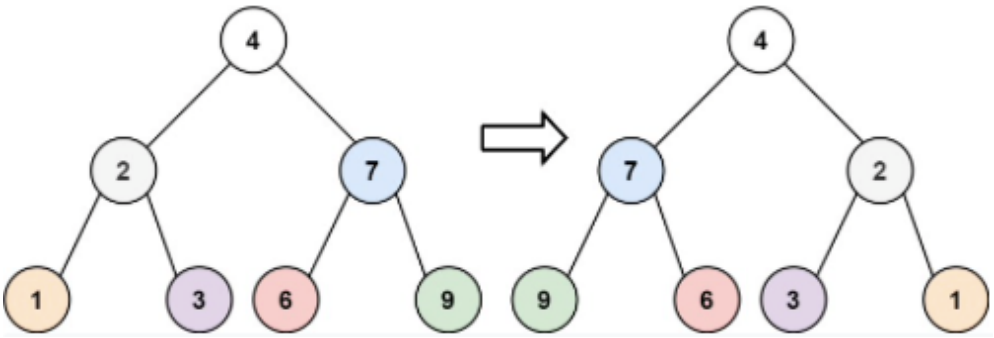
1, 0, 1, 0, 1, 1

0, 0, 1, 1, 1, 1

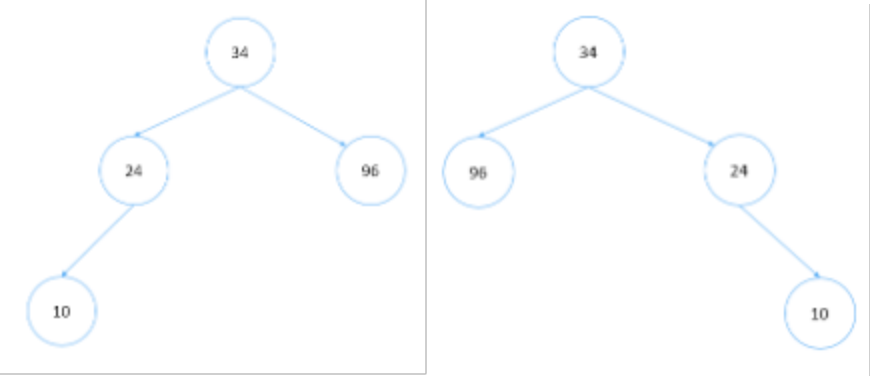
Output: square size = 3, indices [1,1]; [1,2]; [2,1]

Problem 2.a

Test case 1. Input: [4,2,7,1,3,6,9], Output: [4,7,2,9,6,3,1]



Test case 2. Input: [34,24,96,10,null,null,null], Output: [34,96,24,null,null,null,10]



Problem 2.b

Test case 1. Input tree 1: [1,2,3,4,5,6,7], Input tree 2: [1,3,2,7,6,5,4] Output: ”Mirror Image”

Test case 2. Input tree 1: [1,2,2,null,3,null,3], Input tree 2: [1,2,2,3,null,3,null] Output: ”Mirror Image”

Note: null means that there is no node in that position.

Problem 3

Test case 1.

Suppose you are planning a party and want a musician to perform, a driver to pick up guests, and a cleaning service to help clean up after the party. There are three companies that provide each of these three services, but a company can provide only one service for a customer (e.g., if Company B provides music service it cannot provide cleaning and driving services). You want to hire each company for one of the three services with the objective of minimizing the total cost of the party.

	Music service	Cleaning service	Driving service
Company A	$108	$125	$149
Company B	$150	$135	$175
Company C	$122	$148	$250

Expected output: $406 ($122 + $135 + $149)

Test case 2.

Suppose you are a manager of a delivery service where packages are delivered to various locations during a day. In the table below each row shows a driver, each column shows a delivery location, and each value in each cell shows an estimate of time (in minutes) it would take a driver to deliver a package to one of the locations. You want to minimize the total delivery time of all packages by all drivers.

	#191	#122	#173	#121	#128	#104
Driver A	22	14	120	21	4	51
Driver B	19	12	172	21	28	43
Driver C	161	122	2	50	128	39

Driver D	19	22	90	11	28	4
Driver E	1	30	113	14	28	86
Driver F	60	70	170	28	68	104

Expected output: 51 from (('A', '#128'), 4), (('B', '#122'), 12), (('C', '#173'), 2), (('D', '#104'), 4), (('E', '#191'), 1), (('F', '#121'), 28)