

## Activity - 7

Given inputs are 9-0, 3-4, 5-8, 7-2, 2-1, 5-7, 0-3, 4-2.

For solving problem we can consider an array of int ID[10].

Quick Union:-

	0	1	2	3	4	5	6	7	8	9
ID[0] = 0	0	1	2	3	4	5	6	7	8	9
For i/p 9-0 = 0	0	1	2	3	4	5	6	7	8	9
For i/p 3-4 = 0	0	1	2	4	4	5	6	7	8	9
For i/p 5-8 = 0	0	1	2	4	4	8	6	7	8	9
For i/p 7-2 = 0	0	1	2	4	4	8	6	2	8	9
For i/p 2-1 = 0	0	1	1	4	4	8	6	2	8	9
For i/p 5-7 = 0	0	1	1	4	4	8	6	2	1	9
For i/p 0-3 = 4	4	1	1	4	4	8	6	2	1	9
For i/p 4-2 = 4	4	1	1	4	4	8	6	2	1	9

Quick find :-

	0	1	2	3	4	5	6	7	8	9
ID[0] = 0	0	1	2	3	4	5	6	7	8	9
for i/p 9-0 = 0	0	1	2	3	4	5	6	7	8	9
for i/p 3-4 = 0	0	1	2	4	4	5	6	7	8	9
for i/p 5-8 = 0	0	1	2	4	4	8	6	7	8	9
for i/p 7-2 = 0	0	1	2	4	4	8	6	2	8	9
for i/p 2-1 = 0	0	1	1	4	4	8	6	2	8	9
for i/p 5-7 = 0	0	1	1	4	4	8	6	1	8	9
for i/p 0-3 = 4	4	1	1	4	4	8	6	1	8	9
for i/p 4-2 = 4	4	1	1	4	4	8	6	1	8	9

# Weighted quick union method

By solving the problem we additionally take care of length of ID away length.

0 1 2 3 4 5 6 7 8 9

IP(9-0)

ID 9 1 2 3 4 5 6 7 8 9  
size - 1 1 1 1 1 1 1 1 1 1

IP(3-4)

ID - 9 1 2 3 4 5 6 7 8 9  
size - 1 1 1 1 1 1 1 1 1 1

IP(5-8)

ID - 9 1 2 3 4 5 6 7 8 9  
size - 1 1 1 1 1 1 1 1 1 1

IP(7-2)

ID - 9 1 2 3 4 5 6 7 8 9  
size - 1 1 1 1 1 1 1 1 1 1

IP(2-1)

ID - 9 1 2 3 4 5 6 7 8 9  
size - 1 1 1 1 1 1 1 1 1 1

IP(5-7)

ID - 9 1 2 3 4 5 6 7 8 9  
size - 1 1 1 1 1 1 1 1 1 1

IP(0-3)

ID - 9 1 2 3 4 5 6 7 8 9  
size - 1 1 1 1 1 1 1 1 1 1

IP(4-2)

ID - 9 1 2 3 4 5 6 7 8 9  
size - 1 1 1 1 1 1 1 1 1 1



# Inted quick-Union with path compression:-

By solving the problem we additionally take an size array of length of ID ~~and~~ length.

	0	1	2	3	4	5	6	7	8	9
I/P (9-0)										
ID	9	1	2	3	4	5	6	7	8	9
size	1	1	1	1	1	1	1	1	1	2

I/P (8-4)										
ID	9	1	2	3	3	5	6	7	8	9
size	1	1	1	2	1	1	1	1	1	2

I/P (5-8)										
ID	9	1	2	3	3	5	6	7	5	9
size	1	1	1	2	1	2	1	1	1	2

I/P (7-2)										
ID	9	1	7	3	3	5	6	7	5	9
size	1	1	1	2	1	2	1	2	1	2

I/P (2-1)										
ID	9	7	7	3	3	5	6	7	5	9
size	1	1	1	2	1	2	1	3	1	2

I/P (5-7)										
ID	9	7	7	3	3	7	6	7	5	9
size	1	1	1	2	1	2	1	5	1	2

I/P (0-3)										
ID	9	7	7	9	3	7	6	7	5	9
size	1	1	1	2	1	2	1	5	1	4

I/P (4-2)										
ID	9	7	7	9	3	7	6	7	5	7
size	1	1	1	2	1	2	1	9	1	4