LeetCode #3160

Find the Number of Distinct Colors Among the Balls

Hash table key-value and value-key

queries

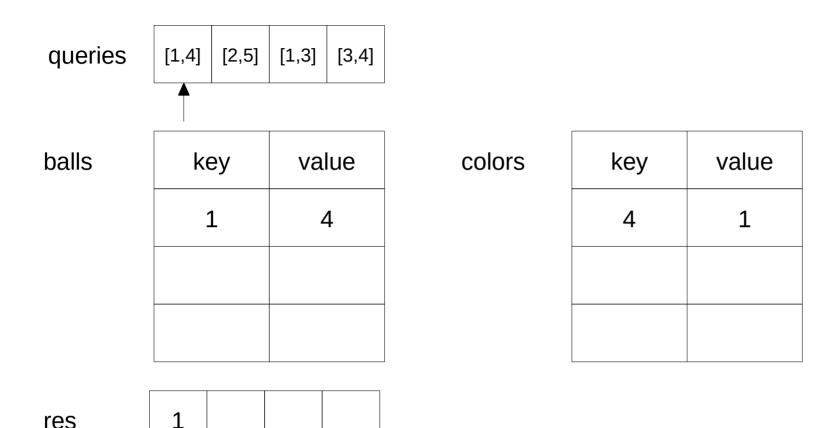| [1,4] | [2,5] | [1,3] | [3,4] |

balls

key	value

colors

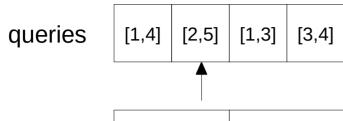| key	value

The main idea is to track a ball according to its color and the number of times that particular color is used. This can be achieved by using two hash tables.

queries				
	[1,4]	[2,5]	[1,3]	[3,4]

balls

key	value
1	4

colors

key	value
4	1

res

1			

If queries[i][0] in balls: colors[balls[queries[i][0]]] -= 1
balls[queries[i][0]] = queries[i][1] = balls[1] = 4
colors[queries[i][1]] += 1 = colors[4] = 1
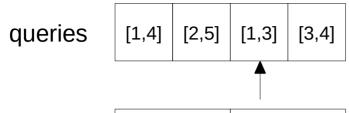res[i] = colors.size = res[0] = 1

queries

| [1,4] | [2,5] | [1,3] | [3,4] |

balls

key	value
1	4
2	5

colors

key	value
4	1
5	1

res

| 1 | 2 | | |

If queries[i][0] in balls: colors[balls[queries[i][0]]] -= 1
balls[queries[i][0]] = queries[i][1] = balls[2] = 5
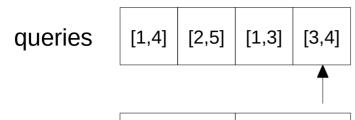colors[queries[i][1]] += 1 = colors[5] = 1
res[i] = colors.size = res[1] = 2

queries

[1,4]	[2,5]	[1,3]	[3,4]

balls

key	value
1	3
2	5

colors

key	value
3	1
5	1

res

1	2	2	

If queries[i][0] in balls: colors[balls[queries[i][0]]] -= 1 = collors[4] = 0; colors.remove(4)
balls[queries[i][0]] = queries[i][1] = balls[1] = 3
colors[queries[i][1]] += 1 = colors[3] = 1
res[i] = colors.size = res[2] = 2

queries

[1,4]	[2,5]	[1,3]	[3,4]

balls

key	value
1	3
2	5
3	4

colors

key	value
3	1
5	1
4	1

res

1	2	2	3

If queries[i][0] in balls: colors[balls[queries[i][0]]] -= 1
balls[queries[i][0]] = queries[i][1] = balls[3] = 4
colors[queries[i][1]] += 1 = colors[4] = 1
res[i] = colors.size = res[3] = 3