

1. countArithmeticMeans:

Given an integer array and count arithmetic mean.

arithmetic mean : $\text{array}[i] = (\text{array}[i-1] + \text{array}[i+1]) / 2$

$\text{array}[i] = 0$ if $i < 0$ or $i \geq \text{len}(\text{array})$

Ex:

Input: [1,2,3]

Output: 2

2. workingButtons:

Given integer array and string array. Integer array represents working buttons(phone buttons). Return true if the string in array can be typed by the working buttons.

Ex1:

Input:[2,3], ["abc","cde"]

Output: true

Ex2:

Input: [2,3], ["abc", "cde", "edg"]

Output: false

3. pushAndFall:

Given matrix of string. "#" represents box, "." represents idle, "*" represents obstacles. Push boxes to the rightmost and fall.

Ex1:

Input:

```
[[ "#", ".", ".", "." ],
 [ "#", "#", ".", "." ],
 [ "#", ".", ".", "#" ],
 [ "#", "#", "#", "." ]]
```

Output:

```
[[ ".", ".", ".", "#" ],
 [ ".", ".", "#", "#" ],
 [ ".", ".", "#", "#" ],
 [ ".", "#", "#", "#" ]]
```

Ex2:

Input:

```
[[ "#", ".", "*", "." ],
 [ "*", ".", "#", "." ],
 [ ".", "*", ".", "#" ],
 [ "#", ".", "*", "." ]]
```

Output:

```
[[ ".", ".", "*", "." ],
 [ "*", "#", ".", "." ],
 [ ".", "*", ".", "#" ],
 [ ".", "#", "*", "#" ]]
```

4. numerJumps2:

One jump:

jump from index i to index j where $\text{array}[i] == \text{array}[j]$ and $j - i > \text{diff}$

can start from any index

return the maximum jump

Ex:

Input: [1, 2, 3, 2, 4, 1, 2, 4], diff = 1

Output: 3 (jump from index 1)

Input: [1, 2, 3, 2, 4, 1, 2, 4], diff = 4

Output: 2 (jump from index 0)