A Boolean Array Puzzle

Input: A array arr[] of two elements having value 0 and 1

Output: Make both elements 0.

Specifications: Following are the specifications to follow.
1) It is guaranteed that one element is 0 but we do not know its position.
2) We can't say about another element it can be 0 or 1.
3) We can only complement array elements, no other operation like and, or, multi, division, …. etc.
4) We can't use if, else and loop constructs.
5) Obviously, we can't directly assign 0 to array elements.

There are several ways we can do it as we are sure that always one Zero is there. Thanks to devendraiiit for suggesting following 3 methods.

Method 1

```
void changeToZero(int a[2])
{
   a[ a[1] ] = a[ !a[1] ];
}

int main()
{
   int a[] = {1, 0};
   changeToZero(a);

   printf(" arr[0] = %d \n", a[0]);
   printf(" arr[1] = %d ", a[1]);
   getchar();
```


```
    return 0;
}
```

Method 2

```
void changeToZero(int a[2])
{
    a[ !a[0] ] = a[ !a[1] ]
}
```

Method 3

This method doesn't even need complement.

```
void changeToZero(int a[2])
{
    a[ a[1] ] = a[ a[0] ]
}
```

Method 4

Thanks to purvi for suggesting this method.

```
void changeToZero(int a[2])
{
  a[0] = a[a[0]];
  a[1] = a[0];
}
```

There may be many more methods.

Source: http://geeksforgeeks.org/forum/topic/google-challenge

Please write comments if you find the above codes incorrect, or find other ways to solve the same problem.

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rihansh • 5 months ago

a[1-a[0]]=a[1-a[1]]

a[0]-=a[0]

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Nidhi Hooda • 8 months ago

a[0]=a[0]&a[1];
a[1]=a[0];

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Chandresh • 9 months ago

Another method:

a[1]=a[!a[1]];
a[0]=a[!a[1]];

For converting into 11,

a[1]=a[!a[0]];
a[0]=a[!a[0]];

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aseemgoyal • a year ago

a[0]=a[1]=a[0]&a[1]

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aseemgoyal ➚ aseemgoyal • a year ago

sorry..cant use &

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Panther • a year ago

```
static void convertArr00(int arr[])
        { arr[((~arr[0])&1)]=arr[arr[0]];
```

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```
        System.out.println(arr[0]+","+arr[1]);
        }
```

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elena • 2 years ago

```
    a[!a[0]]=a[a[0]] <=> a[a[1]]=a[a[0]]
we always know that a[a[0]] is zero, and also a[!a[1]] is zero
```

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Sweety • 2 years ago

```
 /* Paste your code here (You may delete these lines if not writing c
a[1]=a[a[0]];
a[0]=a[1];
```

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vinay • 3 years ago

Nice question !!!

```
 /* Paste your code here (You may delete these lines if not writing c
```

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Ela McIntyre • 3 years ago

Hello! I know this is kinda off topic however I'd figured I'd ask. Would you be int
authoring a blog article or vice-versa? My site covers a lot of the same subject
benefit from each other. If you happen to be interested feel free to shoot me ar
you! Superb blog by the way!

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Ankita ➚ Ela McIntyre • 10 months ago

```
/* Could you please send me the links so that it would be very
vgncr515e@gmail.com
Thanks !!! */
```

^ | v • Reply • Share ›

rahul goyal ➚ Ela McIntyre • 3 years ago

hey canu please send me ur website link to my id::
rahul.26goyal@rediffmail.com

i m really interested to this kind of stuffs..

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Rahul Attuluri • 3 years ago

void changeToZero(int a[2]){
a[0] = a[1] = a[!a[1]];
}

^ | v • Reply • Share ›

Nikhil • 3 years ago

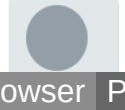
can we use bitwise and?

^ | v • Reply • Share ›

shalu • 3 years ago

what if the array size is n and the boolean nos(0,1) can be randomly placed ar
known..what to do in that case??

^ | v • Reply • Share ›



param • 3 years ago

a[!a[0]] = a[a[0]]

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tyro • 3 years ago

a[!a[0]]=0

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Anushree tyro • 3 years ago

We cant directly assign 0 to any array element

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Chandan • 3 years ago

Here's another.

```
void changeToZero(int a[2])
{
a[0] = a[1 - !(a[0])];
a[1] = a[0];
}
```

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Venki Chandan • 3 years ago

Good to see a new method. Please read the conditions.

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Venki • 3 years ago

As it is guaranteed there will be one 0, the idea is to make one location (either input (satisfying atleast one zero) and assign the new value to other location (i

Based on the above strategy the following method also works,

```
void changeToZero(int a[2])
{
    a[1] = a[ !a[1] ];
    a[0] = a[1];
}

// Test code
void printArray(int a[])
{
    printf("arr[0] = %d ", a[0]);
    printf(" arr[1] = %d \n", a[1]);
}
```

see more

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sreekanth • 3 years ago

a[0] = 1 - a[0];

Have a blast...!!!

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Sandeep sreekanth • 3 years ago

@sreekanth: It doesn't seem to work for {0, 1}. Following program print

```
void changeToZero(int a[2])
{
  a[0] = 1 - a[0];
}
```

```
int main()
{
   int a[] = {0, 1};
   changeToZero(a);

   printf("arr[0] = %d \n", a[0]);
   printf("arr[1] = %d ", a[1]);
   getchar();
   return 0;
}
```

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sreekanth ➔ Sandeep • 3 years ago

@sandeep:
yes u r correct. I thought we need to make both are 1 or both ar

Thanks.

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shalu ➔ sreekanth • 3 years ago

@sandip..we are not supposed to use minus(-)

Reply • Share ›

purvi • 3 years ago

Here is another one :)

```
void changeToZero(int a[2])
{
  a[0] = a[a[0]];
  a[1] = a[0];
```

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GeeksforGeeks ➚ purvi • 3 years ago

@purvi: Thanks for suggesting a new method. We have added it to the

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vishesh ➚ GeeksforGeeks • 7 months ago

can anybody please explain me how they thought of the solutio
i wanna know what was the thought process for solving the que

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