

Find the Number Occurring Odd Number of Times

Given an array of positive integers. All numbers occur even number of times except one number which occurs odd number of times. Find the number in $O(n)$ time & constant space.

Example:

I/P = [1, 2, 3, 2, 3, 1, 3]

O/P = 3

Algorithm:

Do bitwise XOR of all the elements. Finally we get the number which has odd occurrences.

Program:

```
#include <stdio.h>

int getOddOccurrence(int ar[], int ar_size)
{
    int i;
    int res = 0;
    for (i=0; i < ar_size; i++)
        res = res ^ ar[i];

    return res;
}

/* Diver function to test above function */
int main()
{
    int ar[] = {2, 3, 5, 4, 5, 2, 4, 3, 5, 2, 4, 4, 2};
    int n = sizeof(ar)/sizeof(ar[0]);
    printf("%d", getOddOccurrence(ar, n));
}
```

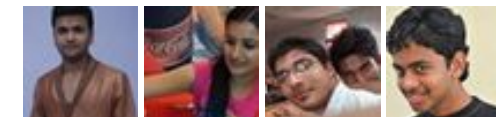
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```
return 0;
```

```
}
```

Time Complexity: $O(n)$

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