**The bitwise XOR operator is the most useful operator from technical interview perspective.** It is used in many problems. A simple example could be “Given a set of numbers where all elements occur even number of times except one number, find the odd occurring number” This problem can be efficiently solved by just doing XOR of all numbers.

|  |
| --- |
| #include <stdio.h>    // Function to return the only odd  // occurring element  int findOdd(int arr[], int n)  {      int res = 0, i;      for (i = 0; i < n; i++)          res ^= arr[i];      return res;  }    // Driver Method  int main(void)  {      int arr[] = { 12, 12, 14, 90, 14, 14, 14 };      int n = sizeof(arr) / sizeof(arr[0]);      printf("The odd occurring element is %d ",             findOdd(arr, n));      return 0;  } |

**Output:**

The odd occurring element is 90

The following are many other interesting problems using XOR operator.

1. [Find the Missing Number](https://www.geeksforgeeks.org/find-the-missing-number/)
2. [swap two numbers without using a temporary variable](https://www.geeksforgeeks.org/swap-two-numbers-without-using-temporary-variable/)
3. [A Memory Efficient Doubly Linked List](https://www.geeksforgeeks.org/xor-linked-list-a-memory-efficient-doubly-linked-list-set-1/)
4. [Find the two non-repeating elements](https://www.geeksforgeeks.org/find-two-non-repeating-elements-in-an-array-of-repeating-elements/).
5. [Find the two numbers with odd occurences in an unsorted-array](https://www.geeksforgeeks.org/find-the-two-numbers-with-odd-occurences-in-an-unsorted-array/).
6. [Add two numbers without using arithmetic operators](https://www.geeksforgeeks.org/add-two-numbers-without-using-arithmetic-operators/).
7. [Swap bits in a given number/](https://www.geeksforgeeks.org/swap-bits-in-a-given-number/).
8. [Count number of bits to be flipped to convert a to b](https://www.geeksforgeeks.org/count-number-of-bits-to-be-flipped-to-convert-a-to-b/) .
9. [Find the element that appears once](https://www.geeksforgeeks.org/find-the-element-that-appears-once/).
10. [Detect if two integers have opposite signs.](https://www.geeksforgeeks.org/detect-if-two-integers-have-opposite-signs/)
11. [Find the two repeating elements in a given array](https://www.geeksforgeeks.org/find-the-two-repeating-elements-in-a-given-array/?ref=rp)
12. [Find all elements in array which have at-least two greater elements](https://www.geeksforgeeks.org/find-elements-array-least-two-greater-elements/?ref=rp)
13. [Find elements of array using XOR of consecutive elements](https://www.geeksforgeeks.org/find-elements-of-array-using-xor-of-consecutive-elements/?ref=rp)
14. [Find XOR of all elements in an Array](https://www.geeksforgeeks.org/find-xor-of-all-elements-in-an-array/?ref=rp)
15. [Find four elements a, b, c and d in an array such that a+b = c+d](https://www.geeksforgeeks.org/find-four-elements-a-b-c-and-d-in-an-array-such-that-ab-cd/?ref=rp)
16. [Find elements which are present in first array and not in second](https://www.geeksforgeeks.org/find-elements-present-first-array-not-second/?ref=rp)
17. [Find maximum xor of k elements in an array](https://www.geeksforgeeks.org/find-maximum-xor-of-k-elements-in-an-array/?ref=rp)
18. [Find single in an array of 2n+1 integer elements](https://www.geeksforgeeks.org/find-single-array-2n1-integer-elements/?ref=rp)
19. [Find the original Array using XOR values of all adjacent elements](https://www.geeksforgeeks.org/find-the-original-array-using-xor-values-of-all-adjacent-elements/?ref=rp)
20. [Find array using different XORs of elements in groups of size 4](https://www.geeksforgeeks.org/find-array-using-different-xors-of-elements-in-groups-of-size-4/?ref=rp)
21. [Find even occurring elements in an array of limited range](https://www.geeksforgeeks.org/find-even-occurring-elements-array-limited-range/?ref=rp)
22. [Find the first repeating element in an array of integers](https://www.geeksforgeeks.org/find-first-repeating-element-array-integers/?ref=rp)
23. [Find the smallest and second smallest elements in an array](https://www.geeksforgeeks.org/to-find-smallest-and-second-smallest-element-in-an-array/?ref=rp)
24. [Maximize sum of topmost elements of S stacks by popping at most N elements](https://www.geeksforgeeks.org/maximize-sum-of-topmost-elements-of-s-stacks-by-popping-at-most-n-elements/?ref=rp)
25. [Construct an array from XOR of all elements of array except element at same index](https://www.geeksforgeeks.org/construct-an-array-from-xor-of-all-elements-of-array-except-element-at-same-index/?ref=rp)
26. [Minimizing array sum by applying XOR operation on all elements of the array](https://www.geeksforgeeks.org/minimizing-array-sum-by-applying-xor-operation-on-all-elements-of-the-array/?ref=rp)
27. [For each element in 1st array count elements less than or equal to it in 2nd array | Set 2](https://www.geeksforgeeks.org/for-each-element-in-1st-array-count-elements-less-than-or-equal-to-it-in-2nd-array-set-2/?ref=rp)
28. [Count of elements to be inserted to make Array sum twice the XOR of Array](https://www.geeksforgeeks.org/count-of-elements-to-be-inserted-to-make-array-sum-twice-the-xor-of-array/?ref=rp)
29. [Minimize K whose XOR with given array elements leaves array unchanged](https://www.geeksforgeeks.org/minimize-k-whose-xor-with-given-array-elements-leaves-array-unchanged/?ref=rp)
30. [For each element in 1st array count elements less than or equal to it in 2nd array](https://www.geeksforgeeks.org/element-1st-array-count-elements-less-equal-2nd-array/?ref=rp)