

15. 3Sum ★

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Total Accepted: **140078** Total Submissions: **704970** Difficulty: **Medium**

Given an array S of n integers, are there elements a, b, c in S such that $a + b + c = 0$? Find all unique triplets in the array which gives the sum of zero.

Note: The solution set must not contain duplicate triplets.

[Notes](#)

For example, given array $S = [-1, 0, 1, 2, -1, -4]$,

A solution set is:

```
[
  [-1, 0, 1],
  [-1, -1, 2]
]
```

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C++



```
1 class Solution {
2 public:
3     vector<vector<int>> threeSum(vector<int>& nums) {
4         vector<vector<int>> solutions;
5         if (nums.size() < 3) {
6             return solutions;
7         }
8         sort(nums.begin(), nums.end());
9         for (auto i = nums.begin(), last = nums.end(); i < last - 2; ++i) {
10             auto j = i + 1;
11             if (i > nums.begin() && *i == *(i - 1)) continue;
12             auto k = last - 1;
13             while (j < k) {
14                 if (*i + *j + *k < 0) {
15                     ++j;
16                     while (*j == *(j - 1) && j < k) ++j;
17                 }
18                 else if (*i + *j + *k > 0) {
19                     --k;
```

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```

20         while (*k == *(k + 1) && j < k) --k;
21     }
22     else {
23         solutions.push_back({*i, *j, *k});
24         ++j;
25         --k;
26         while ((*j == *(j - 1)) && (j < k)) ++j;
27         while ((*k == *(k + 1)) && (j < k)) --k;
28     }
29 }
30 }
31
32 return solutions;
33 }
34 };

```

 Notes

Custom Testcase ☐

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