11. Container With Most Water

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Given n non-negative integers a_1, a_2, ..., a_n, where each represents a point at coordinate (i, a_i). n vertical lines are drawn such that the two endpoints of line i is at (i, a_i) and $(i, 0)$. Find two lines, which together with x-axis forms a container, such that the container contains the most water.

Note: You may not slant the container and n is at least 2.

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Notes

C++

```cpp
class Solution {
public:
    // should use two pointers
    int maxArea(vector<int>& height) {
        int i = 0, j = height.size()-1, maxArea = 0;
        while(i < j) {
            maxArea = max(maxArea, (j-i) * min(height[i], height[j]));
            if (height[i] < height[j]) i++;
            else j--;
        }
        return maxArea;
    }



    // int maxArea(vector<int>& height) {
    //     int N = height.size();

    //     int i = 0, j = N-1;
    //     int res = 0;
    //     while(i<j) {
    //         if(height[i] <= height[j]) {
    //             res = max(res, (j-i)*height[i]);
    //             i++;
    //         } else {
    //             res = max(res, (j-i)*height[j]);
    //             j--;
    //         }
    //     }
    //     return res;
    // }
};
```

Custom Testcase

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27 30