

# Wave Sort

## Problem

Given an array, transform the array such that  
 $arr[0] \geq arr[1] \leq arr[2] \geq arr[3] \leq arr[4] \geq \dots$

Input: Given an array.

Output: print the sorted array.

Time Complexity:  $O(N)$ , single pass

Space Complexity:  $O(1)$

```
void wavesort(int arr[], int n) {  
    for (int i = 1; i < n; i += 2) {  
        if (arr[i] > arr[i - 1]) {  
            swap(arr[i], arr[i - 1]);  
        }  
        if (arr[i] > arr[i + 1] && i <= n - 2) {  
            swap(arr[i], arr[i + 1]);  
        }  
    }  
}
```

Online Judge for the above problem:

1. [Wave array](#)