

Wave Sort

Problem

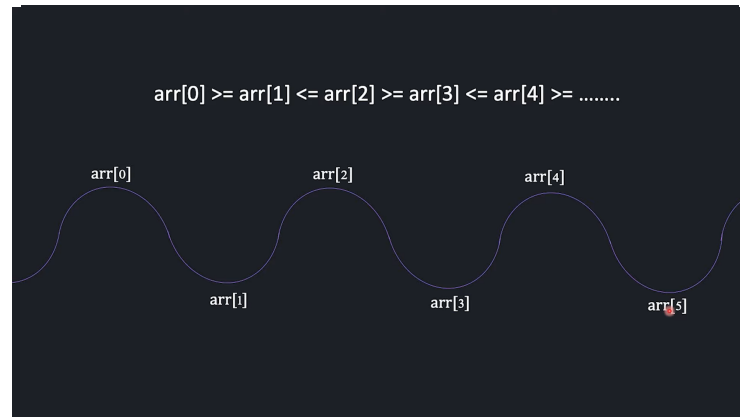
Given an array, transform the array such that $\text{arr}[0] \geq \text{arr}[1] \leq \text{arr}[2] \geq \text{arr}[3] \leq \text{arr}[4] \geq \dots$

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](#)