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#include <stdio.h>
#include <stdlib.h>

void swap(int *a, int *b){
    int t = *a;
    *a = *b;
    *b = t;
}

void print(int *arr, int n, int i) {
    for(int i = 0; i < n-1; i++)
        printf("%d ",arr[i]);
    printf("%d", arr[n-1]); // No trailing spaces
    if(i != n-1)
        printf("\n"); // No trailing newlines!
}

void cocktailSort(int *a, int n){
    int st = 0, en = n-1;
    for(int i = 0; i < n; i++){
        if(i % 2 == 0){ // go from left to right
            for(int j = st; j < en; j++){
                if (a[j] > a[j+1])
                    swap(a+j, a+j+1);
            }
            en--; // One less element to consider in future iterations
        }else{
            for(int j = en; j > st; j--){
                if (a[j] < a[j-1])
                    swap(a+j, a+j-1);
            }
            st++; // One less element to consider in future iterations
        }
        print(a, n, i);
    }
}

int main(){
    int n;
    scanf("%d",&n);
    int arr[n];
    for(int i = 0; i < n; i++)
        scanf("%d", &arr[i]);
    cocktailSort(arr, n);
}
```