//Sort an array in wave form

Given an unsorted array of integers, sort the array into a wave array. An array arr[0..n-1] is sorted in wave form if:
arr[0] >= arr[1] <= arr[2] >= arr[3] <= arr[4] >= …..

Examples:
Input: arr[] = {10, 5, 6, 3, 2, 20, 100, 80}
Output: arr[] = {10, 5, 6, 2, 20, 3, 100, 80}
Explanation:
here you can see {10, 5, 6, 2, 20, 3, 100, 80} first element is larger than the second and the same thing is repeated again and again. large element – small element-large element -small element and so on .it can be small element-larger element – small element-large element -small element too. all you need to maintain is the up-down fashion which represents a wave. there can be multiple answers.

Input: arr[] = {20, 10, 8, 6, 4, 2}
Output: arr[] = {20, 8, 10, 4, 6, 2}

Code:

```
 #include <stdio.h>
int main() {
    int n;
    printf("Enter the number of elements: ");
    scanf("%d", &n);
    int arr[n];
    printf("Enter %d integers:\n", n);
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    for (int i = 0; i < n - 1; i++) {
        for (int j = 0; j < n - i - 1; j++) {
            if (arr[j] > arr[j + 1]) {
                int temp = arr[j];
                arr[j] = arr[j + 1];
                arr[j + 1] = temp;
            }
        }
    }
    for (int i = 0; i < n - 1; i += 2) {
        int temp = arr[i];
        arr[i] = arr[i + 1];
        arr[i + 1] = temp;
    }
    for (int i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
    printf("\n");
    return 0;
}
```