**MAXIMUM INDEX**

class Solution {

// Function to find the maximum index difference.

int maxIndexDiff(int[] arr) {

int n = arr.length;

int[] lmin = new int[n];

int[] rmax = new int[n];

int minn = Integer.MAX\_VALUE;

int maxx = Integer.MIN\_VALUE;

lmin[0] = arr[0];

rmax[n-1] = arr[n-1];

for (int i = 1; i<n; i++){

lmin[i] = Math.min(lmin[i-1], arr[i]);

}

for (int i = n-2; i>=0; i--){

rmax[i] = Math.max(rmax[i+1], arr[i]);

}

int ret = Integer.MIN\_VALUE;

int i = 0;

int j = 0;

// System.out.println(Arrays.toString(lmin));

// System.out.println(Arrays.toString(rmax));

while (i<n && j<n){

if (lmin[i]<=rmax[j]){

ret = Math.max(ret,j-i);

j++;

}else i++;

}

return ret;

}

}

**TC: O(3N)**

**SC: O(2N)**

**WAVE ARRAY**

class Solution {

public static void convertToWave(int[] arr) {

int n = arr.length;

for (int i = 1; i<n; i+=2){

int temp = arr[i-1];

arr[i-1] = arr[i];

arr[i] = temp;

}

}

}

**TC: O(N)**

**SC: O(1)**