import java.util.\*;

public class Bai8 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

int[] array = new int[n];

for (int i = 0; i < n; i++) {

array[i] = sc.nextInt();

}

boolean increase = false;

boolean decrease = false;

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

if (array[i] > array[i - 1]) {

increase = true;

} else if (array[i] < array[i - 1]) {

decrease = true;

}

}

if (increase && decrease) {

System.out.println("NO");

} else if (increase || decrease) {

System.out.println("YES");

} else {

System.out.println("NO");

}

}

}