CODING SHUTTLE

Arrays - 2

In This Lecture

1. Minimum Difference
2. Maximum absolute difference

Minimum Difference

Given an array of distinct integers, find all pairs of elements where the difference between the two elements is the smallest among all pairs in the array.

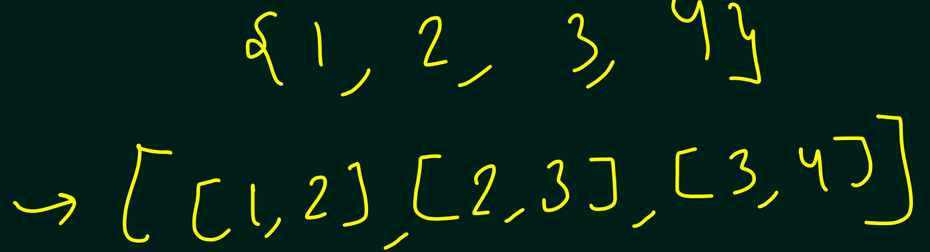
Return these pairs in ascending order, where each pair is represented by [a, b], such that a, b are elements from the array and a < b. The difference between a and b should be the smallest.

Sample Input

arr = [12, 9, 8, 2, 11]

Sample Output

[[8, 9], [11, 12]]



Minimum Difference

Sample Input

arr = [12, 9, 8, 2, 11]

Sample Output

[[8, 9], [11, 12]]

$O(n^2)$

for (i → n)

for (j = i+1 → n)

(i, j)

[2, 8, 9, 11, 12] // O(nlogn)

diff → 6 1 2 1

= [[8, 9], [11, 12]]

Minimum Difference

Maximum absolute difference

You are given an array of N integers, A1, A2 ,..., AN. Return maximum value of f(i, j) for all 1 ≤ i, j ≤ N.

↳ f(i, j) = |A[i] - A[j]| + |i - j|, where |x| denotes absolute value of x.

Largest Smallest

① (A[i] + i) − (A[j] + j) → aipi[ ]

② −(A[i] + i) + (A[j] + j)

③ (A[i] − i) − (A[j] − j) → aimi[ ]

④ −(A[i] − i) + (A[j] − j)

Maximum absolute difference

Maximum absolute difference