

# Maximum sum increasing subsequence

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Given an array **arr** of **N** positive integers, the task is to find the **maximum sum increasing subsequence** of the given array.

## Example 1:

Input: N = 5, arr[] = {1, 101, 2, 3, 100}

Output: 106

Explanation: The maximum sum of a increasing sequence is obtained from {1, 2, 3, 100}

## Example 2:

Input: N = 3, arr[] = {1, 2, 3}

Output: 6

Explanation: The maximum sum of a increasing sequence is obtained from {1, 2, 3}

## Your Task:

You don't need to read input or print anything. Complete the function `maxSumIS()` which takes **N** and array **arr** as input parameters and returns the maximum value.

**Expected Time Complexity:**  $O(N^2)$

**Expected Auxiliary Space:**  $O(N)$

## Constraints:

$$1 \leq N \leq 10^3$$

$$1 \leq \text{arr}[i] \leq 10^5$$

```
class Solution:
    def maxSumIS(self, Arr, n):
        # code here
        dp = [0]*n
        dp[0] = Arr[0]
        for i in range(1,n):
            temp = 0
            for j in range(i):
                if Arr[j]<Arr[i]:
```

```
        temp = max(temp, dp[j])
    temp = temp+Arr[i]
    dp[i] = temp
return max(dp)
```