

Solution 1

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 package main
4
5 import "math"
6
7 // O(n^2) time | O(n) space
8 func MaxSumIncreasingSubsequence(array []int) []interface{} {
9     sequences := make([]int, len(array))
10    sums := make([]int, len(array))
11    for i := range sequences {
12        sequences[i] = math.MinInt32
13        sums[i] = array[i]
14    }
15    maxSumIndex := 0
16    for i, currentNum := range array {
17        for j := 0; j < i; j++ {
18            otherNum := array[j]
19            if otherNum < currentNum && sums[j]+currentNum >= sums[i] {
20                sums[i] = sums[j] + currentNum
21                sequences[i] = j
22            }
23        }
24        if sums[i] > sums[maxSumIndex] {
25            maxSumIndex = i
26        }
27    }
28
29    maxSum := sums[maxSumIndex]
30    sequence := buildSequence(array, sequences, maxSumIndex)
31    return []interface{}{maxSum, sequence}
32 }
33
34 func buildSequence(array []int, sequences []int, index int) []int {
35     sequence := []int{}
36     for index != math.MinInt32 {
37         sequence = append(sequence, array[index])
38         index = sequences[index]
39     }
40     reverse(sequence)
41     return sequence
42 }
43
44 func reverse(numbers []int) {
45     for i, j := 0, len(numbers)-1; i < j; i, j = i+1, j-1 {
46         numbers[i], numbers[j] = numbers[j], numbers[i]
47     }
48 }
49
```