Max Array Sum

HackerRank

Given an array of integers, find the subset of non-adjacent elements with the maximum sum. Calculate the sum of that subset. It is possible that the maximum sum is 0, the case when all elements are negative.

Example
$arr = [-2, 1, 3, -4, 5]$

The following subsets with more than 1 element exist. These exclude the empty subset and single element subsets which are also valid.

```
Subset      Sum
[-2, 3, 5]   6
[-2, 3]      1
[-2, -4]    -6
[-2, 5]      3
[1, -4]     -3
[1, 5]       6
[3, 5]       8
```

The maximum subset sum is 8. Note that any individual element is a subset as well.

$arr = [-2, -3, -1]$

In this case, it is best to choose no element: return 0.

Function Description

Complete the $maxSubsetSum$ function in the editor below.

maxSubsetSum has the following parameter(s):

- *int arr[n]:* an array of integers

Returns
- *int:* the maximum subset sum

Input Format

The first line contains an integer, n.
The second line contains n space-separated integers $arr[i]$.

Constraints

- $1 \leq n \leq 10^5$
- $-10^4 \leq arr[i] \leq 10^4$

Sample Input 0

```
5
3 7 4 6 5
```

Sample Output 0

```
13
```

Explanation 0

Our possible subsets are $[3, 4, 5]$, $[3, 4]$, $[3, 6]$, $[3, 5]$, $[7, 6]$, $[7, 5]$ and $[4, 5]$. The largest subset sum is 13 from subset $[7, 6]$

Sample Input 1

```
5
2 1 5 8 4
```

Sample Output 1

```
11
```

Explanation 1

Our subsets are $[2, 5, 4]$, $[2, 5]$, $[2, 8]$, $[2, 4]$, $[1, 8]$, $[1, 4]$ and $[5, 4]$. The maximum subset sum is 11 from the first subset listed.

Sample Input 2

```
5
3 5 -7 8 10
```

Sample Output 2

```
15
```

Explanation 2

Our subsets are $[3, -7, 10]$, $[3, 8]$, $[3, 10]$, $[5, 8]$, $[5, 10]$ and $[-7, 10]$. The maximum subset sum is 15 from the fifth subset listed.