

Smallest subsequence with sum k

Problem

Given an array $a[]$ of size n . Your task is to find the smallest subsequence with sum of elements equal to k .

Example

Given an array of size 5,

1	1	3	2	8
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$K = 12$

Subsequences which satisfy the given condition are

1	1	3	2	8
---	---	---	---	---

,

1	3	2	8
---	---	---	---

1	3	2	8
---	---	---	---

,

1	3	8
---	---	---

,

1	3	8
---	---	---

3	2	8
---	---	---

Subsequences with minimum length

1	3	8
---	---	---

,

1	3	8
---	---	---

,

3	2	8
---	---	---

Therefore *answer* = 3.

Approach

1. Keep a MaxHeap and insert all the elements.

8	3	2	1	1	
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MaxHeap

2. Keep popping the element and keep adding them to a variable sum and maintain their count
3. When sum becomes greater than or equal to k, break the loop and output the cnt.

Time Complexity: $O(n \log(n))$