

Q1

Longest subarray having average greater than or equal to k

Write a program to print the longest subarray having average greater than or equal to k. An array and a positive integer (k) are given as input. A subarray from the array has to be found such that the average of this subarray is greater than or equal to (k). Consider the array: arr = {-2, 1, 6, -3} and k = 3. The longest subarray is {1, 6} having an average 3.5 greater than k = 3.

Sample input/output

Enter the number of elements : 4

Input the array elements : -2 1 6 -3

Input the k value : 3

Sub-array : 1 6

Sub-array average: 3.5

Q2

1. A cricket match is going on. You are inviting $1 - \Delta$ friends to your house to watch the match along with you. There is a very large chocolate bar having N segments ($\Delta \leq N$). Each segment of a chocolate has a certain number associated with it known as its sweetness factor. The higher the sweetness factor of a segment, the more sweet that segment of the chocolate is. Your friends, being greedy, decide to split the chocolate into $1 - \Delta$ parts for themselves in such a way that they get a large sweetness factor in each part. Each part's sweetness factor is the sum of the sweetness factor of the one or more segments of chocolate that it includes. What is the maximum value of sweetness factor of the part of the chocolate that is left for you?

Input: integers Δ and an array of size N representing the chocolate

Q3

The market works on Δ days. You are to buy Δ items within these Δ days. The prices for some items are lower than normal on some days. You are given for each item the days on which the prices are lower (The lowered price is the same on all those mentioned days) and the respective cost. You are also given the normal cost of each item. On the start of each day, you get a fixed amount as income. You have to buy the items using this money. You have to buy all the items in minimum number of days as possible. The income amount that you get doesn't necessarily have to be spent on the same day and can be carried forward to the upcoming days.