



भारतीय सूचना प्रौद्योगिकी संस्थान गुवाहाटी
INDIAN INSTITUTE OF INFORMATION TECHNOLOGY GUWAHATI

Data Structure Lab, B.Tech 2nd Semester

Instructions

1. After completion, you can share the files through the google form, the link will be provided.
2. Deadline to submit is 26th June 2023 till 5 pm.

Assignment -9

1. Write a C program to find the duplicate numbers in an Array along with their occurrences.

I/N : 1, 6, 2, 3, 4, 6, 6, 3, 9, 1, 1

O/P: 1 occurred 3 times,

3 occurred 2 times,

6 occurred 3 times.

2. Write a C program to find the missing numbers in an array.

I/N : 7, 2, 10, 3, 8

O/P: 4, 5, 6, 9

3. Jesse loves cookies and wants the sweetness of some cookies to be greater than value.

To do this, two cookies with the least sweetness are repeatedly mixed. This creates a special combined cookie with:

Sweetness = 1(Least sweet cookie) + 2*(2nd least sweet cookie).*

This occurs until all the cookies have a sweetness $\geq k$.

Given the sweetness of a number of cookies, determine the minimum number of operations required. If it is not possible, return -1.

cookies has the following parameters:

- *int k*: the threshold value
- *int A[n]*: an array of sweetness values

Example

K=10

A = [3,8,4,7,5,7]

The smallest values are 3 and 4.

Remove them then return $3 + (2 \cdot 4) = 11$ to the array. Now **A = [11,8,7,5,7]**

Remove 5 and 7 and return $5 + (2 \cdot 7) = 19$ to the array. Now **A = [19,11,8,7]**

Finally, remove 7 and 8 and return $7 + (2 \cdot 8) = 23$ to the array.

Now **A = [23,19,11]**

All values are $\geq k$ so the process stops after 3 iterations.

Return 3.

4. Two friends like to pool their money and go to the ice cream parlour. They always choose two distinct flavours and they spend all their money. Given a list of prices for the flavours of ice cream, select the two that will cost all the money they have.

Ice-cream Parlor has the following parameter(s):

- a) *int m*: the amount of money they have to spend

b) `int cost[n]`: the cost of each flavour of ice cream

Example. `m= 5` `Cost = [1 ,4, 5, 3 ,2]`

The two flavours that cost 1 and 5 meet the criteria. Using 0 -based indexing, they are at indices 0 and 3.