# Institute of Computer Technology B. Tech Computer Science and Engineering Subject: DS (2CSE302)

# **Assignment-2**



AIM: - You have three stacks of cylinders where each cylinder has the same diameter, but they may vary in height. You can change the height of a stack by removing and discarding its topmost cylinder any number of times. Find the maximum possible height of the stacks such that all of the stacks are exactly the same height. This means you must remove zero or more cylinders from the top of zero or more of the three stacks until they're all the same height, then print the height. The removals must be performed in such a way as to maximize the height.

Note: An empty stack is still a stack.

### **Input Format**

The first line contains three space-separated integers,  $n_1$ ,  $n_2$ , and  $n_3$ , describing the respective number of cylinders in stacks 1, 2, and 3. The subsequent lines describe the respective heights of each cylinder in a stack *from top to bottom*:

- The second line contains  $n_1$  space-separated integers describing the cylinder heights in stack 1.
- The third line contains  $n_2$  space-separated integers describing the cylinder heights in stack 2.
- The fourth line contains  $n_3$  space-separated integers describing the cylinder heights in stack 3.

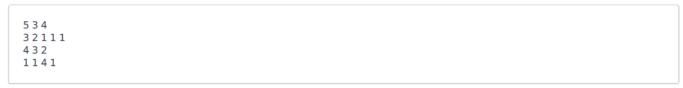
#### **Constraints**

- $0 < n_1, n_2, n_3 \le 10^5$
- $0 < height of any cylinder \leq 100$

#### **Output Format**

Print a single integer denoting the maximum height at which all stacks will be of equal height.

#### Sample Input



## Sample Output

5

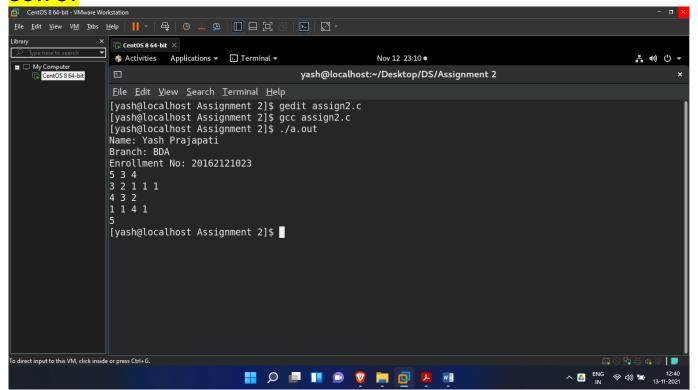
DATA STRUCTURE (2CSE302)

## **SOLUTION**

```
#include <stdio.h>
#include <stdlib.h>
int main()
     int size1, size2, size3, i, j = 0, k = 0, sum1 = 0, sum2 = 0, sum3 = 0;
     printf("Name: Yash Prajapati\nBranch: BDA\nEnrollment No:
20162121023\n");
     scanf("%d %d %d", &size1, &size2, &size3);
     int yash[size1];
     int prajapati[size2];
     int bda[size3];
     for (i = 0; i < size1; i++)
           scanf("%d", &yash[i]);
           sum1 += yash[i];
     for (i = 0; i < size2; i++)
           scanf("%d", &prajapati[i]);
           sum2 += prajapati[i];
     for (i = 0; i < size3; i++)
           scanf("%d", &bda[i]);
           sum3 += bda[i];
     i = 0;
     while (1)
           if ((sum1 == sum2 && sum2 == sum3) || sum1 == 0 || sum2 == 0
| | sum3 == 0 |
                 break;
           if (sum1 >= sum2 && sum1 >= sum3)
```

DATA STRUCTURE (2CSE302)

## **OUTPUT**



DATA STRUCTURE (2CSE302)