

1)

Problem Statement –A chocolate factory is packing chocolates into the packets. The chocolate packets here represent an array of N number of integer values. The task is to find the empty packets(0) of chocolate and push it to the end of the conveyor belt(array).

Example 1 :

N=8 and arr = [4,5,0,1,9,0,5,0] There are 3 empty packets in the given set. These 3 empty packets represented as 0 should be pushed towards the end of the array

Input :

8 – Value of N

[4,5,0,1,9,0,5,0] – Element of arr[0] to arr[N-1], While input each element is separated by newline

Output:

4 5 1 9 5 0 0 0

2)

Given an integer array Arr of size N the task is to find the count of elements whose value is greater than all of its prior elements.

Note : 1st element of the array should be considered in the count of the result.

For example,

Arr[]={7,4,8,2,9}

As 7 is the first element, it will consider in the result.

8 and 9 are also the elements that are greater than all of its previous elements.

Since total of 3 elements is present in the array that meets the condition.

Hence the output = 3.

Example 1:

Input

5 -> Value of N, represents size of Arr

7-> Value of Arr[0]

4 -> Value of Arr[1]

8-> Value of Arr[2]

2-> Value of Arr[3]

9-> Value of Arr[4]

Output :

3

Example 2:

5 -> Value of N, represents size of Arr

3 -> Value of Arr[0]

4 -> Value of Arr[1]

5 -> Value of Arr[2]

8 -> Value of Arr[3]

9 -> Value of Arr[4]

Output :

5

3)

An international round table conference will be held in india. Presidents from all over the world representing their respective countries will be attending the conference. The task is to find the possible number of ways(P) to make the N members sit around the circular table such that.

The president and prime minister of India will always sit next to each other.

Example 1:

Input :

4 -> Value of N(No. of members)

Output :

12 -> Possible ways of seating the members

Explanation:

2 members should always be next to each other.

So, 2 members can be in 2!ways

Rest of the members can be arranged in  $(4-1)!$  ways. (1 is subtracted because the previously selected two members will be considered as single members now).

So total possible ways 4 members can be seated around the circular table  $2*6= 12$ .

Hence, output is 12.

Example 2:

Input:

10 -> Value of N(No. of members)

Output :

725760 -> Possible ways of seating the members

Explanation:

2 members should always be next to each other.

So, 2 members can be in  $2!$  ways

Rest of the members can be arranged in  $(10-1)!$  Ways. (1 is subtracted because the previously selected two members will be considered as a single member now).

So, total possible ways 10 members can be seated around a round table is

$2*362880 = 725760$  ways.

Hence, output is 725760.

The input format for testing

The candidate has to write the code to accept one input

First input – Accept value of number of N(Positive integer number)

The output format for testing

The output should be a positive integer number or print the message(if any) given in the problem statement(Check the output in example 1, example2)

Constraints :

$2 \leq N \leq 50$

4)

An intelligence agency has received reports about some threats. The reports consist of numbers in a mysterious method. There is a number "N" and another number "R". Those numbers are studied thoroughly and it is concluded that all digits of the number 'N' are summed up and this action is performed 'R' number of times. The resultant is also a single digit that is yet to be deciphered. The task here is to find the single-digit sum of the given number 'N' by repeating the action 'R' number of times.

If the value of 'R' is 0, print the output as '0'.

Example 1:

Input :

99 -> Value of N

3 -> Value of R

Output :

9 -> Possible ways to fill the cistern.

Explanation:

Here, the number N=99

1)Sum of the digits N:  $9+9 = 18$

2)Repeat step 2 'R' times i.e. 3 times  $(9+9)+(9+9)+(9+9) = 18+18+18 = 54$

3)Add digits of 54 as we need a single digit  $5+4$

Hence , the output is 9.

Example 2:

Input :

1234 -> Value of N

2 -> Value of R

Output :

2 -> Possible ways to fill the cistern

Explanation:

Here, the number N=1234

1)Sum of the digits of N:  $1+2+3+4 = 10$

2)Repeat step 2 'R' times i.e. 2 times  $(1+2+3+4)+(1+2+3+4) = 10+10=20$

3)Add digits of 20 as we need a single digit.  $2+0=2$   
Hence, the output is 2.

Constraints:

$0 < N \leq 1000$

$0 \leq R \leq 50$

The Input format for testing

The candidate has to write the code to accept 2 input(s)

First input- Accept value for N (positive integer number)

Second input: Accept value for R(Positive integer number)

The output format for testing

The output should be a positive integer number or print the message (if any) given in the problem statement. (Check the output in Example 1, Example 2).

5)

Problem Statement

Particulate matters are the biggest contributors to Delhi pollution. The main reason behind the increase in the concentration of PMs include vehicle emission by applying Odd Even concept for all types of vehicles. The vehicles with the odd last digit in the registration number will be allowed on roads on odd dates and those with even last digit will on even dates.

Given an integer array  $a[]$ , contains the last digit of the registration number of N vehicles traveling on date D(a positive integer). The task is to calculate the total fine collected by the traffic police department from the vehicles violating the rules.

Note : For violating the rule, vehicles would be fined as X Rs.

Example 1:

Input :

4 -> Value of N

{5,2,3,7} ->  $a[]$ , Elements  $a[0]$  to  $a[N-1]$ , during input each element is separated by a new line

12 -> Value of D, i.e. date

200 -> Value of x i.e. fine

Output :

600 -> total fine collected

Explanation:

Date D=12 means , only an even number of vehicles are allowed.

Fine will be collected from 5,3 and 7 with an amount of 200 each.

Hence, the output = 600.

Example 2:

Input :

5 -> Value of N

{2,5,1,6,8} -> a[], elements a[0] to a[N-1], during input each element is separated by new line

3 -> Value of D i.e. date

300 -> Value of X i.e. fine

Output :

900 -> total fine collected

Explanation:

Date D=3 means only odd number vehicles with are allowed.

Fine will be collected from 2,6 and 8 with an amount of 300 each.

Hence, the output = 900

Constraints:

->  $0 < N \leq 100$

->  $1 \leq a[i] \leq 9$

->  $1 \leq D \leq 30$

->  $100 \leq x \leq 5000$

The input format for testing

The candidate has to write the code to accept 4 input(s).

First input – Accept for N(Positive integer) values (a[]), where each value is separated by a new line.

Third input – Accept value for D(Positive integer)

Fourth input – Accept value for X(Positive integer )

The output format for testing

The output should be a positive integer number (Check the output in Example 1, Example e) if no fine is collected then print "0".

6)

Problem Statement – An automobile company manufactures both a two wheeler (TW) and a four wheeler (FW). A company manager wants to make the production of both types of vehicle according to the given data below:

a)1st data, Total number of vehicle (two-wheeler + four-wheeler)=v

b)2nd data, Total number of wheels = W

The task is to find how many two-wheelers as well as four-wheelers need to manufacture as per the given data.

Example :

Input :

200 -> Value of V

540 -> Value of W

Output :

TW =130 FW=70

Explanation:

$130 + 70 = 200$  vehicles

$(70 * 4) + (130 * 2) = 540$  wheels

Constraints :

a) $2 \leq W$

b) $W \% 2 = 0$

c) $V < W$

Print "INVALID INPUT" , if inputs did not meet the constraints.

The input format for testing

The candidate has to write the code to accept two positive numbers separated by a new line.

a)First Input line – Accept value of V.

b) Second Input line- Accept value for W.

7)

A party has been organised on cruise. The party is organised for a limited time(T). The number of guests entering (E[i]) and leaving (L[i]) the party at every hour is represented as elements of the array. The task is to find the maximum number of guests present on the cruise at any given instance within T hours.

Example 1:

Input :

a) 5 -> Value of T

b) [7,0,5,1,3] -> E[], Element of E[0] to E[N-1], where input each element is separated by new line

c) [1,2,1,3,4] -> L[], Element of L[0] to L[N-1], while input each element is separate by new line.

Output :

8 -> Maximum number of guests on cruise at an instance.

Explanation:

1st hour:

Entry : 7 Exit: 1

No. of guests on ship : 6

2nd hour :

Entry : 0 Exit : 2

No. of guests on ship :  $6-2=4$

Hour 3:

Entry: 5 Exit: 1

No. of guests on ship :  $4+5-1=8$

Hour 4:

Entry : 1 Exit : 3

No. of guests on ship :  $8+1-3=6$

Hour 5:

Entry : 3 Exit: 4

No. of guests on ship:  $6+3-4=5$

Hence, the maximum number of guests within 5 hours is 8.

Example 2:

Input:

4 -> Value of T

[3,5,2,0] -> E[], Element of E[0] to E[N-1], where input each element is separated by new line.

[0,2,4,4] -> L[], Element of L[0] to L[N-1], while input each element in separated by new line



Output:

6

Cruise at an instance

Explanation:

Hour 1:

Entry: 3 Exit: 0

No. of guests on ship: 3

Hour 2:

Entry : 5 Exit : 2

No. of guest on ship:  $3+5-2=6$

Hour 3:

Entry : 2 Exit: 4

No. of guests on ship:  $6+2-4=4$

Hour 4:

Entry: 0 Exit : 4

No. of guests on ship :  $4+0-4=0$

Hence, the maximum number of guests within 5 hours is 6.

The input format for testing

The candidate has to write the code to accept 3 input.

First input- Accept value for number of T(Positive integer number)

Second input- Accept T number of values, where each value is separated by a new line.

Third input- Accept T number of values, where each value is separated by a new line.

The output format for testing

The output should be a positive integer number or a message as given in the problem statement(Check the output in Example 1 and Example 2)

Constraints:

a)  $1 \leq T \leq 25$

b)  $0 \leq E[i] \leq 500$

c)  $0 \leq L[i] \leq 500$

8)

There is a JAR full of candies for sale at a mall counter. JAR has the capacity N, that is JAR can contain maximum N candies when JAR is full. At any point of time. JAR can have M number of Candies where  $M \leq N$ . Candies are served to the customers. JAR is never remain empty as when last k candies are left. JAR is refilled with new candies in such a way that JAR get full.

Write a code to implement above scenario. Display JAR at counter with available number of candies. Input should be the number of candies one customer can order at point of time. Update the JAR after each purchase and display JAR at Counter.

Output should give number of Candies sold and updated number of Candies in JAR.

If Input is more than candies in JAR, return: "INVALID INPUT"

Given,

$N=10$ , where  $N$  is NUMBER OF CANDIES AVAILABLE

$K \leq 5$ , where  $k$  is number of minimum candies that must be inside JAR ever.

Example 1: ( $N = 10$ ,  $k \leq 5$ )

Input Value

3

Output Value

NUMBER OF CANDIES SOLD : 3

NUMBER OF CANDIES AVAILABLE : 7

Example : ( $N=10$ ,  $k \leq 5$ )

Input Value

0

Output Value

INVALID INPUT NUMBER OF  
CANDIES LEFT : 10

9)

Problem Statement

We want to estimate the cost of painting a property. Interior wall painting cost is Rs.18 per sq.ft. and exterior wall painting cost is Rs.12 per sq.ft.

Take input as

1. Number of Interior walls

2. Number of Exterior walls

3. Surface Area of each Interior 4. Wall in units of square feet

Surface Area of each Exterior Wall in units of square feet

If a user enters zero as the number of walls then skip Surface area values as User may don't want to paint that wall.

Calculate and display the total cost of painting the property

Example 1:

6

3

12.3

15.2

12.3

15.2

12.3

15.2

10.10

10.10

10.00

Total estimated Cost : 1847.4 INR

Note: Follow in input and output format as given in above example

10)

Ques. Write a code to check whether no is prime or not. Condition use function check() to find whether entered no is positive or negative ,if negative then enter the no, And if yes pas no as a parameter to prime() and check whether no is prime or not?

a)Whether the number is positive or not, if it is negative then print the message "please enter the positive number"

b)It is positive then call the function prime and check whether the take positive number is prime or not.