1. Write an SQL query to find:

The type description and the count (use alias count) of each type of train from the train details table.

Your output should contain 2 columns in the below-mentioned order.

**type description | count**

You can view the database schema by clicking the View Schema tab at the bottom of the query window on the right-hand side of the screen.

1. Missing Bowl

There are N bowls arranged on a table in a row. Each bowl contains some marbles in such a way that the sum of the number of marbles in the first and the last bowl is equal to the sum of the number of marbles in the second and the second last bowl, and so forth. The bowls are kept in the increasing order of the number of marbles in it.

After some time, it is found that there are only N-1 bowls. The first and the last bowls are at their positions, but one of the bowls in between has gone missing

Find the number of marbles in the missing bowl, given that N%2==0.

Input Specification:

input1: N-1, number of bowls.

input2: Array of size N-1, storing number of marbles in each bowl

Output Specification:

Your function should return the number of marbles in the missing bowl.

Example 1:

Input1: 5

Input2: (1,3,5,9,11)

Output: 7

1. Fishes

There are two types of fishes in a pond, A and B. There are N fishes of type A numbered from 1 to N and M fishes of type B numbered from 1 to M. The following two methods are adopted by the fishes of type A to satisfy their hunger.

E1: Fish of type A (n) eats the fish of type B (n2)

E2: Fish of type A (n) eats the fish of type A (n2) if size(n)> size (n)

In the above-mentioned context, E1 and E2 denote the respective methods and ny and ny are the fishes belonging to these types and Size(X) denotes the total number of fish within X.

Example: If size(L) = 3 and size(K)=2, and Leats K then the resulting size(L) will be 5.

It is feeding time now and the fishes are hungry. They eat as per the given method and satiate their hunger. Your task is to find and return an array defining whether which type A fishes do all type B fishes fall under.

Note: The size of all fishes initially is the same ie, 1.

Input Specification:

input1: An integer value N, denoting the total number of fishes of type A input2: An integer value M, denoting the total number of fishes of type B input3: An integer value Q, denoting the number of queries. input4: An array of Q elements, each containing 3 elements E, n,ny where E = 1 denotes E, and E = 2 denotes E, and n, and n are respective fish in their types.

1. Waste an SQL query to display

The username of the customers who have placed an order

Your output should contain 1 column in the below mentioned order.

**username**

You can view the database schema by clicking the **View Schema** tab at the bottom of the query window on the right-hand side of the screen.

1. Strawberry Feast

The University of Burcklen organizes a strawberry eating competition every spring-fall. In this competition, the participant has to register their strawberry eating capacity with the organizer. The capacity refers to the maximum number of strawberries that can be eaten by the participant in one sitting before they move on to the next sitting.

The strawberries are kept in a numbered line from 1 to N and the goal of the contest is to eat the Burcklen Strawberry. This special strawberry is kept at N th position on the table. The participant has to eat the strawberries in succession from 1 to N.

You are one of the Chief Guests at the event and you are asked to suggest to the participants, the number of ways in which they can eat the Burcklen Strawberry. For given N, S(1<=S<=N), find the number of ways to eat the Burcklen Strawberry.

**Input Specification:**

input1: N, number of strawberries kept on the table.

input2: S, number of strawberries the participant can eat at a time.

1. Maximizer

Three people are playing a game in which one person is selected first. The second person gives the person selected first a number N. The third person also gives the selected person a

number M.

The person selected first has to maximize the number given by the second person so that:

1. The number given by the second person can be maximized only by swapping the adjacent two digits of the number.

2. The number that the third person gives is the maximum number of swaps allowed

Find and return the maximum number that the selected person can achieve.

Input Specification:

**input1**: a string representing the number N

**input2**: an integer representing the number M

**Note: The number N is given in the string format as input.**

Output Specification:

Return the maximum number the person can achieve in M swaps.

Example 1:

input1: 1234

Input2: 2

1. Halindrome

Given a string S, divide it into two equal parts S1 and S2.

S is called a halindrome if at least any one of the following conditions satisfy:

1. S is a palindrome and length of S>=2.

2. S1 is a halindrome.

3. S2 is a halindrome.

Your task is to find and return the number of halindromes in an array of strings.

Note: In the case of an odd length string, the middle element is not present in both S1 and S2. If index of middle element is m, then, $1-S 10, m-1) and S2-S m+1, (S-1)

Input Specification

input 1: An integer value denoting the number of strings (1<inputt<100) input 2: A string array of size input1 (2 <= length of each string <=100)

Output Specification

Return the number of strings which are halindromes.

Example 1

input1: 1

Input2:{harshk}

1. Clint and his love for numbers

Clint loves numbers so much, that he tries to find some quirky math tricks whenever he can. One day, he decides to take up a number and tries to find out, in how many minimum numbers of steps, can he reduce that number to 0. The steps he performs were:

1. Either decrease the number by 1, or

2. Replace the number by its largest prime divisor (note that divisor cannot be 1 and number itself).

Help Clint find the minimum number of steps to reduce the given number to 0.

Input Specification

input: The number N

Output Specification

Return the minimum number of steps to reduce the number to 0.

Example 1

input1: 9

Output: 4

Explanation:

Here, 9 can be reduced to 0 as:

Replace it by its largest prime divisor i.e. 3

1. Zombies

In a country of zombies, each city has a certain percentage of zombies. Cities are designated as 0 to n-1.

1. A city[i] is 'magical' if city[i] and city[i+1] have no common divisor other than 1.

Revisit

2. A city[i] is 'good' if the percentage of zombies in the city[i] is more than percentage of zombies in city[i+1].

Find a city that is perfect, where perfect means both good and magical.

If there are more than one perfect cities, output the left-most city index. Also, the minimum number of cities in a country is 2 and there will be at least one perfect city.

Input Specification:

input1: An array representing the percentage of zombies in each city input2: Number of cities in the country

Output Specification:

Return the favorable city index 1".

1. Write an SQL query to find:

The employee ID, employee name, department ID and department name of a employees who have been assigned a department.

Your output should contain 4 columns in the below-mentioned order.

**EMPID | EMPNAME | DEPTID | DEPTNAME**

You can view the database schema by clicking the View Schema tab at the bottom of the query window on the right-hand side of the screen.

1. Given an array A of M positive integers, Write a program to find the highest even sum ,

Read the input from STDIN and write the output to STDOUT.Do not write arbitrary strings while Constraint:

M> 1

Input Format:

I) The first line of input contains M, the size of the array A.

II) The second line of input contains M elements of the array separated by a single white space.

Output Format:

The output contains the highest even sum.

Sample Input1:

5

12345

Sample Output1:

14

Explanation1:

Maximum even sum of elements(2+3+4+5) is 14.

Sample Input 2:

5

11 13 15 17 19

Sample Output 2:

64

Explanation2

Maximum even sum of elements is 64.

1. Job Scheduling

In an operating system, one of the algorithms used for scheduling jobs is Round Robin (RR) scheduling algorithm. In RR, the processor will not process the whole job at a time. Instead, it will complete an amount of the job called time slice at a turn and then will go to the next process and so on. When all jobs have got a turn, it will again start from the first job and work for a time slice on each job and proceed.

The turnaround time of a job is the interval from time of arrival of the process to the time of completion of the process, and waiting time is the time it spends in the ready queue (i.e turnaround time minus the processing time).

Given time slice Ts and N jobs along with their arrival and processing times, your task is to return the turnaround and waiting time for each job when RR scheduling is used. Also, return the average turnaround and waiting time.

Note: The start time is 0 and the jobs are input in the order of increasing arrival times.

**Input Specification:**

**input1**: An integer N denoting the number of jobs

**input2**: An integer Ts denoting the Time slice

**input3**: An integer array A of length input1 denoting the arrival times of the jobs.

**input4**: An integer array P of length input1 denoting the processing times of the jobs.

1. New Habitat

It has been a harsh summer for Ants. They have abandoned their homes and reached a new and strange city, which is divided into a number of small squared shape colonies. The head of the Ants takes decisions for the whole community, and the other senior ants have requested him that they are ready to set up in different colonies but all colonies should be within reach from any other colony.

Formally, if you consider the city as a 2 dimensional table with m rows and n columns you need to find number of possible ways to set up colonies such that:

There is minimum of 1 colony. Colonies should be connected and every colony should be reachable from any other colony. Ants cannot move on diagonals.

Input Specification

input1: Number of rows in the city.

input2: Number of columns in the city.

Output Specification

Return number of possible ways to set up the colonies.

Example 1

input1: 2

Output: 3

1. Workers Dilemma

Two workers, Ed and John are best friends. They work as freelancers and take projects from various companies.

They want to maximize the money they save by working on various projects. Both of them can only do a certain amount of work each day and they make sure to do all the projects given to them.

Your task is to find and return the total amount of money saved by them.

Note: Both Ed and John cannot work on the same project.

Input Specification:

input1: An integer value denoting the total number of projects.

input2: An integer array representing the money saved by Ed on each project.

input3: An integer array representing the money saved by John on each project.

input4: An integer value denoting the maximum projects that can be taken up by Ed.

input5: An integer value denoting the maximum projects that can be taken up by John.

Output Specification:

Return the total amount saved by both Ed and John.

1. Profit Development

Babylon' is an MNC that sells its products all around the world. Their CEO is very curious about customer satisfaction, so he makes a team to survey the customers in each state, in all the countries. He decides to complete the survey in 1 month while minimizing the travelling expenses of his development team (assuming the cost of travelling from state to state is very low as compared to travelling from country to country).

There are a total of C countries and S states in each country.

You are provided with survey data of all the countries. Survey data is a list of rating from S states. Each rating will be a single-digit number between 1 to 9.

The CEO has defined some rules that will define the order in which the team will visit all the states in all the countries: -

1. Company will begin its survey from the state which has the lowest rating.

2. When the company starts working in a country it will Complete its survey in all its states to minimize the travelling expenses.

As the company's analyst, your task is to decide the order in which the countries should be visited so that the process can be conducted first, where it is required the most.

Given the month number, your task is to return the country number as well as the state rating that the company is working on in that month.

Note: The month count starts from 1 and if two or more countries have the same lowest rating then choose the country whose state has the second lowest rating

Input Specification

input1: An integer value denoting the length of survey list.

input2: An integer value S denoting the number of states in a country.

input3: An integer value denoting the month number.

Input4: An array of integers containing survey rating of all the countries.

1. Write an SQL query to display:

The last name of the students who registered in the month of June. Arrange the output data in the ascending order of their last name.

Your output should contain 1 column in the below-mentioned order.

**last\_name**

You can view the database schema by clicking the **View Schema** tab at the bottom of the

query window on the right-hand side of the screen.

1. Coding Marathon

N number of people participated in a coding marathon where they were asked to solve some problems. Each problem carried 1 mark and at the end of the marathon, the total marks that each person achieved was calculated.

As an organizer, you have the list of the total marks that each person achieved. You have calculate the sum of the marks of top K scorers from the list.

Input Specification:

input1: N, Total number of participants

input2: K, Top scorers

input3: An array of length N with the scores of all N participants

Output Specification:

Return S, sum of the marks of top K scorers from the list.

Example 1:

input1: 4

input2: 2

Input3: (4.1.2.5)

1. Magic Stick

You have n magic sticks. In a magic stick, you can either increase or decrease the length of the stick but every time you increase or decrease one unit of the stick, it will cost you

6

7

9

10

You want to convert all the sticks to equal length. Calculate the minimum cost of making all the sticks of equal length.

11

12

13

Input Specification:

input: n. number of magic sticks

input2: An array containing length of each magic stick

input3: An array containing the cost of increasing or decreasing one unit length of stick

Output Specification:

Return the minimum cost of making all sticks of an equal length.

1. Write an SQL query to find:

The employee ID, employee name, department ID and department name of all employees who have been assigned a department.

Your output should contain 4 columns in the below-mentioned order.

**EMPID | EMPNAME | DEPTID | DEPTNAME**

You can view the database schema by clicking the View Schema tab at the bottom of the

query window on the right-hand side of the screen.

1. Zombies

In a country of zombies, each city has a certain percentage of zombies. Cities are designated as 0 ton-1.

1. A city[i] is 'magical' if city[i] and city[i+1] have no common divisor other than 1.

2. A city[i] is 'good' if the percentage of zombies in the city[i] is more than percentage of zombies in city[i+1].

Find a city that is perfect, where perfect means both good and magical.

If there are more than one perfect cities, output the left-most city index. Also, the minimum number of cities in a country is 2 and there will be at least one perfect city.

Input Specification:

input1: An array representing the percentage of zombies in each city input2: Number of cities in the country

Output Specification:

Return the index “i”.

1. Documents

The United Nations Organization released an official document regarding the most important events from the beginning of time (dated 00-00-0000) with a brief description of the events. The date of all the events is mentioned in the 'DD-MM-YYYY' format.

Find the total number of distinct years referenced in the document.

Input Specification:

input1: String containing the content of the document

Output Specification:

Return the total number of distinct years referenced in the document.

Example 1:

input1: UN was established on 24-10-1945. India got freedom on 15-08-1947.

Output: 2

Explanation:

2 distinct years, 1945 and 1947 have been referenced.

1. Game of Stairs

Ron has developed a new video game. In this video game, there is an infinite staircase with markings starting from 1 (lowermost stair) and the ground is marked as 0.

A player can make only one of the following two moves:

-> Press the UP arrow button: Character climbs up N stairs such that N=2\*(Number of steps the character climbed up in the previous upward movement). Note: Initial value of N is 1, and the player is initially on 1 (lowermost stair)

-> Press the DOWN arrow button: The character gets down 1 stair. Note: The DOWN button cannot be pressed consecutively.

The goal of the player is to move the character from the 1 st to the Mth stair.

You have to find and return the total number of ways in which the character can be moved from the 1 st stair to the Mth stair.

Input Specification:

input1: An integer M i.e the final destination.

Output Specification:

Your function should return the total number of ways in which the character can

be moved from the 1st stair to the Mth stair.

1. Clint and his love for numbers

Clint loves numbers so much, that he tries to find some qui whenever he can. One day, he decides to take up a number out, in how many minimum.numbers of steps, can he reduc 0. The steps he performs were:

1. Either decrease the number by 1, or

2. Replace the number by its largest prime divisor (note cannot be 1 and number itself).

Help Clint find the minimum number of steps to reduce the

0.

Input Specification

input1: The number N

Output Specification

Return the minimum number of steps to reduce the numb

1. Flower Prints

Emma owns a boutique and decides to design a new gown. She wants to design the gown by printing some flowers over it. There are X printing blocks in total, and each block consists of some flowers.

Your task is to help Emma find and return the maximum number of flowers that cannot be printed on the gown, using the X printing blocks.

Any block can be used any number of times.

**Note**: The number of flowers on any two blocks is co-prime.

Input Specification:

Input1: An integer value X representing the total number of blocks available. input2: An integer array representing the number of flowers on the each printing block.

Output Specification:

Return an integer value representing the maximum number of flowers that cannot be printed on the gown.

1. Interval Sort

You are always on your computer and your mom is angry with you so to tackle this, she decided to allow you to use your computer only a certain number of hours in the day. She decides to choose evenly distributed computer intervals having maximum possible break hours in between to make sure you are not hurting your eyes.

Given your break intervals throughout the day, help your mom in selecting the suitable computer intervals.

Note: You cannot break the intervals and overlapping Intervals will be considered as one interval. In case of conflicts, she always chooses the interval that comes first.

Input Specification:

input1: An integer denoting the number of break intervals

Input2: A 2-D integer array of size (input12) representing intervals in the form

(11, 12) such that t1 denotes the start time of the break interval, 12 denotes the end time of the break interval and where 11 <12.

input3: An integer value denoting the number of computer intervals.

Output Specification:

Your function must return an integer array containing the starting time of each computer interval. If this is not possible, return (-1) as an array.

1. Write an SQL query to display:

The employee ID, employee name, date of birth (DOB) and age (in years without decimals) of all employees (use alias name Age).

The result must be sorted in ascending order as per the employee ID.

Note: Floor your age variable.

Your output should contain 4 columns in the below-mentioned order.

**EMPID | EMPNAME | DOB | AGE**

You can view the database schema by clicking the View Schema tab at the bottom of the query window on the right-hand side of the screen.

1. Write an SQL query to display:

The department name for which no instructors are available.

Your output should contain 1 column in the below-mentioned order.

**name**

You can view the database schema by clicking the View Schema tab at the bottom of the query window on the right-hand side of the screen.