



# Question Bank CRT

1.Vohra went to a movie with his friends in a Wave theater and during break time he bought pizzas, puffs and cool drinks. Consider the following prices :

- Rs.100/pizza
- Rs.20/puffs
- Rs.10/cooldrink

Generate a bill for What Vohra has bought.

Input:

- Enter the no of pizzas bought:10
- Enter the no of puffs bought:12
- Enter the no of cool drinks bought:5

Output :

Bill Details

- No of pizzas:10
- No of puffs:12
- No of cooldrinks:5
- Total price=1290

2. To calculate the total number of steps taken to climb a certain number of stairs. The user is prompted to input the total number of stairs (m) and the number of stairs covered in each step (n).

Example:-

Enter the number of stairs:13

Enter the number of steps:2

Total steps taken:7

3.You want to buy a particular stock at its lowest price. Since the stock market is unpredictable, you steal the price plans of a company for this stock for the next N days. Find the best price you can get to buy this stock to achieve maximum profit.

Note:-The initial price of the stock is 0.

Input Specification

Input:- N\_number of days

**Note:-The initial price of the stock is 0.**

### **Input Specification**

**Input:- N\_number of days**

**Input:- Array representing change in stock price for the day**

### **Output Specification**

**Your function must return the best price to buy the stock at.**

**Example:-**

**Input 1: 5**

**Input 2: -39957,-17136,35466,21820,-26711**

**Output:- -80794**

**4. There are a total n number of Monkeys sitting on the branches of a huge Tree. As travelers offer Bananas and Peanuts, the Monkeys jump down the Tree. If every Monkey can eat k Bananas and j Peanuts. If the total m number of Bananas and p number of Peanuts are offered by travelers, calculate how many Monkeys remain on the Tree after some of them jumped down to eat.**

**At a time one Monkey gets down and finishes eating and go to the other side of the road. The Monkey who climbed down does not climb up again after eating until the other Monkeys finish eating.**

**Monkeys can either eat k Bananas or j Peanuts. If for last Monkey there are less than k Bananas left on the ground or less than j Peanuts left on the ground, only that Monkey can eat Bananas(<k) along with the Peanuts(<j).**

**Write code to take inputs as n, m, p, k, j and return the number of Monkeys left on the Tree.**

**Where, n= Total no of Monkeys**

**k= Number of eatable Bananas by Single Monkey (Monkey that jumped down last may get less than k Bananas)**

**j = Number of eatable Peanuts by single Monkey(Monkey that jumped down last may get less than j Peanuts)**

**m = Total number of Bananas**

**p = Total number of Peanuts**

**Remember that the Monkeys always eat Bananas and Peanuts, so there is no possibility of k and j having a value zero**

**Input:**

**Input Values**

**20**

**2**

**3**

12  
12

**Output:**

**Number of Monkeys left on the tree:10**

**Note: Kindly follow the order of inputs as n,k,j,m,p as given in the above example. And output must include the same format as in above example(Number of Monkeys left on the Tree:)**

**For any wrong input display INVALID INPUT**

**5. Selection of MPCS exams include a fitness test which is conducted on ground. There will be a batch of 3 trainees, appearing for running test in track for 3 rounds. You need to record their oxygen level after every round. After trainee are finished with all rounds, calculate for each trainee his average oxygen level over the 3 rounds and select one with highest oxygen level as the most fit trainee. If more than one trainee attains the same highest average level, they all need to be selected. Display the most fit trainee (or trainees) and the highest average oxygen level.**

**Note:**

- **The oxygen value entered should not be accepted if it is not in the range between 1 and 100.**
- **If the calculated maximum average oxygen value of trainees is below 70 then declare the trainees as unfit with meaningful message as “All trainees are unfit.**
- **Average Oxygen Values should be rounded.**

**Example 1:**

**INPUT VALUES**

95  
92  
95  
92  
90  
92  
90  
92  
90

**OUTPUT VALUES**

**Trainee Number : 1**

**Trainee Number : 3**

**Note:**

**Input should be 9 integer values representing oxygen levels entered in order as**

**Round 1**

- **Oxygen value of trainee 1**
- **Oxygen value of trainee 2**
- **Oxygen value of trainee 3**

**Round 2**

- **Oxygen value of trainee 1**
- **Oxygen value of trainee 2**
- **Oxygen value of trainee 3**

**Round 3**

- **Oxygen value of trainee 1**
- **Oxygen value of trainee 2**
- **Oxygen value of trainee 3**

**6. You are tasked with a complex matrix operation. You will need to input the size of the matrix and then provide the element of the matrix**

**The main matrix must then be divided into two submatrices: one for even-indexed elements and the other for odd-indexed elements**

**Following this, you are required to sort both the even and odd matrices in ascending order**

**Finally , you must calculate and print the sum of the second largest numbers from both matrices.**

**Example:-**

**Enter the size of the array:-5**

**Enter the element at the 0<sup>th</sup> index:3**

**Enter the element at the 1<sup>st</sup> index:4**

**Enter the element at the 2<sup>nd</sup> index:1**

**Enter the element at the 3<sup>rd</sup> index:7**

**Enter the element at the 4<sup>th</sup> index:9**

**After sorting:**

**Sorted even array: 1 3 9**

**Sorted odd array: 4 7**

**The sum of the second largest numbers from both matrices is:7**

**7. Given a value N, if we want to make change for N Rupees, and we have infinite supply of each Coin  $C = \{C_1, C_2, \dots, C_m\}$  valued coins. In how many ways can we make the change? The order of coins doesn't matter.**

**Example 1:**

**Let total sum be  $N = 5$  and the types of coins  $C = \{1, 2\}$**

**For the given values, the possible changes must be arranged keep in mind that the sum of the change must be 5.**

**$\{1, 1, 1, 1, 1\}$**

**$\{1, 1, 1, 2\}$**

**$\{1, 2, 2\}$**

**We can generate 3 such ways where the rupees can be rearranged to give the sum of 5. Hence, the output must be 3.**

**Example 2:**

**Let  $N = 4$  and  $C = \{1, 2, 3\}$**

**For the given values, the possible changes must be arranged keeping in mind that the sum of the change must be 5.**

**$\{1, 1, 1, 1\}$**

**$\{1, 1, 2\}$**

**$\{2, 2\}$**

**$\{1, 3\}$**

**We can generate 4 such ways where the rupees can be rearranged to give the sum of 5. Hence, the output must be 4.**

**8. Given a sequence of numbers. Find all leaders in the sequence. An element is called a leader if it is strictly greater than all elements to its right side.**

**Input**

`arr[] = {23, 22, 24, 8, 9, 10}`

**Output**

`10, 24`

**9. Given two strings. Check whether both the strings are anagrams of each other or not. [Anagram strings are those strings that have the same characters, only the order of characters may be different]**

**Input**

`str1 = 'coding', str2 = 'ingodc'`

`str1 = 'hello', str2 = 'hoeli'`

**Output**

`"Yes"`

`"No"`

**10. Jarvis is weak in computing palindromes for Alphanumeric characters. While Ironman is busy fighting Thanos, he needs to activate sonic punch but Jarvis is stuck in computing palindromes. You are given a string S containing alphanumeric characters. Find out whether the string is a palindrome or not. If you are unable to solve it then it may result in the death of Iron Man.**

**Test Case 1:-**

**Input:**

`S = "I am :Ironnorl Ma, i"`

**Output:**

**YES**

**Explanation:**

**Ignore all the symbols and whitespaces S = “IamIronnorIMai”. Now, Check for palindrome ignoring uppercase and lowercase English letter.**

**Test Case 2:-**

**Input:**

**S = Ab?/Ba**

**Output:**

**YES**

**Explanation:**

**Here with any amount of rotation s2 can't be obtained by s1.**

**Your Task:**

**This is a function problem. The input is already taken care of by the driver code. You only need to complete the function `savelronman()` that takes an string (ch), and return the true if the string is a palindrome and false if the string is not a palindrome. The driver code takes care of the printing.**

**Expected Time Complexity:  $O(N)$ .**

**Expected Space Complexity:  $O(1)$ .**

**Note:  $N = |s1|$ .**

**Constraints:**

**$1 \leq |S| \leq 100000$**

**Note: Consider alphabets and numbers only for palindrome check. Ignore symbols and whitespaces.**

**Explanation:**

**Ignore all the symbols and whitespaces S = “IamIronnorIMai”. Now, Check for palindrome ignoring uppercase and lowercase English letter.**

**Test Case 2:-**

**Input:**



**S = Ab?/Ba**

**Output:**

**YES**

**Explanation:**

**Here with any amount of rotation s2 can't be obtained by s1.**

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**This is a function problem. The input is already taken care of by the driver code. You only need to complete the function `savelronman()` that takes an string (ch), and return the true if the string is a palindrome and false if the string is not a palindrome. The driver code takes care of the printing.**

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**$1 \leq |S| \leq 100000$**

**Note: Consider alphabets and numbers only for palindrome check. Ignore symbols and whitespaces.**

**11. A carry is a digit that is transferred to left if sum of digits exceeds 9 while adding two numbers from right-to-left one digit at a time**

**You are required to implement the following function.**

**`int NumberOfCarries(int num1 , int num2);`**

**The function accepts two numbers 'num1' and 'num2' as its arguments. You are required to calculate and return the total number of carries generated while adding digits of two numbers 'num1' and ' num2'.**

**Assumption:  $num1, num2 \geq 0$**

**Example:**

**Input**

**Num 1: 451**

**Num 2: 349**

**Output : 2**

**12. Write a program to input string and display count of all permutations of strings without using any built in function.**

**Input:- abc**

**Output:- 6**

**13. Given two non negative integer  $n_1$  and  $n_2$  where  $n_1 < n_2$ ,**

**The task is to find the total number of integers in range  $[n_1, n_2]$  which have no repeated digits**

**Input :  $n_1 = 101$**

**$n_2 = 200$**

**output: 72**

**14. A party has been organized on cruise. The party is organized 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.**

**Input:**

**5 ->  $T$**

**[7,0,5,1,3] ->  $E[]$**

**[0,2,1,3,4] ->  $L[]$**

**Output:-**

**7 -> max number of guests on cruise at an instance**

**15. 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 N number sit around the circular table such that

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

Example:

Input:

4 -> Value of N(no. of numbers)

Output:

12 -> Possible ways of seating the numbers

16. Given a string S(input consisting) of '\*' and '#'. The length of the string is variable.

The task is to find the minimum number of '\*' or '#' to make it a valid string.

The string is considered valid if the number of '\*' and '#' are equal.

The '\*' and '#' can be at any position in the string.

(\*>#) : +ve

(#>\*) : -ve

(#=#) : 0

Input:

###\*\*\*

Output:

0

17. There are n bulbs that are initially off . you first turn on all the bulbs, then you turn off every second bulb.

On the third round , you toggle every third bulb(turning on if its off or turning off if its on)

For the l'th round , you toggle every l bulb for the nth round , you only toggle the last bulb.

**Return the number of bulbs that are on after n rounds.**

**Input: n=3**

**Output: 1**

**18. Write a C++ function to rotate an N x N matrix by 90 degrees clockwise in-place.**

**19. Implement a function in C++ to check if two strings are anagrams of each other.**

**20. Create a dynamic array class in C++ with methods for insertion, deletion, and retrieval of elements.**

**21. Solve the "Coin Change" problem using dynamic programming in C++. Given a set of coin denominations, find the number of ways to make a target amount.**

**22. Write a recursive C++ function to calculate the nth Fibonacci number efficiently.**

**23. Create a C++ program to read data from a text file, perform some processing (e.g., counting words), and write the results to another file.**

## **Accenture**

**1. Execute the given function.**

```
int differenceofSum(int n,int m){}
```

**The function takes two integers m and n as arguments. You are required to obtain the total of all integers ranging between 1 to n (both inclusive) which are not divisible by m. You must also return the distinction between the sum of integers not divisible by m with the sum of integers divisible by m.**

## **Assumption**

**m > 0 and n > 0**

**Sum lies within the integral range**

## **Example**

**Input:**

**m = 6**

**n = 30**

**Output:**

**285**

**Integers divisible by 6 are 6, 12, 18, 24, and 30. Their sum is 90.**

**Integers that are not divisible by 6 are 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 25, 26, 27, 28, and 29. Their sum is 375.**

**The difference between them is 285 (375 – 90).**

**Sample input:**

**m = 3**

**n = 10**

**Sample output:**

**19**

**2. Execute the given function.**

**int largeSmallSum(int arr[])**

**The function takes an integral arr which is of the size or length of its arguments. Return the sum of the second smallest element at odd position 'arr' and the second largest element at the even position.**

**Assumption**

**Every array element is unique.**

**Array is 0 indexed.**

**Note:**

**If the array is empty, return 0.**

**If array length is 3 or <3, return 0.**

**Example**

**Input:**

**Arr: 3 2 1 7 5 4**

**Output:**

**7**

**Explanation**

**The second largest element at the even position is 3.**

**The second smallest element at the odd position is 4.**

**The output is 7 (3 + 4).**

**3. Write a function to validate if the provided two strings are anagrams or not. If the two strings are anagrams, then return 'yes'. Otherwise, return 'no'.**

**Input:**

**Input 1: 1st string**

**Input 2: 2nd string**

**Output:**

**(If they are anagrams, the function will return 'yes'. Otherwise, it will return 'no'.)**

**Example**

**Input 1: Listen**

**Input 2: Silent**

**Output:**

**Yes**

**Explanation**

**Listen and Silent are anagrams (an anagram is a word formed by rearranging the letters of the other word).**

**Also Read About - Difference between argument and parameter**

**Accenture Coding Questions in Python**

**4. Perform the following function.**

**void Productsmallpair(int sum,int arr[])**

**This function accepts the integers sum and arr. It is used to find the arr(j) and arr(k), where  $k \neq j$ . arr(j) and arr(k) should be the smallest elements in the array.**

**Keep this in mind:**

If  $n < 2$  or empty, return  $-1$ .

If these pairs are not found, then return to zero.

Make sure all the values are within the integer range.

**Example**

**Input:**

**Sum: 9**

**Arr: 5 4 2 3 9 1 7**

**Output:**

**2**

**Explanation**

From the array of integers, we have to select the two smallest numbers, i.e 2 and 1. Sum of these two  $(2 + 1) = 3$ . This is less than 9  $(3 < 9)$ . The product of these two is 2  $(2 \times 1 = 2)$  Hence the output is integer 2.

**Sample input:**

**Sum: 4**

**Arr: 9 8 -7 3 9 3**

**Sample output:**

**-21**

**5. Perform the function for the given purpose.**

For writing numbers, there is a system called N-base notation. This system uses only N-based symbols. It uses symbols that are listed as the first n symbols.

Decimal and n-based notations are 0:0, 1:1, 2:2, ..., 10:A, 11:B, ..., 35:Z.

Perform the function: `Chats DectoNBase(int n, int num)`

This function only uses positive integers. Use a positive integer n and num to find out the n-base that is equal to num.

**Steps**

Select a decimal number and divide it by n. Consider this as an integer division.

Denote the remainder as n-based notation.

Again divide the quotient by n.

Repeat the above steps until you get a 0 remainder.

The remainders from last to first are the n-base values.

**Assumption**

$1 < n \leq 36$

**Example**

**Input:**

**N: 12**

**Num: 718**

**Output:**

**4BA**

**Explanation**

num	Divisor		Quotient	Remainder
718	12	59	10(A)	
59	2	4	11(B)	
4	12	0	4(4)	

**Sample input:**

**N: 21**

**Num: 5678**

**Sample output:**

**CI8**

**6. Execute the function for the given purpose.**

When the sum of the digits exceeds a total of 9, a carry digit is added to the right-left of the digit. Execute the function: Int Number of carry(Integer num 1, Integer num 2)

**Assumption**

$\text{num1, num2} \geq 0$

**Example**

**Input:**

**num1: 451**



**num2: 349**

**Output:**

**2**

**Explanation**

When we add these two numbers from the right to the left, we get two carries. The value of each of the carries is 1. Hence, the output is the total of these two carries, i.e., 2.

**Sample input:**

**num1: 23**

**num2: 563**

**Sample output:**

**0**

7. The given function has a string (str) and two characters, ch1 and ch2. Execute the function in such a way that str returns to its original string, and all the events in ch1 are replaced by ch2, and vice versa.

**Replacecharacter(Char str1, Char ch1, Int 1, Char ch2)**

**Assumption**

This string has only alphabets that are in lower case.

**Example**

**Input:**

**str: apples**

**ch1: a**

**ch2: p**

**Output:**

**paales**

**Explanation**

All the 'a' in the string is replaced with 'p'. And all the 'p's are replaced with 'a'.

**Accenture Coding Questions In Java**

**8. Perform the function: `Int operation choices(int c, int n, int a, int b)`. This function considers three positive inputs of a, b and c.**

**Execute the function to get:**

**(a + b), if c = 1**

**(a / b), if c = 4**

**(a – b), if c = 2**

**(a x b), if c = 3**

**Example:**

**Input:**

**a: 12**

**b: 16**

**c: 1**

**Output:**

**28**

**Explanation**

**C = 1, hence the function is (a + b). Hence, the output is 28.**

**Sample input:**

**a: 16**

**b: 20**

**c: 2**

**Sample output:**

**–4**

**9. Perform the function `Int calculate(int m, int n)`. This function needs two positive integers. Calculate the sum of numbers between these two numbers that are divisible by 3 and 5.**

**Assumption**

**m > n >= 0**

**Example**

**Input:**

**m: 12**

**n: 50**

**Output:**

**90**

**Explanation**

The numbers between 12 and 50 that are divisible by 3 and 5 are 15, 30, and 45. The sum of these numbers is 90.

**Sample input:**

**m: 100**

**n: 160**

**Sample output:**

**405**

**10. Execute the function for the given purpose.**

Create a matrix and mention the elements in it. Now, divide the main matrix into two halves in such a way that the elements in index 0 are even, the elements in index 1 are odd, and so on.

Then arrange the values in ascending order for even and odd. After this, calculate the sum of the second largest numbers from both even and odd matrices.

**Example**

The size of the array is 5.

Element at 0 index: 3

Element at 1 index: 4

Element at 2 index: 1

Element at 3 index: 7

Element at 4 index: 9

Even array: 1,3,9

Odd array: 4,7

**Wipro**

## Question

Josh went to the market to buy  $N$  apples. He found two shops, shop A and B, where apples were being sold in lots. He can buy any number of the complete lot(s) but not loose apples. He is confused with the price and wants you to figure out the minimum cost to buy exactly  $N$  apples. Write an algorithm for Josh to calculate the minimum cost to buy exactly  $N$  apples.

**Input Format:**

- The first line of the input consists of an integer –  $N$ , representing the total number of apples that Josh wants to buy.
- The second line consists of two space-separated positive integers –  $M1$  and  $P1$ , representing the number of apples in a lot and the lot's price at shop A, respectively.
- The third line consists of two space-separated positive integers- $M2$  and  $P2$ , representing the number of apples in a lot and lot's price at shop B, respectively.

**Output Format:**

Print a positive integer representing the minimum price at which Josh can buy the apples.

**Sample Input:**

19

3 10

4 15

**Sample Output:**

65

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