Coding Cheat Sheet (From Techie CodeBuddy)

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Ques 1. Given an array of N size, Print the Next Greater Element of every element.

The Next Great Element for an element x is the first greater element on the right side of x in the array. Elements for which no greater element exist, consider the next greater element as -1

Input Format: Given array of N size with space separated integers.

Output: Array of size N with next greater element.

Input 1: 4 5 2 25

Output 1: 5 25 25 -1

Input 2: 5 7 1 7 6 0

Output 2: 7 -1 7 -1 -1 -1

Question 2. Given an array of random numbers, Push all the zero's of a given an array to the end of the array. All non-zero elements should come in front and Order of all non-zero elements should be same.

Input Format: Given an array of random numbers.

Output Format: Move all zeros to end of array and keeping all non-zero element in same position.

Input 1: 1 2 0 4 3 0 5 0

Output 1: 1 2 4 3 5 0 0 0

Input 1: 1 2 0 0 0 3 6

Output 1: 1 2 3 6 0 0 0

Question 3. A list of integers nums (1<=len(num)<=10^5) representing an array of numbers. Return the maximum sum of any contiguous subarray in the given array.

Example:

Input : -2 1 -3 4 -1 2 1 -5 4

Output: 6

Input : 3 -1 2 5 -6 3

Output: 9

Question 4: Nearest Integer

Int nearestInteger(int num, int m)

The function accepts two positive 'num' and 'm' as its argument, Implement the following function to find the nearest integer to num.

1) Number is divisible by m.
2) Number is nearest to 'num' (Have the least distance from num)

Note: If there are two numbers with the least distance from num, then return the larger num.

Input 1: Num= 67

M = 8

Output 1: 64

Input 2: Num=26

M=3

Output 2: 27

Question 5. Unique Path

Unique Paths states that given the m*n grid where a robot starts from the top left corner of the grid. We need to find the total number of ways to reach the bottom right corner of the grid the robot can only move either down or right at any point in time.

There are some cells containing Obstacles which are represented by 1 while 0 for a free call.

Input 1:

0	0	0
0	1	0
0	0	0

Output 1: 2

Input 2:

0	**1**
0	**0**

Output 2: 1

Question 6

Alice has to climb N stairs to reach top. In each step Alice can climb either 1 step or M steps, Find the minimum numbers of steps to reach the top.

Input Format: Input contains two space separated integer N and M.

Output Format: Contains integer, that represents minimum number of climbs required to reach top.

Constraints:

1<=N<=10^9

1<=M<=10^9

Input 1: 5 2

Output : 1

Question 7. Given an array of length n, find the length of largest subarray which contains equal number of 0s and 1s

Input 1-> 1 0 1 1 1 0 0

Output 1-> 6

Input 2: 0 0 1 1 0

Output: 4

Question 8. You are given a program to find count of magical numbers from 1 to N. A magical Number is defined by Following Criteria

1. Replace 0 with 1 and 1 with 2 in binary string
2. Calculate the sum of digits of modified binary string, if sum is odd it means its magical number.

Input 1: 5

Output 1: 2

Explanation:

1->1->2->even

2->10->21->odd

3->11->22->even

Question 9. Reverse a Number

Num= 987654

Output= 456789

Question 10. Find the largest number in an array

Int arr[]= {1,4,6,7,8,9}

Output: 9

Question 11. Given an integer array nums, find the subarray with the largest sum, and return its sum.

Input: Nums= {-2,1,-3,4,-1,2,1,-5,4}

Output: 6

Question 12. Write a code for Prime Number.

Prime number is a number that is greater than 1 and divided by 1 or itself only.

Question 13. Find the target element in an array.

int [] array = {2,3,4,10,40};

int target = 10;

Question 14. Find the middle of linkedlist

Question 15. Given head, the head of a linked list, determine if the linked list has a cycle in it.

Ques 16. Given two strings s and t, return true if t is an anagram of s, and false otherwise.

An anagram is a word or phrase formed by rearranging the letters of a different word or phrase, typically using all the original letters exactly once.

Input: s=”anagram”, t=”nagaram”

Output: true

Question 17. Find the missing number in an array.

Given an array nums containing n distinct numbers in the range [0,n], return the only number in the range that is missing from the array.

Input: Nums = [3,0,1]

Output: 2

Question 18. Check whether string is palindrome or not.

Question 19. The function accepts a string ‘str’ as its argument. The function needs to reverse the order of the words in the string.

Input :- String str= “Hello, World!”

Question 20. Count the occurrences of a given element in an array.

int [] arr ={5,2,4,1,2}

int element = 2;

Question 21. Calculate and return the difference between the sum of square roots of even numbers and the sum of square roots of odd numbers in the range from ‘m’ to ‘n’ (inclusive)

Input: int m = 1, n=10

Question 22. Search a 2D Matrix (Leetcode)

Question 23. Check if two strings Arrays are Equivalent

Input : word1: [“ab”, “c”] , word2=[“a”, “bc”]

Output: true (because ultimately the strings are “abc”)

Question 24. Inorder traversal and preorder Traversal code

Question 25. Best Time to Buy and Sell Stock

You want to maximize your profit by choosing a single day to buy one stock and choosing a different day in the future to sell that stock

Input: Prices =[7,1,5,3,6,4]

Output: 5

Question 26. Fibonacci

Question 27. Factorial

Question 28. Given an array, we have to found the number of occurrences of each element in the array.

Input: arr[] = {10,5,10,15,10,5};

Output:

10 : 3

5: 2

15: 2

Question 29. Rearrange array element by sign

You are given a 0-indexed integer array nums of even length consisting of an equal number of positive and negative integers**.**

Input: nums= [3,1,-2,-5,2,-4]

Output: [3,-2,1,-5,2,-4]

Ques 30.

```
In an array , a superior element is one which is greater than all the elements to its right side.
The rightmost element itself be a superior element.

You are given a function,
int Find_Number_Of_Superior_Element(int arr[], int n);

The function accepts an integer array and the size of array, Implement the function
to find the total number of superior elements present in array.

Assumptions:
N>0 and Array index starts from 0

Input : n=  6
      arr=  [8,10,6,2,9,7]
Output: 3
```

Ques 31.

Problem statement

It is Edward's birthday today. His friends have bought him a huge circular cake.
Edward wants to find out the maximum number of pieces he can get by making exactly N straight vertical cuts on the cake.
Your task is to write a function that returns the maximum number of pieces that can be obtained by making N number of cuts.

Note: Since the answer can be quite large, modulo it by 1000000007

Input Specification:
input1: An integer N denoting the number of cuts

Output Specification:
Return the maximum number of pieces that can be obtained by making N cuts on the cake

Ques 32

```
(18 Sept 2023)
Given a number N your Task is to make N a single digit number by performing these operations

1) If N is odd , make it floor(N/2)
2) If N is even, make it floor((N-2)/2)
3) If N is already a single digit , print as it is

Example:
Input 1: N=25
Output 1: 12

Input 2: N=10
Output: 4

Input 3: N=5
Output: 5
```

Ques 33.

1. **Problem Description**:

The Binary number system only uses two digits, 0 and 1 and the number system can be called binary string. You are required to implement the following function:
int OperationsBinaryString(char* str);
The function accepts a string str as its argument. The string str consists of binary digits separated with an alphabet as follows:
– A denotes AND operation
– B denotes OR operation
– C denotes XOR Operation

You are required to calculate the result of the string str, scanning the string to right taking one operation at a time, and return the same.

Note: No order of priorities of operations is required.
Length of str is odd.
If str is NULL or None (in case of Python), return -1.

Input:
1C0C1C1A0B1

Output:
1

Ques 34.

The function accepts two positive integers 'r' and 'unit' and a positive integer array 'arr' of size 'n' as its argument 'r' represents the number of rats present in an area,
'unit' is the amount of food each rat consumes and each ith element of array 'arr' represents the amount of food present in 'i+1' house number, where 0 <= i.

Note:
Return -1 if the array is null.
Return 0 if the total amount of food from all houses is not sufficient for all the rats.
Computed values lie within the integer range.

Example:
Input:
r: 7
unit: 2
n: 8
arr: 2 8 3 5 7 4 1 2

Output:
4

Explanation:
Total amount of food required for all rats = r * unit
= 7 * 2 = 14.
The amount of food in 1st houses = 2+8+3+5 = 18. Since, the amount of food in 1st 4 houses is sufficient for all the rats. Thus, output is 4.

Ques. 35

You are given a function,
int findCount(int arr[], int length, int num, int diff);
The function accepts an integer array 'arr', its length and two integer variables 'num' and 'diff'.
Implement this function to find and return the number of elements of 'arr' having an absolute difference of less than or equal to 'diff' with 'num'.

Note: In case there is no element in 'arr' whose absolute difference with 'num' is less than or equal to 'diff', return -1.

Example:
Input:
arr: 12 3 14 56 77 13
num: 13
diff: 2

Output:
3

Explanation:
Elements of 'arr' having absolute difference of less than or equal to 'diff' i.e. 2 with 'num' i.e. 13 are 12, 13 and 14.

Ques 36.

Implement the following Function
def ProductSmallestPair(sum, arr)
The function accepts an integer sum and an integer array arr of size n.
Implement the function to find the pair, (arr[j], arr[k]) where j!=k,such that arr[j] and arr[k] are the least two elements of array (arr[j] + arr[k] <= sum) and return the product of element of this pair.

Note:
Return -1 if array is empty or if n < 2
Return 0, if no such pairs found.
All computed values lie within integer range.

Example:
Input
sum:9
Arr:5 2 4 3 9 7 1

Output
2

Explanation:
Pair of least two element is (2, 1) 2 + 1 = 3 < 9, Product of (2, 1) 2*1 = 2. Thus, output is 2.

.

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>=0

Example:
Input
Num 1: 451
Num 2: 349

Output
2

Explanation:
Adding 'num 1' and 'num 2' right-to-left results in 2 carries since (1+9) is 10. 1 is carried and (5+4=1) is 10, again 1 is carried. Hence 2 is returned.

Ques.

You are given a function,
void *ReplaceCharacter(Char str[], int n, char ch1, char ch2);

The function accepts a string ' str' of length n and two characters 'ch1' and 'ch2' as its argument.
Implement the function to modify and return the string ' str' in such a way that all occurrences of 'ch1' in the original string are replaced by 'ch2' and all occurrences of 'ch2' in the original string are replaced by 'ch1'.

Assumption: String Contains only lower-case alphabetical letters.

Note:
Return null if the string is null.
If both characters are not present in the string or both of them are the same , then return the string unchanged.

Example:
Input:
Str: apples
ch1:a
ch2:p

Output:
paales

1. Execute the given function.

def differenceofSum(n.m)

The function takes two integrals 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.

def LargeSmallSum(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).

def Productsmallpair(sum,arr)

This function accepts the integers sum and arr. It is used to find the arr(j) and arr(k), where k ! = 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 x 1 = 2) Hence the output is integer 2.

Sample input:
Sum: 4
Arr: 9 8 –7 3 9 3

Sample output:
–21

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CODING QUESTIONS

2024

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27th Feb

You are given two strings, s and t . Your task is to determine if it's possible to rearrange the characters of s to form the string t .

Write a function that returns True it's possible to create t by rearranging the characters of s and False otherwise.

Input
Two strings, s and t where the length of s and t are between 1 and 1000 characters.

Output
Return True if it's possible to create t by rearranging the characters of s and False otherwise

Example:

s="listen"
t="silent"

Output:
True

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27th Feb

```
import java.util.*;
public class Main{
public static void main (String[] args) {
   Scanner sc=new Scanner(System.in);
   String s=sc.nextLine(); // Silent
   String t=sc.nextLine(); // listen

   char []arr1=s.toCharArray(); //
   {'s','i','l','e','n','t'}; char
   []arr2=t.toCharArray();

   Arrays.sort(arr1); // e , i,l, n,s,t
   Arrays.sort(arr2); // e,i,l,n,s,t

   if(Arrays.equals(arr1,arr2)){
      System.out.print("True");
   }else{
      System.out.print("False");
   }
}
}
```


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27th Feb

Python :

```
def main():
s = input().strip()
t = input().strip()

arr1 =
sorted(s)
arr2 =
sorted(t)

if arr1 ==
   arr2:
      print("Tru
      e")
   else:
      print("False")

if _____name
   _=="__main
   _": main()
```


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28th Feb

Input:

A single line of text containing words separated by spaces. The input string consists of only printable ASCII characters.

Output:

The string with words reversed in

order. Example:

Input: Hello
World
Output:
World Hello

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28th Feb

```
import
java.util.Scanner;
public class Main
{
 public static void main(String[]
    args) {Scanner sc=new
    Scanner(System.in);
    String str=sc.nextLine();// one two three four
    String []arr=str.split(" "); //{'one',"two","three","four"}

    for(int i=arr.length-
       1;i>=0;i--){ if(i==0){
          System.out.print(arr[i]);
       }else{
       System.out.print(arr[i]+"
          "); //
          }
    }
 }
```


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28th Feb

Python :

```
def main():
    str = input().strip()
    arr = str.split(" ")

    for i in range(len(arr) - 1, -1, -1):
        if i == 0:
            print(arr[i], end="")
        else:
            print(arr[i], end=" ")

if _name_== "_main_":
    main()
```


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6th March

You are given an integer 'n'. Write a Python function to calculate and return the sum of the digits in 'n' after converting it to its binary representation.

For example, 15, which has a binary representation of 1111, should return 4.

python :

```
def sum_bin(n): # 15
    li=[] # 1,1
    while(n!=0):
        rem=n%2 # 1
        li.append(str(rem))
        n//=2 # n=n//2 = 7,3
     rev=li.reverse()
    s=.join(li) # 1111
    num=int(s)
    summ=0
    while(num!=0):
        last num%10 # 1
        summ =summ+last # 0+1=1 4
        num// 10 #111
    return summ
print( sum_bin( 15 ))
```


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6th March, 2nd May

Write the Python function sumevenandodd(arr) to solve this problem. The function should take an array of integers as input and return a tuple of two integers the first element being the sum of even numbers, and the second element being the sum of odd numbers

Input Constraints:

The number of elements in the array (N) is an integer where 1 <=N<= 10^6.
Each element in the array is an integer where -10^6 <= element <= 10^6.

Output Constraints:

The function should return a tuple containing two integers:
the sum of even numbers and the sum of odd numbers.

For example, input:
3
10
9
11

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2nd May

You have been given an integer N as input . your task is to write a program to print N rows of Floyad’s Triangle. Floyd's pattern is a right-angled triangular array of natural numbers , used for the numbering of lines In a printout
.
For N=4,
1
23
456
78910

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2nd May

```
import java.util.*;
public class Main {

    public static void main(String[] args) {

        Scanner sc=new Scanner(System.in);
        int n=sc.nextInt();
        int var=0;
        for(int i=1;i<=n;i++){
            for (int j=1;j<=i ;j++ ){
                var++;
                System.out.print(var+" ");
            }
            System.out.println();
        }

    }

}
```


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2nd May

Python :

```
def main():
    n = int(input())
    var = 0
    for i in range(1, n + 1):
        for j in range(1, i + 1):
            var += 1
            print(var, end=" ")
        print()

if _name___=="_main_":
    main()
```


2024

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2nd,4th May, June

Rohan is a kid who has just learned about creating words from alphabets. He has written some words in the notepad of his Father laptop. Now his father wants to find the longest word written by Rohan using a computer program. Write a program to find the longest string in a given list of strings.

Example:

Input: yes no number
Output: The longest string is: number

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2nd,4th May, June

Python :

```
S="I Am Ubkanna ANNA"
li=s.split()
m=""
for item in li:
    current=item
    if len(current)>len(m):
        m=current
print(m)
```

Problem Statement :
..... Gist is - you have to do sum .

Example:

Input:
4 5
Output:
Total number of toffees is: 9
Input:
20 26
Output:
Total number of toffees is: 46

- It’s very easy , still it was asked . Solve it by Yourself

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3rd May Repeated

BMI Calculation :

A person's body mass index is a simple calculation based on height and weight that classifies the person as underweight, overweight or normal. The formula for the matric unit

BMI = weight in kilograms / (height in meters)^2

You are given an integer weight and , a floating-point number height of a person as Input. Calculate the BMI of the person and print the person's BMI category as per the given description:

1. If BMI <18, print 0.
2. If 18>= BMI < 25, print 1.
3. If 25>=BMI <30, print 2.
4. If 30>= BMI < 40, print 3.
5. If BMI >= 40, print 4.

Note:
. The unit of weight is Kilogram.
. The unit of height is meter.
. Compute BMI as a floating-point.

Input Format:
Each test case consists of two lines of input:
. The first line of input contains an integer, I.e. weight in kilograms.
. The second line contains a float number, I.e. height in meters.
Input will be read from the STDIN by the candidate

Output Format:
A single integer, i.e. person's BMI category.

Constraint:
0<weight<10^9
0<height<10.00

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3rd May Repeated

Example:

Input:
42
1.54

Output:
0
Explanation:
The person's weight is 42Kg and height is 1.54 meters
BMI= weight in kilograms/ (height in meters)² = 42/(1.54* 1.54) = 17.70
Since, BMI < 18, as per given rules, the output is 0.

Sample input
62
1.52
Sample Output
2

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3rd May Repeated

```
import java.util.Scanner;

public class Main {
    Public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter weight: ");
        int weight = scanner.nextInt();

        System.out.print("Enter height: ");
        float height = scanner.nextFloat();

        float bmi = weight / (height * height);

        int category;
        if (bmi < 18) {
            category = 0;
        } else if (bmi >= 18 GG bmi < 25) {
            category = 1;
        } else if (bmi >= 25 GG bmi < 30) {
            category = 2;
        } else if (bmi >= 30 GG bmi < 40) {
            category = 3;
        } else {
            category = 4;
        }

        System.out.println("Category: " + category);

        scanner.close();
        }
    }
```

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3rd May Repeated

Python :

```
def main():
    Weight = int(input("Enter weight: "))
height = float(input("Enter height: "))

bmi = weight /(height * height)

if bmi < 18:
    category = 0
elif 18 <= bmi < 25:
    category = 1
elif 25 <= bmi < 30:
    category = 2
elif 30 <= bmi < 40:
    category = 3
else:
    category = 4

    print("Category:", category)

if __name__ == "__main__":
    main()
```


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3rd May Repeated

Message Decryption :

You are given a string msg of length n. msg contains an encoded message. whereencoded characters are separated with a space. Your task is to find and print the decoded message . Message has been enocded as follows:

Each letter was converted to its base number

- A space is converted to an underscore (_)
- A number is preceded by the number symbol(#)

Note:

1. Print all the letters in upper case
2. Print space in decoded message only when underscore symbol (_) appears in msg
3. If msg is empty or "NULL" print "NULL".
4. Base number: The alphabetical order of letters is their base number, ie, base number of A-1, 6-2, C-3, D4 and so on.

Assumptions:

1. Length of decoded string will always be less than or equal to given string length.
2. Decoded message will not contain underscore (_) and symbol (#)

Input Format:

The input consists of two lines:

The first line contains an integer, L.e. n.

second line contains the string msg.

Output Format:

print the decoded message

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3rd May Repeated

```
Public class Main
{
    public static void main(String[] args) {
    // String msg = "2 1 4 _ 3 1 20 _ @# 459";
    String msg = "1 2 3 . # 1 # 2 # 3";
    int n = msg.length();
    System.out.println(fun(n, msg));

}

public static boolean isNum(String str){
    try{
        Integer.parseInt(str);
        return true;
    }
        catch(Exception e){
            return false;
        }
    }
}
```


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3rd May Repeated

```
Public static String fun(int n, String msg){
    if(msg.equals("") || msg == null){
        System.out.println(" NULL");

    }
    String str[] = msg.split(" "), s="";
    int m = str.length;
    for(int i =0;i<m;i++){
        if(isNum(str[i])){
            int num=Integer.parseInt(str[i]);
            if(i-1>=0 GG str[i-1].equals("#"))
            {
                s += str[i];
            }
            else if (num >=1 GG num <=26)
            {
                s+= (char) ('A'+ num - 1);
            }
            else{
                return "Invalid";

            }

    }
     else if(str[i].equals("_")){
        s+= ' ';
    }
     else{
        s += str[i];
     }

    }
```

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3rd May Repeated

```
Msg = "";
for(int i=0;i<s.length();i++){
if(s.charAt(i) != '#'){
 msg += s.charAt(i);
 }
 }
 return msg;
}
```


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3rd May Repeated

Python :

```
def main():
    msg = "2 1 4 _ 3 1 20 _ @# 459";
    #msg = "1 2 3 . # 1 # 2 # 3"
    n = len(msg)
    print(fun(n, msg))

def fun(n, msg):
    if msg == "" or msg is None:
        print("NULL")

    str_list = msg.split(" ")
    s = ""
    m = len(str_list)

    for i in range(m):
        if is_num(str_list[i]):
            num = int(str_list[i])
            if i - 1 >= 0 and str_list[i - 1] == "#":
                s += str_list[i]
            elif 1 <= num <= 26:
                s += chr(ord('A') + num - 1)
            else:
                return "Invalid"
    elif str_list[i] == "_":
        s += ' '
    else:
        s += str_list[i]

    msg = ""
    for i in range(len(s)):
        if s[i] != '#':
            msg += s[i]

return msg
```

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3rd May Repeated

```
def is_num(string):
    try:
        int(string)
        return True
    except ValueError:
            return False

if _name___=="_main_":
 main()
```


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4th May Repeated

Encode the Number:

You work in the message encoding department of a national security message agency. Every message that is sent from or received in your office is encoded. You have an integer N and each digit of N is squared and the squares are concatenated together to encode the original number. Your task is to find and return an integer value representing the encoded value of the number.

Input Specification:
input1: An integer value N representing the number to be encoded.

Output Specification:
Return an integer value representing the encoded value of the number.

Example 1:

input1: 34

Output: 916

Explanation:

Here, the given integer is 34, and the square its digit are:
3^2= 9
4²=16

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```
public class Main
{
public static void main(String[] args) {
int n=34;
System. out. println( encode Number( n));
}
public static int encodeNumber(int n){
String result="";
while(n!=0){
int last=n%10;
result (last*last) + result;
n/=10;
}
return Integer.parseInt(result);
}
```


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4th May Repeated

Python :

```
def main():
    n = 34
    print(encode_number(n))

def encode_number(n):
    result = ""
    while n != 0:
        last = n % 10
        result = str(last * last) + result
        n //= 10
    return int(result)

if __name__ == "__main__":
    main()
```


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4th May Repeated

Refueling Vehicle :

You are incharge of a convoy of N vehicles, each with fuel meter which shows the fuel present in each vehicle in litres. Each vehicles need to travel a distance of X kilometers. If the fuel becomes empty before reaching X kilometers the vehicle can refuel but the refueling will be of X litres and if the vehicles completes the X kilometers where fuel is left over then the extra fuel will be given to the next vehicle in the convoy. You must rearrange the convoy such that the vehicles take minimum refueling stops.

Your task is to find and return an integer value representing the minimum number of refueling stops required by the convoy of vehicles.

Note:

- The vehicles can go 1 kilometer in a single litre
- The refueling at any point of time will be for X litres only

Input Specification:

input1: An integer value X, representing the distance to be travelled.

input2: An integer value N, representing the number of vehicles in the convoy.

input3: An integer array, representing the fuel capacity of vehicles in the convoy.

Output Specification:

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input1: 100
input2:4
input3: (80,120,90,70)
Output: 1

Explanation:
vehicles is (80,120,90,70) and X y is 100. The refueling of the vehicles will happen as follows:
First the vehicle with maximum fuel capacity of 120 will travel. It can reach without refueling.

2. Now, we can carry over the remaining fuel of 20 (120-100) and add it to the capacity of the second vehicle, 90. So new capacity becomes 110 (90+20). It can reach without refueling.
3. Then, we can carry over the remaining fuel of 10 (110-100) and add it to the capacity of the third vehicle, 80. So its new capacity becomes 90 (80+10). Now it requires 1 refueling (which is X=100) is required. So the capacity becomes 190 (90+100) and now this vehicle can also reach.
4. Finally, we carry over the remaining fuel of 90 (190-100) and add it to the capacity of the fourth vehicle, 70. So its new capacity becomes 160 (70+90), so it can reach without refueling.

The convoy of vehicles requires 1 refueling. Therefore, 1 is returned as the output.

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4th May Repeated

```
import java.util.Arrays;
public class Main
{
 public static void main(String[] args) {
    int dist=120;
    int n=6;
    int[] arr={90,120,110,105,80,70}; // 70,80,90,120
 System.out.println(refuel(dist,n,arr));
}
public static int refuel(int dist,int n, int[] arr){
    Arrays.sort(arr);
    int curr=0,count=0;
    for(int i=n-1;i>=0;i--){

        curr=curr+arr[i];// 20+90    10+80
        if(curr<dist){
           count++;
        }else{
            curr=curr-dist;//20 10
        }
    }
    Return count;
 }
}
```

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python :

```
def main():
    dist = 120
    n = 6
    arr = [90, 120, 110, 105, 80, 70]
    print(refuel(dist, n, arr))

def refuel(dist, n, arr):
    arr.sort()
    curr = 0
    count = 0
    for i in range(n-1, -1, -1):
        curr += arr[i]
        if curr < dist:
            count += 1
        else:
            curr -= dist
    return count

if __name__ == "__main__":
    main()
```

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9th May Repeated

- Smallest Among Three
- Subtraction

These are asked on 9th may, To see the questions CLICK ME

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9th May

Print this Pattern :
For N=3

3 3 3 2 2 2 1 1 1
3 3 2 2 1 1
3 2 1

```
public class Main {
public static void main(String[] args) {
int line = 4;
for (int i = line; i > 0; i--) {
for ( int j = l ine; j > 0; j--) {
for ( int k = 0; k < i;| k++) {
System. out. print( j );
}
}
System. out. println();
}
}
}
```

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9th May

Python :

```
line=3
for i in range(line, 0, -1):
for i in range(line,, -1):
    print(str(j) i, end='')
print()
```