DAY 25

INTERVIEW BIT PROBLEMS :

1. Zigzag String

The string **"PAYPALISHIRING" is written in a zigzag pattern on a given number of rows** like this: (you may want to display this pattern in a fixed font for better legibility)
P.....A.....H.....N
..A..P....L....S....I...I....G
....Y.....I.....R
And then read line by line: PAHNAPLSIIGYIR
Write the code that will take a string and make this conversion given a number of rows: string convert(string text, int nRows);convert("PAYPALISHIRING", 3) should return "PAHNAPLSIIGYIR"
****Example 2 : ****
ABCD, 2 can be written as
A....C
...B....D
and hence the answer would be ACBD.

CODE :

PYTHON

```
class Solution:
    # @param A : string
    # @param B : integer
    # @return a strings
    def convert(self, A, B):
        if B==1:
            return A
        n=len(A)
        if B>n:
            return A
        arr=["" for i in range(n)]
        r=0#row
        for i in range(n):
            arr[r]+=A[i]
            if r==B-1:
                move_up=True
            elif r==0:
                move_up=False
            if move_up:
                r-=1
            else:
                r+=1
        out=""
        for i in range(B):
```

```
            out+=arr[i]
        return out
```

C++

```
string Solution::convert(string A, int B) {
    if(B==1){
        return A;
    }
    int n=A.length();
    if(B>n){
        return A;
    }
    string arr[B];
    string out="";
    int r=0;
    bool down;
    for(int i=0;i<n;i++){
        arr[r].push_back(A[i]);
        if(r==B-1){
            down=false;
        }
        else if(r==0){
            down=true;
        }
        if(down){
            r+=1;
        }
        else{
            r-=1;
        }
    }
    for(int i=0;i<B;i++){
        out.append(arr[i]);
    }
    return out;
}
```

2. Integer To Roman

Given an integer A, convert it to a roman numeral, and return a string corresponding to its roman numeral version

Input Format

The only argument given is integer A.

Output Format

Return a string denoting roman numeral version of A.

Constraints

1 <= A <= 3999

For Example

Input 1:

A = 5

Output 1:

"V"

Input 2:

A = 14

Output 2:

"XIV"

CODE :

PYTHON

```
class Solution:
    # @param A : integer
    # @return a strings
    def intToRoman(self, A):
        nums=[1,4,5,9,10,40,50,90,100,400,500,900,1000]
        roman=['I','IV','V','IX','X','XL','L','XC','C','CD','D','CM','M']
        #indices of nums and roman ranges from 0 to 12
        out_roman=""
        i=12
        while A:
            d=A//nums[i]
            A=A%nums[i]
            while d:
                out_roman+=roman[i]
                d-=1
            i-=1
        return out_roman
```