Q10. Give the output for the following code:

```
values=[[3,4,5,1],[33,6,1,2]]
v=values[0][0]
for lst in values:
  for element in lst:
    if v>element:
      v=element
print(v)
```

1

3

5

6

Section 2 - CODING

Section Summary

- No. of Questions: 10
- Duration: 1e+22 min

Additional Instructions:

None

Q1. You are given an integer, N. Your task is to print an alphabet rangoli of size N. (Rangoli is a form of Indian folk art based on creation of patterns.)
Different sizes of alphabet rangoli are shown below:
#size 3

```
----c----
--c-b-c--
c-b-a-b-c
--c-b-c--
----c----
```

#size 5

```
--------e----------
-------e-d-e-------
-----e-d-c-d-e-----
---e-d-c-b-c-d-e--
e-d-c-b-a-b-c-d-e
---e-d-c-b-c-d-e--
-----e-d-c-d-e-----
-------e-d-e-------
---------e---------
```

#size 10

```
------------------j------------------
----------------j-i-j----------------
--------------j-i-h-i-j--------------
------------j-i-h-g-h-i-j------------
----------j-i-h-g-f-g-h-i-j----------
--------j-i-h-g-f-e-f-g-h-i-j--------
------j-i-h-g-f-e-d-e-f-g-h-i-j------
----j-i-h-g-f-e-d-c-d-e-f-g-h-i-j----
--j-i-h-g-f-e-d-c-b-c-d-e-f-g-h-i-j--
j-i-h-g-f-e-d-c-b-a-b-c-d-e-f-g-h-i-j
--j-i-h-g-f-e-d-c-b-c-d-e-f-g-h-i-j--
----j-i-h-g-f-e-d-c-d-e-f-g-h-i-j----
------j-i-h-g-f-e-d-e-f-g-h-i-j------
--------j-i-h-g-f-e-f-g-h-i-j--------
----------j-i-h-g-f-g-h-i-j----------
------------j-i-h-g-h-i-j------------
--------------j-i-h-i-j--------------
----------------j-i-j----------------
```

----------j----------

The center of the rangoli has the first alphabet letter *a*, and the boundary has the Nth alphabet letter (in alphabetical order).

Input Format

Only one line of input containing N, the size of the rangoli.

Output Format

Print the alphabet rangoli in the format explained above.

Sample Input

```
5
```

Sample Output

```
--------e--------
------e-d-e------
----e-d-c-d-e----
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q2. You are asked to ensure that the first and last names of people begin with a capital letter in their passports. For example, chitkara university should be capitalised correctly as Chitkara University.

Given a full name, your task is to capitalize the name appropriately.

Note: in a word only the first character is capitalized. Example 12abc when capitalized remains 12abc.

Input Format

A single line of input containing the full name, S.

Output Format

Print the capitalized string, S.

Sample Input

```
chitkara university
```

Sample Output

```
Chitkara University
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q3. The students are given a task to test their intellect. The teacher has given them a task to count all the prefixes from a given string such that the first alphabet has greater frequency than second alphabet. The input should be a string and two alphabets. Taking the two alphabets as input from the user, compare them. The prefixes in which the first alphabet has greater frequency than the second alphabet, such prefixes are displayed else the result 0 should be displayed.

Input Format

pythonprogramming
p
m

Output Format

p
py
pyt
pyth
pytho
python
pythonp
pythonpr
pythonpro
pythonprog
pythonprogr
pythonprogra
pythonprogram
13

Sample Input

```
hhotspot_hot
h
```

Sample Output

```
0
```

h	

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q4. Write a program to accept a string 'accepted_string'. Generate a 'resultant_ string' such that 'resultant_string' should contain all characters at the even position of 'accepted_string'. Assume the indexing of string to be start from 0. Display original string and 'resultant_string' in reverse order.

Input Format

This line indicates the accepted string

Output Format

First line indicates the reverse of accepted string (original string)
Second line indicates the reverse of resultant string containing even indexed characters.

Sample Input

```
Life is good
```

Sample Output

```
doog si efiL
ogs fL
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q5. Consider the following

- A string ,*s*, of length *n* where s=c0c1……cn-1
- An integer, *k*, where *k* is a factor of *n*.

We can split *s* into n/k sub-segments where each sub-segment 'ti' consists of a contiguous block of *k* characters in *s*. Then use each 'ti' to create string 'ui' such that:
• The characters in ui are a subsequence of characters in ti.
• Any repeat occurrence of a character is removed from the string such that each character in ui occurs exactly once. In other words, if a character at some index *j* in ti , occurs at a previous index < *j* in ti then do not include the character in string ui.
Given *s* and *k*, print n/k lines where each line *i* denotes string ui.

Sample Input
AABCAAADA
3
Sample Output
AB CA AD

Explanation :
String *s* is split into n/k=9/3=3 equal parts of length *k* = 3.
We convert each ti into ui by removing any subsequent occurrences non-distinct characters in ti
1. t0 = "CAA" its corresponding ui = "CA"
2. t1 = "ADA" its corresponding ui = "AD"
We then print ui on a new line.

Input Format

The first line contains a single string denoting *s*.
The second line contains an integer *k*, denoting the length of each sub-segment.

Output Format

Print *k* lines where each line *i* contains string ui

Constraints

1 ≤ *n* ≤ 10**4, where *n* is the length of *s*
1≤ *k* ≤*n*
It is guaranteed that *n* is a multiple of *k.*

Sample Input

```
AABCAAADA
3
```

Sample Output

```
AB
CA
AD
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q6. **Matrix Generator:**

A mathematician requires generating a multi-dimensional matrix on the basis of the number of rows and columns. Each row-column value is initialized based on a formula. Write a program which takes 2 digits, X,Y as input and generates a 2-dimensio array. The element value in the i-th row and j-th column of the array should be i*j.
Note: i=0,1.., X-1; j=0,1,¡Y-1.

Example
Suppose the following inputs are given to the program:
3,5

Then, the output of the program should be:
[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]

Sample Input

```
3,5
```

Sample Output

```
[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q7. **String Filter:**

You are required to filter the two strings in such a way that only the unique letters are printed. Write a program to take two strings input from user and you have to modify strings such that , all the common characters of the two strings have to be removed and the uncommon characters of the 1st string have to be concatenated with uncommon characters of the 2nd string.

Note: We are assuming different character to uppercase and lowercase letters. For example a and A is different according to our assumption.

Sample Input

```
asdfg
werta
```

Sample Output

```
sdfgwert
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q8. Car Rental System:

In a car parking system, we have to calculate the parking charges to be paid. We have to read the hours and minutes when the vehicle enters the parking lot and also enter its leaving time. Calculate the charges based on the below rent chart.

Vehicle Name
Rate per hour
Truck/Bus
20 Rs/hour
Car
10 Rs/hour
Cycle/MotorCycle/Scooter
5 Rs/hour

NOTE: Assume that the arrival time and exit time are on the same day(same date). If Time of Exit is smaller than Arrival Time, then print- invalid time.
Sample Input:
c #Enter c for car, t for truck and b bus, s for scooter and y for cycle and m for motorcycle
10 #Arrival hours, If exceeding 24 Print **invalid time**
10 #Arrival Minutes, If exceeding 60 Print **invalid time**
20 #Exit hours, If exceeding 24 Print **invalid time**
20 #Exit Minutes, If exceeding 60 Print **invalid time**
Sample Output:
Hours= 11 #If time is in hours and minutes, then add 1 hour for the minutes
Pay Rs 110 #charges incurred

Input Format

t
20
20
24
25

Output Format

Hours=5
Pay Rs 100

Sample Input

Sample Output

c 10 10 20	Hours= 11 Pay Rs 110

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q9. Assuming that we have some email addresses in the "username@companyname.com", format, please write program to print the user name of a given email address. Both user names and company names are composed of letters only.

NOTE: email address will always end with .com

Input Format

johnny@gmail.com

Output Format

johnny

Sample Input

```
abc@gmail.com
```

Sample Output

```
abc
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q10. Given an array of integers where 1<=a[i]<=n (n=size of the array), some elements appear twice and others appear once. Find all the elements of [1,n] inclusive that do not appear in this array.

Sample Input:
5 # Number of elements
1
1
1
2
2

Sample Output:
[3,4,5]

Note: If all the elements in the range [1,n] are present in the input, output should be an empty list

Input Format

6
1
2
3
4
5
6

Output Format

[]

Sample Input

```
6
1
2
3
```

Sample Output

```
[1, 2, 3, 4, 5, 6]
[]
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb