### 04 - Iteration Control Structures

Ex. No. : 4.1 Date:17.4.24

Register No : 231501152 Name: Shree Varshini

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### Factors of a number

Determine the factors of a number (i.e., all positive integer values that evenly divide into a number).

#### For example:

Inpu t	Result
20	1 2 4 5 10 20

```
k=int(input())
l=[]
for i in range(1,k+1):
    if(k%i==0):
        l.append(i)
for j in l:
    print(j,end=' ')
```

Ex. No. : 4.2 Date:17.4.24

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### Non Repeated Digit Count

Write a program to find the count of non-repeated digits in a given number N. The number will be passed to the program as an input of type int.

Assumption: The input number will be a positive integer number >= 1 and <= 25000. Some examples are as below.

If the given number is 292, the program should return 1 because there is only 1 non-repeated digit '9' in this number

If the given number is 1015, the program should return 2 because there are 2 non-repeated digits in this number, '0', and '5'.

If the given number is 108, the program should return 3 because there are 3 non-repeated digits in this number, '1', '0', and '8'.

If the given number is 22, the function should return 0 because there are NO non-repeated digits in this number.

#### For example:

Input	Resul t
292	1
1015	2
108	3
22	0

```
n=int(input())
l=[]
k=[]
while n>0:
    a=n%10
    n=n//10
    l.append(a)
for i in range(len(l)):
    if l.count(l[i])==1:
```

	Input	Expected	Got	
~	292	1	1	~
~	1015	2	2	~
~	108	3	3	~
~	22	0	0	~
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Ex. No. : 4.3 Date:17.4.24

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### **Prime Checking**

Write a program that finds whether the given number N is Prime or not. If the number is prime, the program should return 2 else it must return 1.

Assumption:  $2 \le N \le 5000$ , where N is the given number.

Example 1: if the given number N is 7, the method must return 2

Example 2: if the given number N is 10, the method must return 1

#### For example:

Input	Result
7	2
10	1

```
a=int(input())
for i in range(2,a):
    if(a%2==0):
        flag=0
    elif(a%i!=0):
        flag=1
    else:
        flag=0
if(flag==1):
    print("2")
elif(flag==0):
    print("1")
```



Ex. No. : 4.4 Date:24.4.24

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### Next Perfect Square

Given a number N, find the next perfect square greater than N.

Input Format:

Integer input from stdin.

Output Format:

Perfect square greater than N.

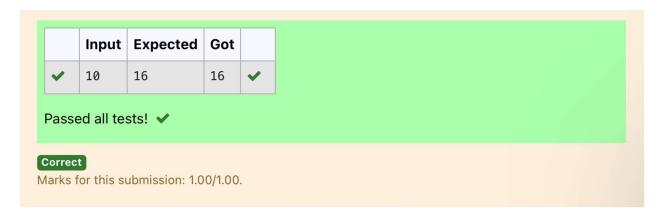
Example Input:

10

Output:

16

```
a=int(input())
c=[]
for i in range(0,a):
    b=i**2
    if(b>a):
        c.append(b)
print(c[0])
```



Ex. No. : 4.5 Date:24.4.24

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#### Nth Fibonacci

Write a program to return the nth number in the fibonacci series. The value of N will be passed to the program as input.

NOTE: Fibonacci series looks like -

```
0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, ... and so on.
```

i.e. Fibonacci series starts with 0 and 1, and continues generating the next number as the sum of the previous two numbers.

- first Fibonacci number is 0,
- second Fibonacci number is 1,
- third Fibonacci number is 1,
- fourth Fibonacci number is 2,
- fifth Fibonacci number is 3,
- sixth Fibonacci number is 5,
- · seventh Fibonacci number is 8, and so on.

```
For example:
```

Input:

7

Output

8

### Program:

```
a=[0,1]
```

for i in range(0,100):

a.append(a[-1]+a[-2])

```
q=int(input())
print(a[q-1])
```



Ex. No. : 4.6 Date:24.4.24

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#### **Disarium Number**

A Number is said to be Disarium number when the sum of its digit raised to the power of their respective positions becomes equal to the number itself. Write a program to print number is Disarium or not.

Input Format:

Single Integer Input from stdin.

Output Format:

Yes or No.

Example Input:

175

Output:

Yes

Explanation

 $1^1 + 7^2 + 5^3 = 175$ 

Example Input:

123

Output:

No

#### For example:

Inpu t	Resul t
175	Yes
123	No

## Program:

```
n=int(input())
a=len(str(n))
sum=0
x=n
while(x!=0):
    r=x%10
    sum=int(sum+math.pow(r,a))
a-=1
    x=x//10
if(sum==n):
    print("Yes")
else:
    print("No")
```



Ex. No. : 4.7 Date:24.4.24

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### Sum of Series

Write a program to find the sum of the series  $1 + 11 + 111 + 1111 + \dots + n$  terms (n will be given as input from the user and sum will be the output)

Sample Test Cases

Test Case 1

Input

4

Output

1234

Explanation:

as input is 4, have to take 4 terms.

1 + 11 + 111 + 1111

Test Case 2

Input

6

Output

123456

#### For example:

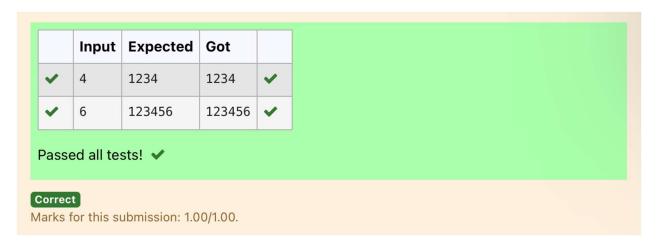
Input	Result
3	123

## Program:

n=int(input())

b=1

```
sum=0
for i in range(1,n+1):
    sum+=b
    b=(b*10)+1
print(sum)
```



Ex. No. : 4.8 Date:24.4.24

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#### **Unique Digit Count**

Write a program to find the count of unique digits in a given number N. The number will be passed to the program as an input of type int.

Assumption: The input number will be a positive integer number  $\geq 1$  and  $\leq 25000$ . For e.g.

If the given number is 292, the program should return 2 because there are only 2 unique digits '2' and '9' in this number

If the given number is 1015, the program should return 3 because there are 3 unique digits in this number, '1', '0', and '5'.

#### For example:

Input	Result
292	2
1015	3

## Program:

a=int(input())

b=[]

while a>0:

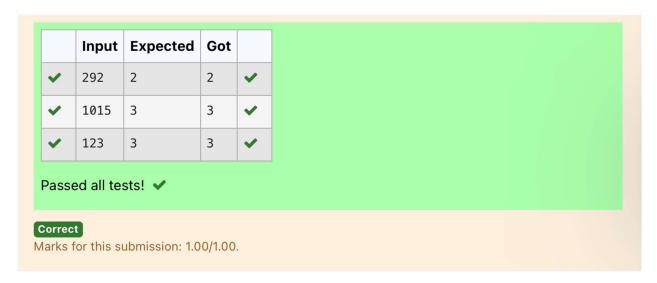
c=a%10

a = a / / 10

b.append(c)

b=list(set(b))

## print(len(b))



Ex. No. : 4.9 Date:24.4.24

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### Product of single digit

Given a positive integer N, check whether it can be represented as a product of single digit numbers.

Input Format:

Single Integer input.

Output Format:

Output displays Yes if condition satisfies else prints No.

Example Input:

14

Output:

Yes

Example Input:

13

Output:

No

```
a=int(input())
flag=0
for i in range(10):
    for j in range(10):
        if(i*j==a):
            flag=1
            break
if(flag==1):
    print("Yes")
```

else:

print("No")



Ex. No. : 4.10 Date:1.5.24

Register No : 231501152 Name: Shree Varshini

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### Perfect Square After adding One

Given an integer N, check whether N the given number can be made a perfect square after adding 1 to it.

Input Format:

Single integer input.

Output Format:

Yes or No.

Example Input:

24

Output:

Yes

Example Input:

26

Output:

No

For example:

Input	Resul t
24	Yes

## Program:

import math

n=int(input())

```
a=n+1
sr=int(math.sqrt(a))
if(sr*sr==a):
    print("Yes")
else:
    print("No")
```

