Ex. No.: 4.1 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

### **Nth Fibonacci**

Write a  $\underline{program}$  to return the nth number in the fibonacci series. The value of N will be passed to the  $\underline{program}$  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.

Inpu t	Result
1	0
4	2
7	8

```
Program:
a=int(input())
b=0
c=1
if(a==1):
    print("0")
elif(a==2):
    print("1")
else:
    for i in range (3,a+1):
        d=b+c
        b=c
        c=d
```

print(d)

	Input	Expected	Got	
~	1	0	0	~
~	4	2	2	~
~	7	8	8	~

Ex. No.: 4.2 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

# 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

```
a=int(input())
for i in range(1,a+1):
   if(a%i==0):
      print(i,end=" ")
```

	Input	Expected	Got	
~	20	1 2 4 5 10 20	1 2 4 5 10 20	~
~	5	1 5	1 5	~
~	13	1 13	1 13	<b>~</b>

Ex. No.: 4.3 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

## 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
Program:
a=int(input())
c=0
for i in range(1,10): for j in range(1,10):
if i*j==a:
c=1
if(c==1):
print("Yes")
▼else:
```

print("No")

	Input	Expected	Got	
~	14	Yes	Yes	~
~	13	No	No	<b>~</b>

Ex. No.: 4.4 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

### **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:

Inpu t	Result
292	2
1015	3

#### **Program:**

a=input()

b=len(set(a))

print(b)

	Input	Expected	Got	
~	292	2	2	~
~	1015	3	3	~
~	123	3	3	~

Ex. No.: 4.5 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

### 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  $\geq 1$  and  $\leq 25000$ . 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.

Input	Resul t
292	1
1015	2
108	3
22	0

```
a={}
for i in input:
    if i in a:a[i]+=1
    else:a[i]=1
print(sum([1 for i in a if a[i]==1]))
```

	Input	Expected	Got	
~	292	1	1	~
~	1015	2	2	~
~	108	3	3	~
~	22	0	0	<b>~</b>

Ex. No.: 4.6 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

# **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

```
import math
a=int(input())
b = a + 1
while b > 0:
    m=math.sqrt(b)
    if(m==int(m)):
        print(b)
        break
    else:
        b = b + 1
```

	Input	Expected	Got	
<b>~</b>	10	16	16	~

Ex. No.: 4.7 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

## **Sum of Series**

Write a program to find the sum of the series 1 + 11 + 111 + 1111 + ... + 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

Inpu t	Result
3	123

```
a=int(input())
t=1
s=0
for i in range(a)
    s+=t
    t=t*10+1
print(s)
```

		Input	Expected	Got	
	<b>~</b>	4	1234	1234	~
ľ	<b>~</b>	6	123456	123456	<b>~</b>

Ex. No. : 4.8 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

### **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

Example2: if the given number N is 10, the method must return 1

#### For example:

Inpu t	Result
7	2
10	1

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

	Input	Expected	Got	
~	7	2	2	~
~	10	1	1	~

Ex. No.: 4.9 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

## **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 <u>program</u> 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

Inp ut	Res ult
175	Yes
123	No

```
a=input()
n=len(a)
r=0
for i,d in enumerate(a):
    r+=int(d)**(i+1)
    if r==int(a):
        print("Yes")
    else:
        print("No")
```

	Input	Expected	Got	
~	175	Yes	Yes	~
~	123	No	No	~

Ex. No.: 4.10 Date: 13.04.24

Register No.: 231901028 Name: Madhan kumar.B

# 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

Input	Resul t
24	Yes

import math

a=int(input())

b=a+1

c=math.sqrt(b)

if(c==int(c)):

print("Yes")

else:

print("No")

	Input	Expected	Got	
~	24	Yes	Yes	~
~	26	No	No	~