

04 - Iteration Control Structures

For example:

Input	Result
20	1 2 4 5 10 20

Ex. No. : 4.1

Date:

Register No.:

Name:

Factors of a number

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

PROGRAM:

```
n=int(input())
```

```
for i in range(1,n+1):
```

```
    if n%i==0:
```

```
        print(i,end=" ")
```

For example:

Input	Result
292	1
1015	2
108	3
22	0

Ex. No. : 4.2

Date:

Register No.:

Name:

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.

PROGRAM:

```
n=input()
m={}
for i in n :
    if i in m :
        m[i]+=1
p=0
for i in m.values():
    if i==1:
        p=p+1
print(p)
```

Example1: 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:

Input	Result
7	2
10	1

Ex. No. : 4.3

Date:

Register No.:

Name:

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

PROGRAM:

```
n=int(input())
temp= 2
if n >= 2 and n <= 5000 :
    for i in range (2, n):
        if n% i ==0 :
            temp= 1
            break
    if temp==1:
        print (1)
    else:
        print(2)
```

Input Format:

Integer input from stdin.

Output Format:

Perfect square greater than N.

Example Input:

10

Output:

16

Ex. No. : 4.4

Date:

Register No.:

Name:

Next Perfect Square

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

PROGRAM:

```
n=int(input())
m=0
for i in range (1, n) :
    if (i * i>n) :
        m =i* i
        break
print(m)
```

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

Ex. No. : 4.5

Date:

Register No.:

Name:

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.

PROGRAM:

```
n=int(input())
temp= 0
a = 1
s = 0
for i in range (0, n) :
    s =temp+a
    a=temp
    temp= s
print(a)
```

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:

InputResult

175 Yes

123 No

Ex. No. : 4.6

Date:

Register No.:

Name:

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.

PROGRAM:

```
n=int(input())
num = len(str(n))
p = num
q = n
r = 0
sum=0
for i in range(0,num):
    r = n% 10
    sum = sum + r **p
    p = p - 1
    n =n//10
if sum ==q :
    print("Yes")
else:
    print("No")
```


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

Ex. No. : 4.7

Date:

Register No.:

Name:

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)

PROGRAM:

```
n=int(input())
sum = 1
C = 1
for i in range (1, n) :
    sum =sum * 10+1
    C = C + sum
print(C)
```


For example:

Input	Result
292	2
1015	3

Ex. No. : 4.8

Date:

Register No.:

Name:

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 ≥ 1 and ≤ 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'.

PROGRAM:

```
n=int(input())
a=[ ]
while n >0:
    if n%10 not in a:
        a.append(n%10)
    n =n//10
print(len(a))
```

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

Ex. No. : 4.9

Date:

Register No.:

Name:

Product of single digit

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

PROGRAM:

```
n=int(input())
if( n%2 ==0 or n%3 ==0 or n%5 ==0 or n%7 ==0) :
    print (" Yes ")
else:
    print (" No ")
```

Input Format:

Single integer input.

Output Format:

Yes or No.

Example Input:

24

Output:

Yes

Example Input:

26

Output:

No

For example:

Input	Result
24	Yes

Ex. No. : 4.10

Date:

Register No.:

Name:

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.

PROGRAM:

```
n=int(input())+1
a = 0
if(n==0 or n ==1) :
    a = 1
for i in range ( 2 ,(n//2)) :
    if (n==i*i) :
        a = 1
        break
if a ==1 :
    print("Yes")
else:
    print (" No ")
```

