[**04 - Iteration Control Structures**](https://www.rajalakshmicolleges.net/moodle/course/view.php?id=84#section-4)

## Ex. No. : 4.1 Date:

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# [Factors of a number](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=5720)

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 |  |

Program:

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=' ')

Output:



## 4.2

# [Non](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=5717) 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 nonrepeated digit '9' in this number

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

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

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

**For example:**

**Input**

**Resul**

**t**

292

1

1015

2

108

3

22

0

Program:

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:

k.append(l[i]) print(len(k))

Output:



## 4.3

# 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 <= N <=5000, where N is the given number.

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 |

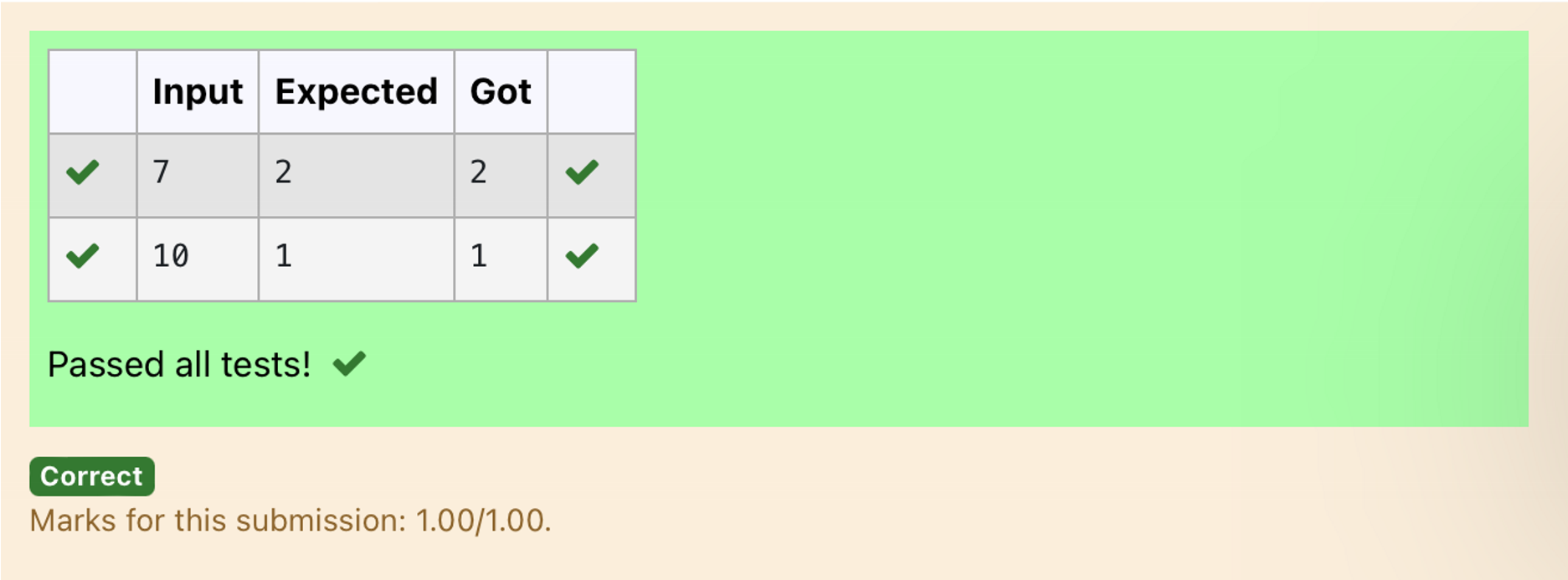
Program:

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")

Output:



## 4.4

# 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

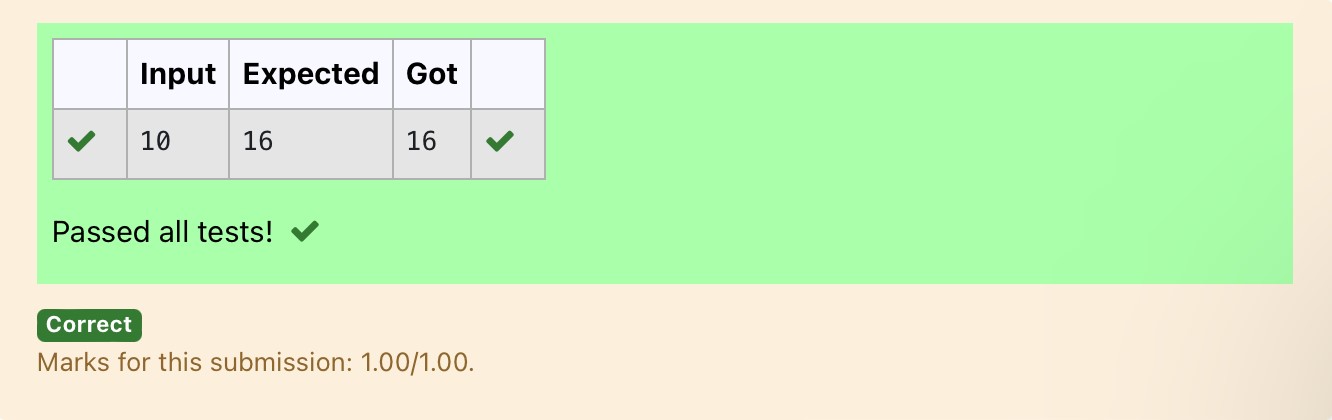
Program:

a=int(input()) c=[] for i in range(0,a):

b=i\*\*2 if(b>a):

c.append(b) print(c[0])

Output:



## 4.5

# Nth Fibonacci

Write a [program](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=3478) to return the nth number in the fibonacci series. The value of N will be passed to the [program](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=3478) 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**

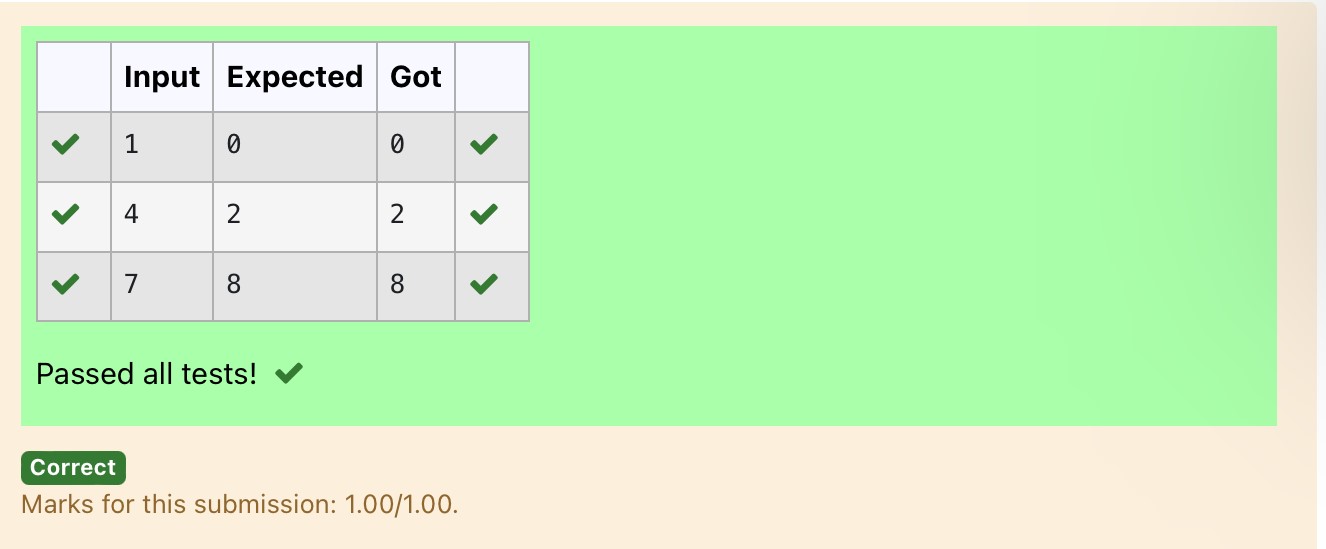
**8**

Program:

a=[0,1] for i in range(0,100):

a.append(a[-1]+a[-2]) q=int(input()) print(a[q-1])

Output:



## 4.6

# 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](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=3478) 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:**

**Inp Res ut** **ult**

175 Yes

123 No

import math

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")

Output:



## 4.7

# 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

**For example:**

|  |  |
| --- | --- |
| **Input** | **Result** |
| 3 | 123 |

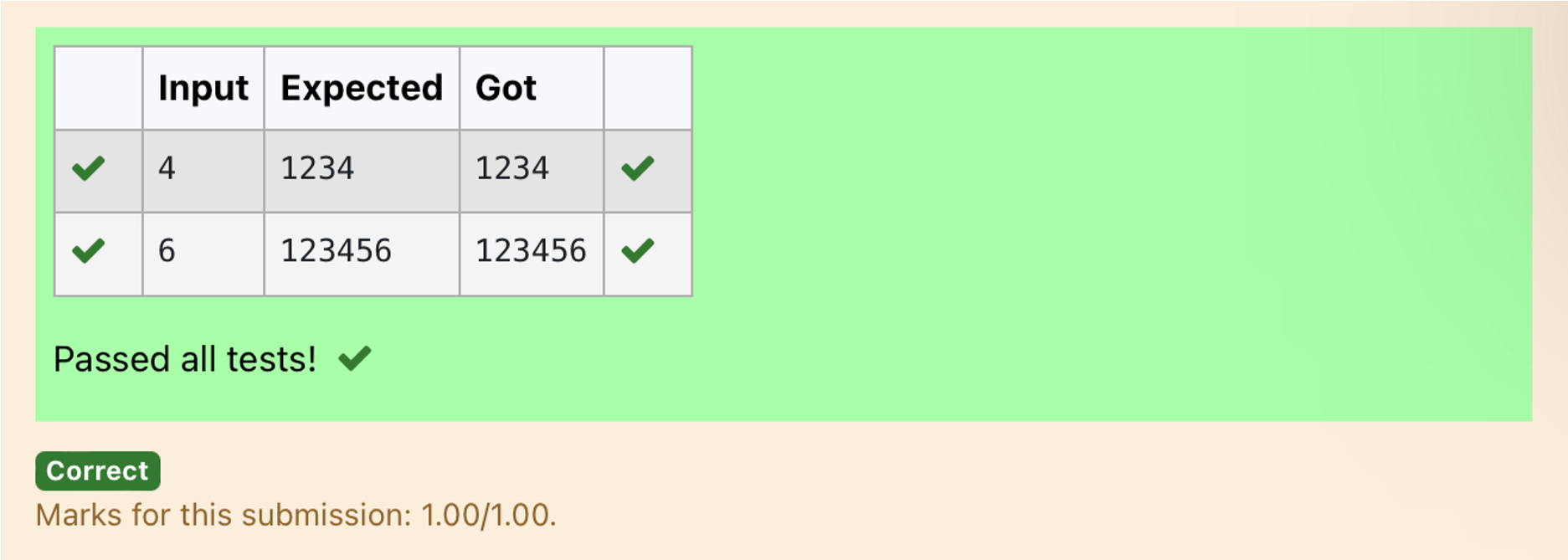
Program:

n=int(input()) b=1 sum=0

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

sum+=b b=(b\*10)+1 print(sum)

Output:



## 4.8

# 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'.

**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))

Output:



## 4.9

# 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()) 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")

Output:



## 4.10

# 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")

Output:

