04 - Iteration Control Structures

Ex. No. : 4.1 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

Factors of a number

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

For example:

Input	Result
20	1 2 4 5 10 20

PROGRAM

```
a=int(input())

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

    if (a%i==0):

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

Output:

	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	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.2 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

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	Result
292	1
1015	2
108	3
22	0

PROGRAM

```
num=int(input())
count=0
last=len(str(num))
for i in range(1,last):
    temp=num%10
    num=num//10
    if (str(temp)not in str(num)):
        count+=1
if(len(str(num))==1 and count==last-1):
    print(count+1)
else:
    print(count)
```

Output:

	Input	Expected	Got	
✔	292	1	1	✔
✔	1015	2	2	✔
✔	108	3	3	✔
✔	22	0	0	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.3 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

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())
count=0
for i in range(2,a):
    if (a%i==0):
        count+=1
if(count==0):
    print("2")
else:
    print("1")
```

Output:

	Input	Expected	Got	
✔	7	2	2	✔
✔	10	1	1	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.4 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

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

```
from math import sqrt
num=int(input())
while True:
    a=int(sqrt(num))
    if(num==pow(a,2)):
      print(num)
      break
    else:
      num+=1
```

Output:

	Input	Expected	Got	
✔	10	16	16	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.5 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

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	Output
7	8

PROGRAM

```
a=int(input())
b=0
c=1
d=0
for i in range(3,a+1):
    d=c+b
    b=c
    c=d
print(d)
```

Output:

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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.6 **Date:**

Register No.: 231501053 **Name: Gokulakkannan P**

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:

Input	Result
175	Yes
123	No

PROGRAM

```
num=int(input())
last=len(str(num))
temp=num
Sum=0
for i in range(0,last):
      n=temp%10
      temp=temp//10
      sum=sum+(pow(n,last-i))
if (sum==num):
   print("Yes")
else:
    print("No")
```

Output:

	Input	Expected	Got	
✔	175	Yes	Yes	✔
✔	123	No	No	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.7 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

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

```
num=int(input())
sum1=0
for i in range(1,num+1):
    st='1'*i
    sum1=sum1+int(st)
print(sum1)
```

Output:

	Input	Expected	Got	
✔	4	1234	1234	✔
✔	6	123456	123456	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.8 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

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

```
num=int(input())

count=0

last=len(str(num))

for i in range(1,last):

    n=num%10

    num=num//10

    if (str(n)not in str(num)):

        count+=1

print(count+1)
```

Output:

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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.9 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

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.

For Example:

Input	Output
14	Yes
13	No

PROGRAM

```
a=int(input())
count=0
for i in range(1,10):
    for j in range(1,10):
        if (i*j==a):
            print("Yes")
            count+=1
            break
    if(count>0):
        break
if(count==0):
  print("No")
```

Output:

	Input	Expected	Got	
✔	14	Yes	Yes	✔
✔	13	No	No	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Ex. No. : 4.10 **Date:** 30/3/24

Register No.: 231501053 **Name: Gokulakkannan P**

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	Result
24	Yes

PROGRAM

```
from math import sqrt
num=int(input())
fin=num+1
sq=int(sqrt(fin))
if (fin==pow(sq,2)):
   print("Yes")
else:
   print("No")
```

Output:

	Input	Expected	Got	
✔	24	Yes	Yes	✔
✔	26	No	No	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.