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).

```
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.

```
number = int(input("Enter a number to find the count of non-repeated digits: "))
num_str = str(number)
non_repeated_digits = []

for digit in num_str:
    if num_str.count(digit) == 1:
        non_repeated_digits.append(int(digit))

non_repeated_count = len(non_repeated_digits)
```

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

```
n=int(input())
flag=0
for i in range(2,n):
    if(n%2)==0:
        flag=1
        break
    if(n%i)==0:
        flag=1
        break

if flag:
    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.

```
num=int(input())
while 1:
    num=num+1
    root=(num**0.5)
    if root==int(root):
        print(num)
        break
```

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.

```
n=int(input())
a,b=0,1


for i in range(1,n):
 a,b=b,a+b

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:

Input	Result
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.

```
number = int(input())
num_str = str(number)
length = len(num_str)
total = 0

for i in range(length):
  total += int(num_str[i]) ** (i + 1)


if total==number:
    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 + . . . + n terms (n will be given as input from the user and sum will be the output)

```
n=int(input())

total=0

term=0


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

  term=(term*10)+1

  total=total+term
```

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'.

```
number = int(input())
num_str = str(number)
unique_digits = set()

for digit in num_str:
   unique_digits.add(digit)

unique_digit_count = len(unique_digits)

print( unique_digit_count)
```

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.

```
number = int(input())

if number < 10:
   print("yes")
else:
   for factor in range(2, 10):
      if number % factor == 0 and 1 <= number // factor <= 9:
         print("yes")
         break
   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.

```
num=int(input())
num=num+1
a=int(num**0.5)
if a**2==num:
    print("yes")
else:
    print("no")
```