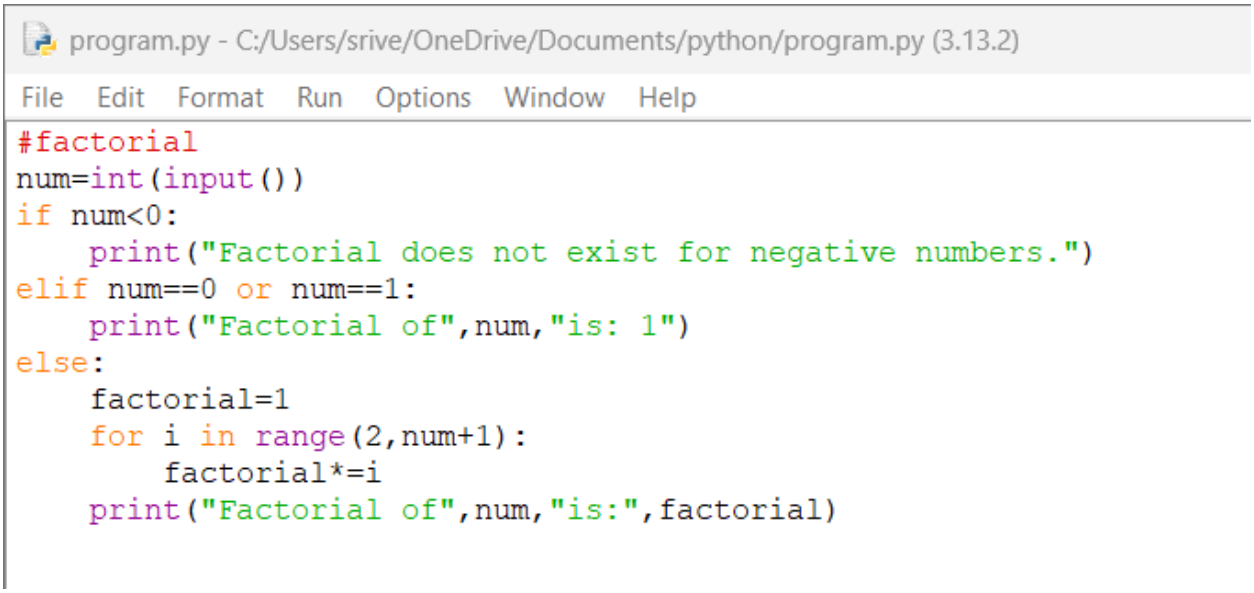
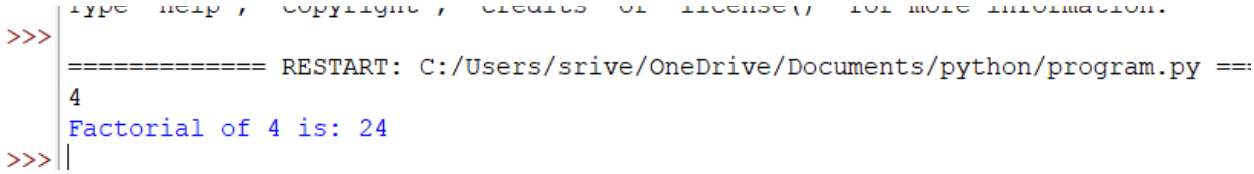
1. Write a Python program to calculate the factorial of a given number.

Python Code:

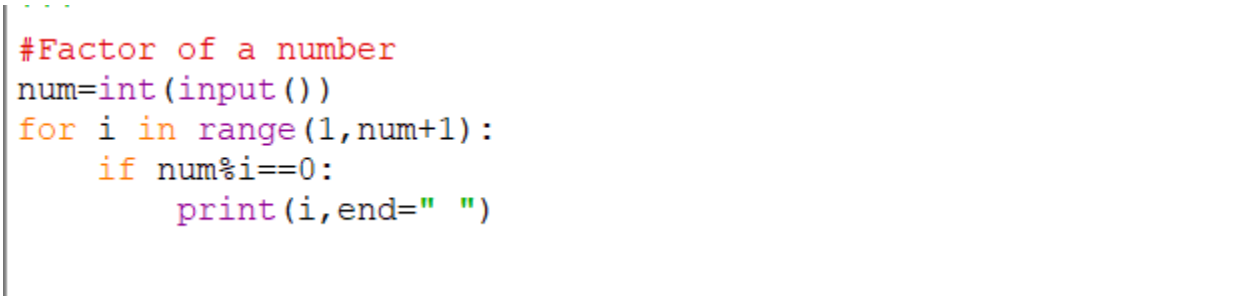


Output:



2.write a python program on factors of a give number.

Python Code:



Output:

```
>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py ==
6
1 2 3 6
>>
```

3.write a python program to print the given number is perfect or not.

Python Code:

```
#perfect number
num=int(input())
sum=0
for i in range(1,num):
    if num%i==0:
        sum+=i
if sum==num:
    print(num,"is a perfect number.")
else:
    print(num,"is not a perfect number.")
```

Output:

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py ==
28
28 is a perfect number.
>>>
```

```
>>>
============== RESTART: C:/Users/srive/OneDrive/Documents/p
45
45 is not a perfect number.
>>>
```

4.write a python program given number is perfect square or not.

Python Code:

```
#perfect square
n=int(input())
if n>=0:
    square=int(n**0.5)
    if square*square==n:
        print(n,"is a perfect square.")
    else:
        print(n,"is not a perfect square.")
else:
    print("Negative numbers cannot be perfect squares.")
```

Output:

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.
225
225 is a perfect square.
>>>
```

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program
10
10 is not a perfect square.
>>>
```

5.write a python program to print a given number is Harshad number or not.

Python Code:

```
#harshad number
#18=1+8=9  18%9==0
n=int(input())
temp=n
sum=0
while(n>0):
    remainder=n%10
    sum+=remainder
    n=n//10
if temp%sum==0:
    print(temp, "is a Harshad number.")
else:
    print(temp, "is NOT a Harshad number.")
```

Output:

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/
54
54 is a Harshad number.
>>>
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/prc
55
55 is NOT a Harshad number.
>>>
```

6.write a python program give number is friendly pair or not.

Python Code:

```
#friendly pair
num1 = int(input())
num2 = int(input())

sum1 = 0
for i in range(1, num1 + 1):
    if num1 % i == 0:
        sum1 += i

sum2 = 0
for i in range(1, num2 + 1):
    if num2 % i == 0:
        sum2 += i

ratio1 = sum1 / num1
ratio2 = sum2 / num2

if ratio1 == ratio2:
    print(f"{num1} and {num2} are Friendly Pairs.")
else:
    print(f"{num1} and {num2} are NOT Friendly Pairs.")
```

Output:

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py
6
28
6 and 28 are Friendly Pairs.
>>>
```

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/pytho
220
284
220 and 284 are NOT Friendly Pairs.
>>>
```

7.write a python code to print given number is Abundant number or not.

Python Code:

```
# abundant number
num = int(input())
sum = 0
for i in range(1, num):
    if num % i == 0:
        sum += i

if sum > num:
    print(num, "is an Abundant number.")
else:
    print(num, "is NOT an Abundant number.")
```

Output:

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py =
12
12 is an Abundant number.
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py =
15
15 is NOT an Abundant number.
>>>
```

8.write a python code to print given number is Strong number or not.

Python Code:

```
#strong
n = int(input())
temp = n
total = 0

while n > 0:
    rem = n % 10
    fact = 1
    while rem > 0:
        fact = fact * rem
        rem = rem - 1
    total = total + fact
    n = n // 10

if total == temp:
    print(temp,"is a Strong Number")
else:
    print(temp,"is not a Strong Number")
```

Output:

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py ======
145
145 is a Strong Number
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py ======
123
123 is not a Strong Number
>>>
```

9.write a python code to print given number is Automorphic number or not.

Python Code:

```
#autopronic
num = int(input())
square = num * num
temp = num
count = 0
while temp > 0:
    count += 1
    temp = temp // 10

last_digits = square % (10 ** count)

if last_digits == num:
    print(num, "is an Automorphic Number.")
else:
    print(num, "is NOT an Automorphic Number.")
```

Output:

```
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py ============
25
25 is an Automorphic Number.
>>>
============= RESTART: C:/Users/srive/OneDrive/Documents/python/program.py ============
7
7 is NOT an Automorphic Number.
>>>
```