Today Topics

- Factorial of a number
- Factors of a given number
- Prime number
- leap year in a given range

- **Strings concept**

In [5]:
```
# Factorial of a number

n = int(input())  # 5!= 120 5*4*3*2*1
fact = 1 #1,2,6
for i in range(1,n+1): # 1,2
    fact = fact*i  #1*1,1*2,2*3
print(fact)

```

```
-5
1
```

In [11]:
```
# Factors of a given number
# find the factors other than one and number itself

n = int(input())  # 4==> 1,2,4
c = 0
for i in range(1,n+1):  #1,2,3,4
# for i in range(2,n): n-1
    if n%i ==0: # 4%1==0,4%2==0
        print(i,end = " ")
        c+=1
print()
print(c)
```

```
8
1 2 4 8
4
```

In [12]:

```
# Prime number

n = int(input()) #5
c = 0
for i in range(1,n+1):  #1,2,3,4,5
# for i in range(2,n):  #2,3,4
     if n%i ==0:
        c+=1
if c ==2:
    print(n,"is Prime")
else:
    print(n,"is not prime")
```

...

In [14]:

```
# to print all the prime number in the given range(1,100)
n1 = int(input()) #1
n2 = int(input())
for j in range(n1,n2+1):  #1,2,3,4...100  # j =int(input())  #5
    c =0
    for i in range(1,j+1): # j = 5,  i = 1,2,3,4,5
    # for i in range(2,n):           if j%i ==0:
            c+=1
    if c ==2:
        print(j,end = " ")

```

```
1
100
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
```

In [18]:

```
# Leap year in the given range (2000,2022)

# every year has to be divided with 400
# the year has to be divide the year with 4 but not 100

n = int(input())
if n%400 ==0 or (n%4==0 and n%100!=0):
    print(n,"is leap")
```

```
2007
```

In [19]:

```
n = int(input())
if n%4==0:
    print("leap")
```

```
1900
leap
```

In [21]:
```
y1 = int(input()) # 2000
y2 = int(input()) # 2020
for i in range(y1,y2+1):
    if i%400 ==0 or (i%4==0 and i%100!=0):
        print(i)
```

...

Strings

In [23]:
```
s = " "
type(s)
```

Out[23]: str

In [24]:
```
s = "MITS college python"
```

Indexing

- postive indexing (forward indexing)
- negative indexing (backward indexing)

M===>0 n ==>-1 l===>1 o ===>-2 T===>2 h ===>-3

In [25]:
```
s
```

Out[25]: 'MITS college python'

Accessing the elements

In [27]:
```
s[5]
```

Out[27]: 'c'

In [37]:
```
s[10]
s[-4]
```

Out[37]: 't'

String Slicing

In [30]:
```
# for i in range(1,10)  # for i in range(10,1,-1)
s[1:10]  # 1,2,3..9
```

Out[30]: 'ITS colle'

In [34]:
```
print(s[1:10:1])  # 1,3,5,7,9
s[10:1:-1]  # 10,9,8...2
```

```
ITS colle
```

Out[34]: 'gelloc ST'

In [38]:
```
len(s)
```

Out[38]: 19

In [39]:
```
s[0:len(s):2]  # s[0:19]  # 0,2,4...18
s[::2]
```

Out[39]: 'MT olg yhn'

In [40]:
```
s[::-1]
```

Out[40]: 'nohtyp egelloc STIM'

In [44]:
```
s[len(s)::-1]  # 19:-1:-1
```

Out[44]: 'nohtyp egelloc STI'

In [45]:
```
s[::-1]
```

Out[45]: 'nohtyp egelloc STIM'

In [50]:
```
# if the total length is odd number
s[len(s)//2]
```

Out[50]: 'e'

In [52]:
```
# if the total length is even number
s[(len(s)//2)]+s[(len(s)//2)+1]
```

Out[52]: 'eg'

In [69]:
```
s = "MITS college"
s[-1:-5:-1]
```

Out[69]: 'egel'

In [65]:
```
s[::-2]
```

Out[65]: 'eelcTM'

In [75]:
```
1 s[10::-1]
```

Out[75]: 'gelloc STIM'

In [78]:
```
1 (19//2)+1
```

Out[78]: 10

In [ ]:
```
1 9.7
2 9.2
```