

```
In [1]: 1 # program to find the factors of a number
2 num=int(input("Enter the number:"))
3 # 1 to num/2:
4 # 10:factors:1,2,5,10
5 print("Factors",end=":")
6 factors=0
7 for dig in range(1,num+1):
8     if num%dig==0: # checking the factors
9         factors+=1
10        print(dig,end=" ")
11 print()
12 print("No.of factors=",factors)
13
```

Enter the number:34  
 Factors:1 2 17 34  
 No.of factors= 4

```
In [2]: 1 num=int(input('enter the factor :'))
2 for i in range(1,num+1):
3     if num%i==0:
4         print(i)
5
```

enter the factor :18  
 1  
 2  
 3  
 6  
 9  
 18

```
In [3]: 1 # find whether a given number is prime or not
2 # prime number: 2 factors: 1& num itself
3 #5 :1,5
4 # 11:1,11
5 pr=int(input())
6 fc=0
7 for num in range(1,pr+1):
8     if pr%num==0:
9         fc+=1 #
10 if fc==2:
11     print("Prime number")
12 else:
13     print("Not a prime")
14
15
```

18  
 Not a prime

## while loop

- condition based iteration
- user has to provide increment/decrement variable

- syntax:
  - while condition:
    - statements
    - inc/dec

```
In [4]: 1 # print the numbers from 5 to 20
        2 num=5
        3 while num<=21: #
        4     print(num,end=" ")
        5     num+=1
        6
```

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

```
In [ ]: 1 # print the numbers from 5 to 20
        2 num=5
        3 while num<=21: #
        4     print(num,end=" ") # it will print 5 for infinite times,
        5                             #since the condition is true for all
        6
```

...

```
In [1]: 1 # print the numbers from 1 to 20 in reverse order
        2 n=20
        3 while n>=1:
        4     print(n,end=" ")
        5     n-=1
        6
```

20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

```
In [2]: 1 # sum of digits in a number using while
        2 #12345:1+2+3+4+5=
        3 x=int(input("Enter the number:"))
        4 s=0
        5 while x!=0:
        6     rem=x%10 # remainder value 12345%10=5
        7     s+=rem
        8     x//=10 # x=x/10 10)x(
        9
       10 print("sum of the digits:",s)
       11
```

Enter the number:12345  
sum of the digits: 15

```
In [3]: 1 #12345 as a "12345"
        2 st=input("Enter the number:")
        3 s=0
        4 for ch in st:
        5     s+=int(ch)
        6 print("sum =",s)
        7
```

Enter the number:12345  
sum = 15

```
In [4]: 1 # print the multiplication table using while loop
        2
        3 # sum the odd digits in a given number
        4 # 12345:1+3+5=9
        5
```

```
In [5]: 1 m=int(input())
        2 num=1
        3 while num<=10:
        4     print(m,'x',num,'=',m*num)
        5     num+=1
        6
```

```
8
8 x 1 = 8
8 x 2 = 16
8 x 3 = 24
8 x 4 = 32
8 x 5 = 40
8 x 6 = 48
8 x 7 = 56
8 x 8 = 64
8 x 9 = 72
8 x 10 = 80
```

```
In [6]: 1 #i/p:897604:
        2 # o/p9+7=16
        3 # odd:9%2=1
        4 nums=int(input())
        5 odds=0
        6 while nums!=0:
        7     rem=nums%10
        8     if rem%2==1:
        9         odds+=rem
        10    nums//=10
        11
        12 print("sum of the odd digits:",odds)
        13
```

```
897604
sum of the odd digits: 16
```

```
In [7]: 1 st=input()
        2 s=0
        3 for ch in st:
        4     if int(ch)%2==1:
        5         s+=int(ch)
        6 print("sum of odd digits:",s)
        7
        8
```

```
897604
sum of odd digits: 16
```

```
In [8]: 1 # check whether given number is perfect or not
        2 #6:1+2+3=6
        3 10:1,2,5=1+2+5=8!=10
        4
```

5

↵

File "&lt;ipython-input-8-1e58e9d35353&gt;", line 3

10:1,2,5=1+2+5=8!=10

^

SyntaxError: invalid syntax

In [ ]:

1