

Loops

- Iterate a piece of code until the condition satisfies
- we can run a code normally
- we can run a code by using function wrapper(functions)
- we can run a code multiple times (loops)
- we can run a code by using condition (conditions)

```
In [1]: a=10  
b=20  
c=a+b  
print(c)
```

30

```
In [2]: if True :  
    a=10  
    b=20  
    c=a+b  
    print(c)
```

30

```
In [3]: def add():  
    a=10  
    b=20  
    c=a+b  
    print(c)  
  
add()
```

30

```
In [ ]: salary= eval(input('enter the salary:'))  
tax_per=eval(input("enter the tax_per:"))  
tax_amount=salary*tax_per/100  
print(tax_amount)  
  
salary= eval(input('enter the salary:'))  
tax_per=eval(input("enter the tax_per:"))  
tax_amount=salary*tax_per/100  
print(tax_amount)  
  
salary= eval(input('enter the salary:'))  
tax_per=eval(input("enter the tax_per:"))  
tax_amount=salary*tax_per/100  
print(tax_amount)
```

```
In [ ]: def tax():  
    salary= eval(input('enter the salary:'))  
    tax_per=eval(input("enter the tax_per:"))  
    tax_amount=salary*tax_per/100  
    print(tax_amount)
```

```
tax()
```

- For loop
- While loop
- any loop
 - Initial point to start the loop
 - increment or decrement
 - condition to stop the loop

For loop

Pattern – 1

range(stop)

```
In [ ]: # syntax
        for i in range(<value>):
            # start write your code
```

- when ever you see the word range it belongs to math family
- inside range we need to provide one value ex: range(3)
- If you provide only one value
 - start value =0
 - increment = +1
 - last = stop-1
- range(3)
 - start value =0
 - increment = 1
 - last = 3-1 =2
 - answers are : 0 1 2

NOTE: In Python the index always start with zero

```
In [4]: for i in range(3):
        print(i)
```

0
1
2

```
In [ ]: print(0)
        print(1)
        print(2)
        print(3)
        print(4)

        print(i)
```

```
In [5]: # I want to print hello 5 times
        for i in range(5):
            print("hello")
```

hello
hello
hello
hello
hello

```
In [6]: # For example
        # take a random number between 1 to 100
        # print it is a even number and odd number
        # you need to generate 3 random number
```

```
import random
num=random.randint(1,100)
if num%2==0:
    print(f"{num} is even")
else:
    print(f"{num} is odd")
```

```
import random
num=random.randint(1,100)
if num%2==0:
    print(f"{num} is even")
else:
    print(f"{num} is odd")
```

```
import random
num=random.randint(1,100)
if num%2==0:
    print(f"{num} is even")
else:
    print(f"{num} is odd")
```

6 is even

```
In [7]: import random
        for i in range(3):
            num=random.randint(1,100)
            if num%2==0:
                print(f"{num} is even")
            else:
                print(f"{num} is odd")
```

32 is even
11 is odd
51 is odd

```
In [8]: for i in range(10):  
        print(i)
```

0
1
2
3
4
5
6
7
8
9

```
In [12]: print(0,end=' ')  
         print(1,end=' ')  
         print(2,end=' ')  
         print(3,end=' ')  
         print(4)  
  
         print(i,end=' ')
```

0 1 2 3 4
9

```
In [13]: for i in range(10):  
        print(i,end=' ')
```

0 1 2 3 4 5 6 7 8 9

```
In [ ]: # sep : will separate multiple values in same print statement  
        # end: combine the multiple print statements
```

Pattern – 2

range(start,stop)

- range(10,20)
 - start value= 10
 - increment= 1
 - last = stop-1 = 20-1=19
 - ans: 10 11 12 13 14 15 16 17 18 19

```
In [14]: for i in range(10,20):  
        print(i,end=' ')
```

10 11 12 13 14 15 16 17 18 19

```
In [15]: # wap ask the user print the square of the number between  
        # 20 to 25  
        for i in range(20,25):  
            print(f"the square of {i} is {i*i}")  
        # wap ask the user print the number is even or odd between 10 to 20
```

the square of 20 is 400
the square of 21 is 441
the square of 22 is 484
the square of 23 is 529
the square of 24 is 576

```
In [16]: # wap ask the user print the number is even or odd between 10 to 20
for i in range(10,20):
    if i%2==0:
        print(f"{i} is even")
    else:
        print(f"{i} is odd")
```

10 is even
11 is odd
12 is even
13 is odd
14 is even
15 is odd
16 is even
17 is odd
18 is even
19 is odd

```
In [20]: import random
for i in range(1001,1004):
    num=random.randint(1,100)
    if num%2==0:
        print(f"{num} is even")
    else:
        print(f"{num} is odd")
```

95 is odd
93 is odd
40 is even

Pattern – 3

range(start,stop,step)

- start value = start values
- step value
 - Postive step value
 - if step value is positive: increment
 - last = stop-1
 - negative step value
 - if step value is negative: decrement
 - last = stop+1

```
In [21]: # case-1:
for i in range(2,20,2): # range(start,stop,step)
    print(i,end=' ')
```

```
# start=2
# step= +ve 2
# last= stop-1= 20-1=19
# 2 4 6 8 10 12 14 16 18
```

2 4 6 8 10 12 14 16 18

```
In [22]: for i in range(10,20,30):
          print(i,end=' ')
# start=10
# step=30
# last= 20-1=19
# 10
```

10

```
In [23]: # case-2:
          for i in range(2,20,-2): # range(start,stop,step)
              print(i,end=' ')

          # start=2
          # step= -2 negative direction
          # last= stop+1 : 20+1 =21
```

```
In [24]: # case-3:
          for i in range(20,2,-2): # range(start,stop,step)
              print(i,end=' ')

          # start=20
          # step= -2 negative
          # last= stop+1= 2+1 =3
          # 20 18 16 14 12 10 8 6 4
```

20 18 16 14 12 10 8 6 4

```
In [25]: # case-4:
          for i in range(-20,2,-2): # range(start,stop,step)
              print(i,end=' ')

          # start= -20
          # step= -2 neg
          # last= stop+1 = 2+1=3
```

```
In [ ]: range(3,20,2) # P
          range(3,20,-2) # NP
          range(3,-20,2) # NP
          range(3,-20,-2) # P
          range(-3,20,2) # P
          range(-3,-20,2) # NP
          range(-3,20,-2) # NP
          range(-3,-20,-2) # P
          range(20,3,2) # NP
          range(20,3,-2) # P
          range(20,-3,-2) # P
          range(-20,-3,-2) #NP
```

```
In [26]: for i in range(20,-3,-2):
          print(i,end=' ')
```

20 18 16 14 12 10 8 6 4 2 0 -2

```
In [1]: s=0
        for i in range(10):
            s=s+i

        print(s)
```

45

```
In [4]: l=[]
        for i in range(10):
            l.append(i)
```

```
In [6]: sum(l)
```

Out[6]: 45

```
In [ ]: #1Q) For example
        # take a random number between 1 to 100
        # print it is a even number and odd number
        # you need to generate 3 random number
        import random
        for i in range(3):
            num=random.randint(1,100)
            if num%2==0:
                print(f"{num} is even")
            else:
                print(f"{num} is odd")
```

```
In [ ]: #2Q) wap ask the user print the number is even or odd between 10 to 20
        for i in range(10,20):
            if i%2==0:
                print(f"{i} is even")
            else:
                print(f"{i} is odd")
```

```
In [ ]: #3Q) wap ask the user print the square of the number between
        # 20 to 25
        for i in range(20,25):
            print(f"the square of {i} is {i*i}")
        # wap ask the user print the number is even or odd between 10 to 20
```

```
In [1]: #4Q) WAP ask the user enter number three times find the square of the number
        # How many times loop should run
        for i in range(3):
            num=eval(input("enter the number"))
            print(f"The square of {num} is {num*num}")
```

The square of 3 is 9

The square of 8 is 64

The square of 20 is 400

```
In [2]: #5Q) Print the 14th table
        # ans:  14 x 1 = 14
        #       14 x 2 = 28
        #       14 x 3 = 42
        #
        #
```

```
#      14 x10 = 140
# How many times 10

num=eval(input("enter the table which you want to see"))
for i in range(1,11):
    val=i*num
    print(f"{num} x {i} = {val}")
```

```
15 x 1 = 15
15 x 2 = 30
15 x 3 = 45
15 x 4 = 60
15 x 5 = 75
15 x 6 = 90
15 x 7 = 105
15 x 8 = 120
15 x 9 = 135
15 x 10 = 150
```

In [4]:

```
#6 Q) Find the factors of 75
# step-1: Iterate the loop = which numbers factor you want
# step-2: Apply the if condition
#      cond= divide the number with each i

num=eval(input("which number factors you want:"))
for i in range(1,num+1):
    if num%i==0:
        print(f"{i} is the divisor of {num}")
```

```
1 is the divisor of 75
3 is the divisor of 75
5 is the divisor of 75
15 is the divisor of 75
25 is the divisor of 75
75 is the divisor of 75
```

In []:

```
#7Q) Write the sum of first 10 Natural numbers
# 1 to 10
# 1+2+3+4+5+6+7+8+9+10=55

1 to 10

0+1=1
1+2=3
3+3=6
6+4=10
10+5=15
15+6=21
21+7=28
28+8=36
36+9=45
45+10=50
sum=0
sum=sum+i
```

Summation wrapper

- initially we need to keep summ=0
- make sure that do not provide **sum**

- Because sum is a keyword
- inside for loop : summ=summ+i

```
In [22]: #summ=0
#for Loop:

#summ=summ+i

summ=0
for i in range(1,11):
    summ=summ+i
    print(f"{summ-i}+{i}={summ}")
```

```
0+1=1
1+2=3
3+3=6
6+4=10
10+5=15
15+6=21
21+7=28
28+8=36
36+9=45
45+10=55
```

```
In [20]: summ=0
for i in range(1,11):
    val=summ
    summ=summ+i
    print(f"{val}+{i}={summ}")
```

```
0+1=1
1+2=3
3+3=6
6+4=10
10+5=15
15+6=21
21+7=28
28+8=36
36+9=45
45+10=55
```

```
In [23]: summ=0
for i in range(1,11):
    summ=summ+i
print(summ)
```

```
55
```

Note

- If we print answer from out of for loop, last answer will print

```
In [25]: for i in range(3):
print(i)
```

```
i
```

0
1
2

Out[25]: 2

```
In [26]: # 8Q) Average first 1 to 10 numbers
# avg= summation of all the numbers/total number
# Wap to find the average of ' N ' numbers in Python.
summ=0
N=eval(input('Enter the number:'))
for i in range(1,N+1):
    summ=summ+i
print(summ/N)
```

5.5

Counter wrapper

- Before for loop initialise with count=0
- Under for loop count=count+1
- Counter always increase by 1 only

```
In [27]: #9Q) Find the number of divisors of 75
# ans: 1,3,5,15,25,75
# Number =6
count=0
num=eval(input("which number factors you want:"))
for i in range(1,num+1):
    if num%i==0:
        count=count+1

print(f"The number of divisors for {num} is {count}")
```

The number of divisors for 75 is 6

```
In [ ]: summ=summ+i ==== > summ+=i
count=count+i ==== > count+=i
```

```
In [30]: # 10Q)
# Get a random number between 1 to 10 : num1
# Ask the user enter a number : num2
# if num1 == num2 then print won
# else print fail

# Give 3 chances

import random
for i in range(3):
    num1=random.randint(1,10)
    print(num1)
    num2=eval(input('enter the number between 1 to 10:'))
    if num1==num2:
        print('won')
    else:
        print('Fail')
```

won
2
won
1
won

```
In [31]: # Case-2: whenever you won the code should stop
import random
for i in range(3):
    num1=random.randint(1,10)
    print(num1)
    num2=eval(input('enter the number between 1 to 10:'))
    if num1==num2:
        print('won')
        break
    else:
        print('Fail')
```

2
Fail
6
won

```
In [ ]: # Case-3:
# Suppose i want to give 4 chances
# Every time you fail I want to display
#     Number of chances Left

# If all the chances you are used
#     Try again after 24 hours

# If you are win
```

```
In [ ]: What is the difference between Summation wrapper and Counter wrapper
# summation
# counter
```

```
In [5]: # wap ask the user get 5 random numbers
# Get it is an even number or odd number
# also count how many even numbers are there
# and count how many odd numbers are there

# Idea
# take two counters one even and odd count
# For Loop 5 times
# each time take the random number
# If condition
#     True counter update
# else
#     Update the counter

import random
even_count,odd_count=0,0
even_sum,odd_sum=0,0
for i in range(5):
    num=random.randint(1,100)
    if num%2==0:
        even_count=even_count+1
        even_sum=even_sum+num
    else:
```

```

        odd_count=odd_count+1
        odd_sum=odd_sum+num
    print(f"The total number of even numbers are: {even_count}")
    print(f"The total number of odd numbers are: {odd_count}")
    print(f"The summation of all even numbers are: {even_sum}")
    print(f"The summation number all odd numbers are: {odd_sum}")

```

The total number of even numbers are: 3
 The total number of odd numbers are: 2
 The summation of all even numbers are: 152
 The summation number all odd numbers are: 110

```

In [ ]: # wap ask the user get 5 random numbers
        # Get it is an even number or odd number
        # also count how many even numbers are there
        # and count how many odd numbers are there
        # I want summ even numbers
        # I want summ odd numbers

```

```

In [11]: # Create a function on above code
        # return all 4
        # Print all 4

import random
def even_odd1():
    even_count,odd_count=0,0
    even_sum,odd_sum=0,0
    for i in range(5):
        num=random.randint(1,100)
        if num%2==0:
            even_count=even_count+1
            even_sum=even_sum+num
        else:
            odd_count=odd_count+1
            odd_sum=odd_sum+num
    return(even_count,
           even_sum,
           odd_count,
           odd_sum)

```

```

In [12]: even_count,even_sum,odd_count,odd_sum=even_odd1()
    print(f"The total number of even numbers are: {even_count}")
    print(f"The total number of odd numbers are: {odd_count}")
    print(f"The summation of all even numbers are: {even_sum}")
    print(f"The summation number all odd numbers are: {odd_sum}")

```

The total number of even numbers are: 0
 The total number of odd numbers are: 5
 The summation of all even numbers are: 0
 The summation number all odd numbers are: 175

in operator

```

In [15]: string1='python'
        'p' in string1
        'y' in string1
        't' in string1

        i in string1

```

Out[15]: True

```
In [16]: for i in string1:  
         print(i)
```

p
y
t
h
o
n

```
In [17]: for i in range(string1):  
         print(i)
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[17], line 1  
----> 1 for i in range(string1):  
      2     print(i)  
  
TypeError: 'str' object cannot be interpreted as an integer
```

Difference between in operator and range operator

- range belongs to math family
- inside *range* we need to keep numbers only
- whenever if we want iterate through a english letters
- we need to choose *in* operator
- range means Numbers
- in means strings

```
In [18]: 'p' > 'P'
```

Out[18]: True

- every english letter
- every spl characters how machine will understand?
- Machine language always consider as numbers
- Every non numeric assign a number
- ASCII: American Standard code for Information Interchange
- A : 65, a:97

ord-chr

```
In [ ]: A == 65 == 0b1000001
```

```
In [21]: ord('A'),ord('a')
```

```
Out[21]: (65, 97)
```

```
In [22]: ord('p'),ord('P')
```

```
Out[22]: (112, 80)
```

```
In [23]: 'p'>'P' # 112>80
```

```
Out[23]: True
```

```
In [27]: chr(112),chr(80),chr(65),chr(97)
```

```
Out[27]: ('p', 'P', 'A', 'a')
```

```
In [30]: # I want string1 : 'python'
# print all ascii numbers for 'python'
for i in 'python':
    print(f"The ASCII number for {i} is {ord(i)}")
```

```
The ASCII number for p is 112
The ASCII number for y is 121
The ASCII number for t is 116
The ASCII number for h is 104
The ASCII number for o is 111
The ASCII number for n is 110
```

```
In [31]: ascii_sum=0
for i in 'python':
    ascii_sum=ascii_sum+ord(i)
print(f"The summation is {ascii_sum}")
```

```
The summation is 674
```

```
In [ ]: # I want to know all ascii number from A to Z
```

```
In [ ]: # Package called : string
# import the package
# apply the dir
# there are some methods are there
# in that one method will capital letters

#step-1: import <package_name>
# step-2: dir(<package_name>)
# step-3: Identify the methods
```

```
In [32]: for i in 'ABCDEFGHIJKLMNOPQRSTUVWXYZ':
    print(f"The ASCII number for {i} is {ord(i)}")
```

The ASCII number for A is 65
The ASCII number for B is 66
The ASCII number for C is 67
The ASCII number for D is 68
The ASCII number for E is 69
The ASCII number for F is 70
The ASCII number for G is 71
The ASCII number for H is 72
The ASCII number for I is 73
The ASCII number for J is 74
The ASCII number for K is 75
The ASCII number for L is 76
The ASCII number for M is 77
The ASCII number for N is 78
The ASCII number for O is 79
The ASCII number for P is 80
The ASCII number for Q is 81
The ASCII number for R is 82
The ASCII number for S is 83
The ASCII number for T is 84
The ASCII number for U is 85
The ASCII number for V is 86
The ASCII number for W is 87
The ASCII number for X is 88
The ASCII number for Y is 89
The ASCII number for Z is 90

```
In [33]: import string
         dir(string)
```

```
Out[33]: ['Formatter',
          'Template',
          '_ChainMap',
          '__all__',
          '__builtins__',
          '__cached__',
          '__doc__',
          '__file__',
          '__loader__',
          '__name__',
          '__package__',
          '__spec__',
          '_re',
          '_sentinel_dict',
          '_string',
          'ascii_letters',
          'ascii_lowercase',
          'ascii_uppercase',
          'capwords',
          'digits',
          'hexdigits',
          'octdigits',
          'printable',
          'punctuation',
          'whitespace']
```

```
In [34]: string.ascii_uppercase
```

```
Out[34]: 'ABCDEFGHIJKLMNOPQRSTUVWXYZ'
```

```
In [35]: string.ascii_lowercase
```

```
Out[35]: 'abcdefghijklmnopqrstuvwxyz'
```

```
In [36]: import string
letters=string.ascii_uppercase
for i in letters:
    print(f"The ASCII number for {i} is {ord(i)}")
```

```
The ASCII number for A is 65
The ASCII number for B is 66
The ASCII number for C is 67
The ASCII number for D is 68
The ASCII number for E is 69
The ASCII number for F is 70
The ASCII number for G is 71
The ASCII number for H is 72
The ASCII number for I is 73
The ASCII number for J is 74
The ASCII number for K is 75
The ASCII number for L is 76
The ASCII number for M is 77
The ASCII number for N is 78
The ASCII number for O is 79
The ASCII number for P is 80
The ASCII number for Q is 81
The ASCII number for R is 82
The ASCII number for S is 83
The ASCII number for T is 84
The ASCII number for U is 85
The ASCII number for V is 86
The ASCII number for W is 87
The ASCII number for X is 88
The ASCII number for Y is 89
The ASCII number for Z is 90
```

```
In [37]: import string
letters=string.ascii_letters
for i in letters:
    print(f"The ASCII number for {i} is {ord(i)}")
```


The ASCII number for a is 97
The ASCII number for b is 98
The ASCII number for c is 99
The ASCII number for d is 100
The ASCII number for e is 101
The ASCII number for f is 102
The ASCII number for g is 103
The ASCII number for h is 104
The ASCII number for i is 105
The ASCII number for j is 106
The ASCII number for k is 107
The ASCII number for l is 108
The ASCII number for m is 109
The ASCII number for n is 110
The ASCII number for o is 111
The ASCII number for p is 112
The ASCII number for q is 113
The ASCII number for r is 114
The ASCII number for s is 115
The ASCII number for t is 116
The ASCII number for u is 117
The ASCII number for v is 118
The ASCII number for w is 119
The ASCII number for x is 120
The ASCII number for y is 121
The ASCII number for z is 122
The ASCII number for A is 65
The ASCII number for B is 66
The ASCII number for C is 67
The ASCII number for D is 68
The ASCII number for E is 69
The ASCII number for F is 70
The ASCII number for G is 71
The ASCII number for H is 72
The ASCII number for I is 73
The ASCII number for J is 74
The ASCII number for K is 75
The ASCII number for L is 76
The ASCII number for M is 77
The ASCII number for N is 78
The ASCII number for O is 79
The ASCII number for P is 80
The ASCII number for Q is 81
The ASCII number for R is 82
The ASCII number for S is 83
The ASCII number for T is 84
The ASCII number for U is 85
The ASCII number for V is 86
The ASCII number for W is 87
The ASCII number for X is 88
The ASCII number for Y is 89
The ASCII number for Z is 90

```
In [38]: import string
letters=string.punctuation
for i in letters:
    print(f"The ASCII number for {i} is {ord(i)}")
```

```

The ASCII number for ! is 33
The ASCII number for " is 34
The ASCII number for # is 35
The ASCII number for $ is 36
The ASCII number for % is 37
The ASCII number for & is 38
The ASCII number for ' is 39
The ASCII number for ( is 40
The ASCII number for ) is 41
The ASCII number for * is 42
The ASCII number for + is 43
The ASCII number for , is 44
The ASCII number for - is 45
The ASCII number for . is 46
The ASCII number for / is 47
The ASCII number for : is 58
The ASCII number for ; is 59
The ASCII number for < is 60
The ASCII number for = is 61
The ASCII number for > is 62
The ASCII number for ? is 63
The ASCII number for @ is 64
The ASCII number for [ is 91
The ASCII number for \ is 92
The ASCII number for ] is 93
The ASCII number for ^ is 94
The ASCII number for _ is 95
The ASCII number for ` is 96
The ASCII number for { is 123
The ASCII number for | is 124
The ASCII number for } is 125
The ASCII number for ~ is 126

```

```

In [40]: # A-Z a-z
# A==> 65
# Z==> 90
# a ==> 97
# z ==> 122
# ! ==> 33
# ~ ==> 126
for i in range(20,200):
    print(i,chr(i),end='==>')

```

```

20 ==>21 ==>22 ==>23 ==>24 ==>25 ==>26 ==>27 ==>28 ==>29 ==>30 ==>31
==>32 ==>33 !=>34 "=>35 #=>36 $=>37 %=>38 &=>39 '=>40 (=>41 )=>42 *=>
43 +=>44 ,=>45 -=>46 .=>47 /=>48 0=>49 1=>50 2=>51 3=>52 4=>53 5=>54 6
=>55 7=>56 8=>57 9=>58 :=>59 ;=>60 <=>61 ==>62 >=>63 ?=>64 @=>65 A=>6
6 B=>67 C=>68 D=>69 E=>70 F=>71 G=>72 H=>73 I=>74 J=>75 K=>76 L=>77 M=
=>78 N=>79 O=>80 P=>81 Q=>82 R=>83 S=>84 T=>85 U=>86 V=>87 W=>88 X=>89
Y=>90 Z=>91 [=>92 \=>93 ]=>94 ^=>95 _=>96 `=>97 a=>98 b=>99 c=>100 d=
>101 e=>102 f=>103 g=>104 h=>105 i=>106 j=>107 k=>108 l=>109 m=>110 n=>
111 o=>112 p=>113 q=>114 r=>115 s=>116 t=>117 u=>118 v=>119 w=>120 x=>1
21 y=>122 z=>123 {=>124 |=>125 }=>126 ~=>127 ==>128 ==>129 ==>130 ==>13
1 ==>132 ==>133 ==>134 ==>135 ==>136 ==>137 ==>138 ==>139 ==>140 ==>141
==>142 ==>143 ==>144 ==>145 ==>146 ==>147 ==>148 ==>149 ==>150 ==>151
==>152 ==>153 ==>154 ==>155 ==>156 ==>157 ==>158 ==>159 ==>160 ==>161
j=>162 ¢=>163 £=>164 ¤=>165 ¥=>166 ¦=>167 §=>168 ¨=>169 ©=>170 ª=>171
«=>172 ¬=>173 ==>174 ®=>175 ¯=>176 °=>177 ±=>178 ²=>179 ³=>180 ´=>181 µ=
=>182 ¶=>183 ·=>184 ,=>185 ¹=>186 º=>187 »=>188 ¼=>189 ½=>190 ¾=>191 ¿=
>192 À=>193 Á=>194 Â=>195 Ã=>196 Ä=>197 Å=>198 Æ=>199 Ç=>

```

```
In [41]: for i in range(900,1000):  
         print(i,chr(i),end='==>')
```

```
900 '==>901 "==>902 A==>903 *==>904 E==>905 H==>906 I==>907 Ð==>908 O==>909 Ñ==>9  
10 Y==>911 Ñ==>912 Ĩ==>913 A==>914 B==>915 Γ==>916 Δ==>917 E==>918 Z==>919 H==>92  
0 0==>921 I==>922 K==>923 Λ==>924 M==>925 N==>926 Ξ==>927 O==>928 Π==>929 P==>930  
Ð==>931 Σ==>932 T==>933 Y==>934 Φ==>935 X==>936 Ψ==>937 Ω==>938 Ĩ==>939 Ÿ==>940 á  
==>941 é==>942 ħ==>943 í==>944 ü==>945 α==>946 β==>947 γ==>948 δ==>949 ε==>950 ζ=  
=>951 η==>952 θ==>953 ι==>954 κ==>955 λ==>956 μ==>957 ν==>958 ξ==>959 ο==>960 π==  
>961 ρ==>962 ζ==>963 σ==>964 τ==>965 υ==>966 φ==>967 χ==>968 ψ==>969 ω==>970 ï==>  
971 ü==>972 ó==>973 ú==>974 ó==>975 ϣ==>976 θ==>977 ϑ==>978 Υ==>979 Υ==>980 Ÿ==>9  
81 ϕ==>982 ϖ==>983 ϣ==>984 Ϙ==>985 ϙ==>986 ζ==>987 ζ==>988 F==>989 f==>990 4==>99  
1 4==>992 3==>993 3==>994 4==>995 4==>996 4==>997 4==>998 4==>999 5==>
```

```
In [44]: for i in range(3078,3178):  
         print(i,chr(i),end='==>')
```

```
3078 ఆ==>3079 ఇ==>3080 ఈ==>3081 ఊ==>3082 ఊ==>3083 ఋ==>3084 ౠ==>3085 ఌ==>30  
86 ఎ==>3087 ఏ==>3088 ఐ==>3089 ఐ==>3090 ఒ==>3091 ఓ==>3092 ఔ==>3093 క==>3094 ఖ=  
=>3095 గ==>3096 ఘ==>3097 ఙ==>3098 చ==>3099 ఛ==>3100 జ==>3101 ఝ==>3102 ఞ==>  
3103 ట==>3104 ఠ==>3105 డ==>3106 ఢ==>3107 ణ==>3108 త==>3109 థ==>3110 ద==>3111  
ధ==>3112 న==>3113 ణ==>3114 ప==>3115 ఫ==>3116 బ==>3117 భ==>3118 మ==>3119 య==  
>3120 ర==>3121 ల==>3122 ల==>3123 శ==>3124 ణ==>3125 వ==>3126 శ==>3127 ష==>3128  
స==>3129 హ==>3130 ణ==>3131 ణ==>3132 ణ==>3133 ణ==>3134 ణ==>3135 ణ==>3136 ణ==>3137  
ణ==>3138 ణ==>3139 ణ==>3140 ణ==>3141 ణ==>3142 ణ==>3143 ణ==>3144 ణ==>3145 ణ==>31  
46 ణ==>3147 ణ==>3148 ణ==>3149 ణ==>3150 ణ==>3151 ణ==>3152 ణ==>3153 ణ==>3154 ణ==>315  
5 ణ==>3156 ణ==>3157 ణ==>3158 ణ==>3159 ణ==>3160 ణ==>3161 ణ==>3162 ణ==>3163 ణ==>3  
164 ణ==>3165 ణ==>3166 ణ==>3167 ణ==>3168 ణ==>3169 ణ==>3170 ణ==>3171 ణ==>3172  
ణ==>3173 ణ==>3174 ణ==>3175 ణ==>3176 ణ==>3177 3==>
```

In []: