Exercise 1: Print First 10 natural numbers using while loop

In [1]:
```
#First of all we have to be clear, what is natural number? 1 to 10 is first natural number

i=1 #intializing
while i<=10:
    print(i)
    i=i+1
```

```
1
2
3
4
5
6
7
8
9
10
```

In [2]:
```
# Or to print in same vertical line,
i=1 #intializing
while i<=10:
    print(i, end=" ")
    i=i+1
```

```
1 2 3 4 5 6 7 8 9 10
```

Exercise 2: Write a program to print the following number pattern using a loop.

In [13]:
```
# for pattern print: if we use nested for loop, it will be easy

row=5   #how many rows we need
#1= row start with 1st row not with zero row
#row+1= we have intialize 5 to row means it will stop at 4 thatswhy stop at 6 means row +1
#1=step
#remember syntax of range, range(1,6,1)

for i in range(1,row+1,1):
    for j in range(1,i+1):
        print(j, end=" ")
#we are seeing step by step, what will get printed
```

```
1 1 2 1 2 3 1 2 3 4 1 2 3 4 5
```

In [16]:
```
#now if we put another print, which will provide empty line after each step
# for pattern print: if we use nested for loop, it will be easy

row=5   #how many rows we need
#1= row start with 1st row not with zero row
#row+1= we have intialize 5 to row means it will stop at 4 thatswhy stop at 6 means row +1
#1=step
#remember syntax of range, range(1,6,1)

for i in range(1,row+1,1):
    for j in range(1,i+1):
        print(j, end=" ")
#we are seeing step by step, what will get printed
    print(" ")
```

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Exercise 3: Calculate the sum of all numbers from 1 to a given number

In [21]:
```
def number(a):
    result=0
    for i in range(a+1):
```

```
        result=result+i
    return(result)
```

In [22]:
```
number(10)
```

Out[22]:
```
55
```

In [26]:
```
#This is from function so without using function?

num=int(input("Enter number of your choice: "))

result=0

if num<0:
    print("invalid number")
else:
    for i in range(num+1):
        result=result+i

print(result)
```

```
Enter number of your choice: 10
55
```

Exercise 4: Write a program to print multiplication table of a given number

In [29]:
```
num=int(input("Enter number for multiplication table: "))
if num<0:
    print("Please provide positive number: ")
    num=int(input("Enter number for multiplication table: "))
else:
    for i in range(1,11,1):
        print(num, "*" , i , "=", num * i, end=" ")
```

```
Enter number for multiplication table: 4
4 * 1 = 4 4 * 2 = 8 4 * 3 = 12 4 * 4 = 16 4 * 5 = 20 4 * 6 = 24 4 * 7 = 28 4 * 8 = 32 4 * 9 = 36 4 * 10 = 40
```

In [30]:
```
#here we put end in print, lets remove it for vertical printing
num=int(input("Enter number for multiplication table: "))
if num<0:
    print("Please provide positive number: ")
    num=int(input("Enter number for multiplication table: "))
else:
    for i in range(1,11,1):
        print(num, "*" , i , "=", num * i)
```

```
Enter number for multiplication table: 8
8 * 1 = 8
8 * 2 = 16
8 * 3 = 24
8 * 4 = 32
8 * 5 = 40
8 * 6 = 48
8 * 7 = 56
8 * 8 = 64
8 * 9 = 72
8 * 10 = 80
```

Exercise 5: Display numbers from a list using loop:

Write a program to display only those numbers from a list that satisfy the following conditions

numbers = [12, 75, 150, 180, 145, 525, 50]

- The number must be divisible by five
- If the number is greater than 150, then skip it and move to the next number
- If the number is greater than 500, then stop the loop

In [31]:
```
#Here first understand the question and see step by step so that we can practice too and understand as well
#lets only display number from list using loop

numbers = [12, 75, 150, 180, 145, 525, 50]
for i in numbers:
    print(i)
```

```
12
75
150
180
145
525
50
```

In [34]:
```
#now lets satisfy condition 1
```

```
numbers = [12, 75, 150, 180, 145, 525, 50]

for i in numbers:
    if i%5==0:
        print(i)
```

```
75
150
180
145
525
50
```

In [37]:
```
#now lets satisfy second condition:If the number is greater than 150, then skip it and move to the next number
#for this we have to use continue
for i in numbers:
    if i%5==0:
        if i>150:
            continue
        print(i)
```

```
75
150
145
50
```

In [42]:
```
#now lets see thord condition too (all in one):If the number is greater than 500, then stop the loop
#means we will have to use break
for i in numbers:
    if i%5==0:
        if i>150:
            continue
        if i>500:
            break
        print(i)
```

```
75
150
145
50
```

Exercise 6: Count the total number of digits in a number

example (45678) output should be 5

In [56]:
```
def countnum(a):
    return len(str(a))
```

In [57]:
```
countnum(45678)
```

Out[57]:
```
5
```

Exercise 7: Print list in reverse order using a loop

list1 = [10, 20, 30, 40, 50]

In [15]:
```
def reverseorder(a):
    a=a[::-1]
    return a
```

In [16]:
```
reverseorder([10,20,30,40,50])
```

Out[16]:
```
[50, 40, 30, 20, 10]
```

In [19]:
```
#Can we do normally ?

list1 = [10, 20, 30, 40, 50]
reverseorder=[]
list1=list1[::-1]
reverseorder.append(list1)

print(reverseorder)
```

```
[[50, 40, 30, 20, 10]]
```

Exercise 8: Display numbers from -10 to -1 using for loop

In [22]:
```
#think carefully it is not hard its similar to printing from 1 to 10 using for loop and range function

for i in range(-10,0,1):
    print(i)
```

```
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
```

Exercise 9: Use else block to display a message “Done” after successful execution of for loop

In [23]:
```
for i in range(5):
    print(i)
else:
    print("Its done , for loop completed")
```

```
0
1
2
3
4
Its done , for loop completed
```

Exercise 10: Find the factorial of a given number

In [30]:
```
import math

def factorail(a):
    return math.factorial(a)
```

In [31]:
```
factorail(5)
```

Out[31]:
```
120
```

Exercise 11: Reverse a given integer number - 76542

In [33]:
```
def reverse(a):
    a=str(a)
    a=a[::-1]
    a=int(a)
    return a
```

In [34]:
```
reverse(76542)
```

Out[34]:
```
24567
```

In [ ]: