1. Write a program to print the first 10 natural numbers using a while

```
# intializing the number

i=1

print("First 10 Natural Number")

#using while loop

while i<=10:

   # printing the current number along with its space for next number

   print(i,end=' ')

   # increment by 1

   i+=1
```

2. Write a program to print the following pattren using while loop

```
1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

'''

# initizaling the value

i=1

# outer loop to iterate over each row

while i<=5:

   # intializing the value for inner loop

   j=1

   # inner loop to print the numbers in each row

   while j<=i:

      print(j,end=' ')

      j+=1

   # creating the new line after numbers is completed in each row
```

```
    print()
    i+=1
```

3. Write a program to print the pattren using for loop

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
'''
# intializing the counter value
num=5
# outer iteration loop for each row
for i in range(1,num+1):
    # inner iteration loop for each column
    for j in range(1,i+1):
        print(j,end=' ')
    print()
```

4. Write a program to print the multiplication table of a given number by the user'''

```
a=int(input("Enter a number"))
i=1
print("Multiplication of a given number:",a)
while i<=10:
    print(a,"x",i,'=',a*i)
    i+=1
```

5. Write a program to print the fibonacci series'''

```
a=int(input("enter the number of terms:"))
# intializing the first two terms of fibonacci series
```

```
b,c=0,1
for i in range(a):
    print(b)
    d=b+c
    # updating the value of b and c for next iteration
    b=c
    c=d
```

6. Write a program to check whether a given number is prime or not

```
a=int(input("Enter a number you want to check:"))
if(a==0 or a==1):
   print("Neither prime nor composite")
b=0
# using a loop from 2 to a-1
for i in range(2,a):
   if (a % i==0):
      b+=1
if (b==2):
   print("Given number is prime")
else:
   print("Given number is not prime")
```

7. Write a program to print the sum of natural number given by User

```
a=int(input("enter a positive integer"))
b=0
for i in range(1,a+1):
    b+=i
print("The sum of natural number",a,"is:",b)
```

8. Write a program to find the sum of all even number between 1 to n

```
a=int(input("Enter a postivie integer"))
b=0
for i in range(1,a+1):
    if(i%2==0):
        b+=i
print("The sum of all even number from 1 to",a,'is:',b)
```

9. Write a program to check whether a given number is palindrome or not

```
a=int(input("Enter a positive integer"))
b=a
rev=0
while b!=0:
    rem=b%10
    rev=rev*10+rem
    b//=10
if rev==a:
    print("The given number is palindrome")
else:
    print("The give number is not palindrome")
```

10. Write a program to print the following pattern

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
* '''
```

n=5

```
for i in range(1,n+1):
    for j in range(1,i+1):
        print('*',end=' ')
    print()
for i in range(n,0,-1):
    for j in range(1,i+1):
        print("*",end=' ')
    print()
```