4. Control Flow: Loops

1.Code, execute and debug programs using loops.

Write a program to print first 10 natural numbers

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

output:

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

Write a program to print the sum of n natural numbers

```
n=int(input("Enter the value of n:"))
sum=0
i=1
while i<=n:
    sum=sum+i
    i=i+1
print("the sum is",sum)
```

Output:

```
Enter the value of n: 10
the sum is 55
```

Write a program to print the following sequence.

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

```
for i in range(1,5):
    for j in range(i):
        print(i,end=' ')
    print()
```

Write a program to print the following sequence.

```
1
1 2
1 2 3
1 2 3 4
for i in range (0,4):
    num=1
    for j in range(0,i+1):
        print(num,end=' ')
        num=num+1
    print(' ')
```

Write a program to print the Right angled triangle

```
for i in range(1,6):
    for j in range(i):
        print('*',end=' ')
    print()
```

output:

```
*
* *
* * *
* * * *
* * * * *
```

Write a program to print the Equilateral triangle

```
n=10
for i in range(1,5):
    print(' '*n,end='')
    print('* '*(i))
    n-=1
```

output:

```
        *
       * *
      * * *
     * * * *
```

2. Code, execute and debug programs using loops and conditional statements

Program using BREAK

```
for i in range(5):
    if i == 3:
        break
    print(i)
print('the end')
output:
0
1
2
the end
```

Program using CONTINUE

```
for i in range(5):
    if i == 3:
        continue
    print(i)
print('the end')
```

```
0
1
2
4
the end
```

Program using PASS

```
for i in range(5):
    if i == 3:
        pass
        print("Code is passed")
    print(i)
print('the end')
```

```
0
1
2
Code is passed
3
4
the end
```