

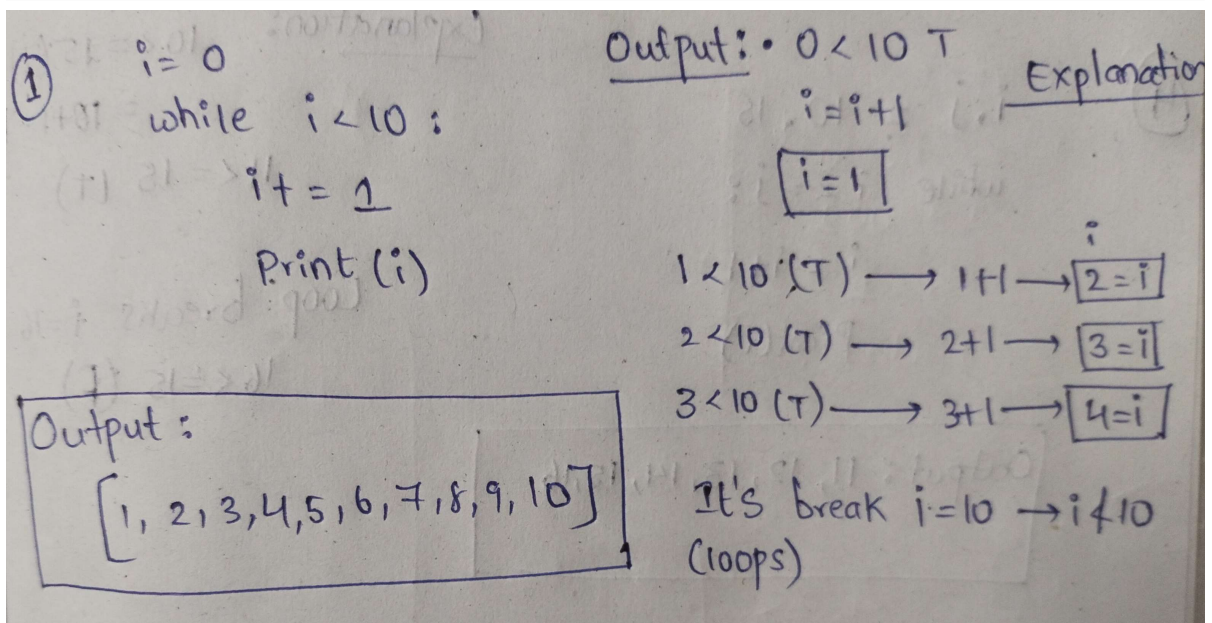
```
In [1]: #1
        i = 0
        while i < 10:
            i += 1
            print(i)
```

1
2
3
4
5
6
7
8
9
10

```
In [3]: from PIL import Image
```

```
In [12]: img = Image.open(r'C:\Users\Administrator\Downloads\1693085559531.jpg')
        img
```

Out[12]:



```
In [2]: #2
        i = 10
        while i >= 1:
            i -= 1
            print(i)
```

9
8
7
6
5
4
3
2
1
0

```
In [15]: img2 = Image.open(r"C:\Users\Administrator\Downloads\1693085559588.jpg")
img2
```

Out[15]:

②

$i = 10$
while $i \geq 0$:
 $i -= 1$
 Print(i)

Output:
[9, 8, 7, 6, 5, 4, 3, 2, 1, 0]

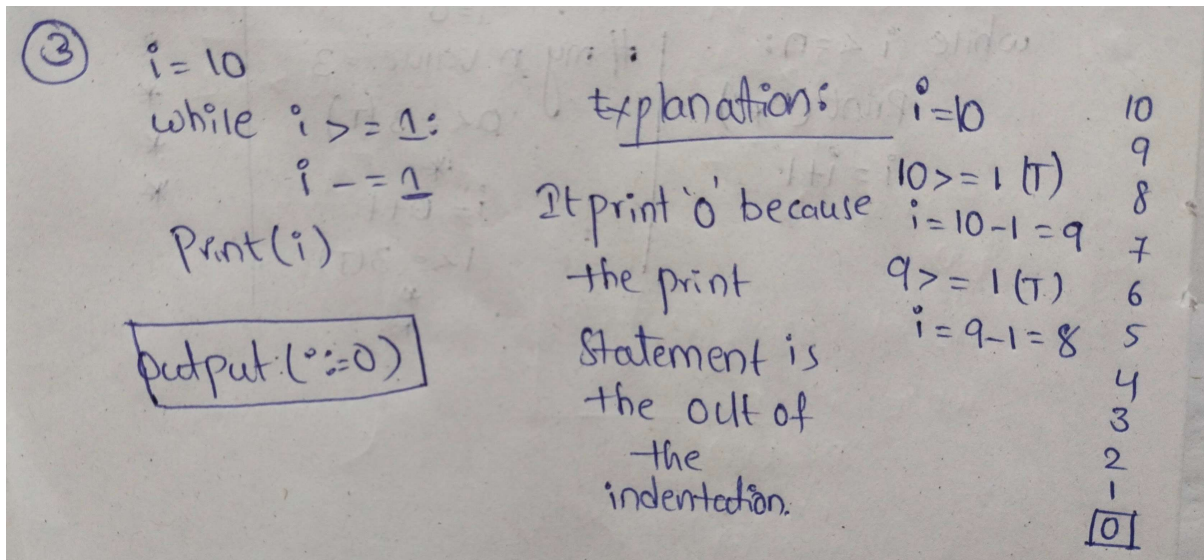
Explanation:
 $10 \geq 0 (T) \rightarrow 10 - 1 = 9$
 $9 \geq 0 (T) \rightarrow 9 - 1 = 8$
 $8 \geq 0 (T) \rightarrow 8 - 1 = 7$
!
 $2 \geq 0 (T) \rightarrow 2 - 1 = 1$
 $1 \geq 0 (T) \rightarrow 1 - 1 = 0$
 $0 \geq 0 (F)$
loops break $i = 0$
 $0 \geq 1$ (false)

```
In [18]: #3
i = 10
while i >= 1:
    i -= 1
print(i)
```

0

```
In [19]: img3 = Image.open(r"C:\Users\Administrator\Downloads\IMG_20230828_012054.jpg")
img3
```

Out[19]:



In [4]:

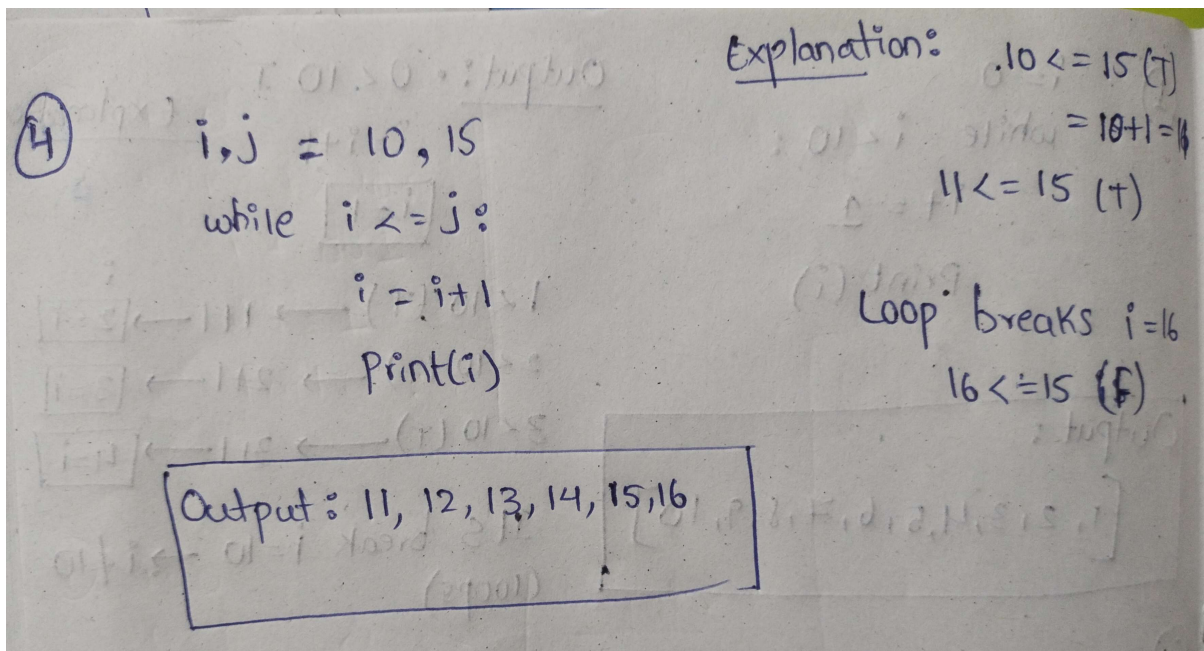
```
#4
i, j = 10, 15
while i <= j:
    i = i + 1
    print(i)
```

11
12
13
14
15
16

In [16]:

```
img4 = Image.open(r"C:\Users\Administrator\Downloads\IMG_20230827_024152.jpg")
img4
```

Out[16]:



In [19]:

```
#5
i, j = 10, 15
while i >= j:
```

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

```
In [20]: img5 = Image.open(r"C:\Users\Administrator\Downloads\IMG_20230827_233035.jpg")  
img5
```

Out[20]:

⑤ i, j = 10, 15
while i >= j:
 i = i+1
 Print(i)

Explanation:
10 >= 15 (F)
loop breaks the condition
the output won't print.

Output: - .

```
In [1]: #6  
i, j, k = 10, 20, 30  
while i <= j:  
    i = i+1  
    k = k-1  
    if(k == 25):  
        j = i  
    print(i)
```

15

```
In [11]: img6 = Image.open(r"C:\Users\Administrator\Downloads\IMG_20230827_234522.jpg")  
img6
```


Out[11]:

⑥ $i, j, k = 10, 20, 30$

while $i \leq j$:

$i = i + 1$

$k = k - 1$

if $(k == 25)$:

$j = i$

print(i)

Explanation:

$10 \leq 20 (T)$

$i = 10 + 1 = 11$

$k = 30 - 1 = 29$

if $(k == 25)$

$j = i \Rightarrow 11 = j$

i	j	k
10	20	30
11	20	29
12	20	28
13	20	27
14	20	26
15	20	25
16	20	24

15

In [1]:

```
#7
i = 0
n = int(input("Enter a number"))
while i <= n:
    print(i)
    i = i + 1
    print(i)
    print("-----")
```

Enter a number3

```
0
1
-----
1
2
-----
2
3
-----
3
4
-----
```

In [10]:

```
img7 = Image.open(r"C:\Users\Administrator\Downloads\IMG_20230828_000238 (2).jpg")
img7
```

Out[10]:

⑦ $i = 0$
 $n = \text{int}(\text{input}(\text{"Enter a number"}))$
 $\text{while } i \leq n:$
 $\text{Print}(i)$
 $i = i + 1$
 $\text{Print}(i)$
 $\text{Print}(\text{"----"})$

Explanation:

$i = 0$
my n value = 3
 $0 \leq 3$
 0
 $i = 0 + 1$
 = 1

Output:

0
1

1
2

2
3

3
4

In [8]:

```
i = 0
n = int(input("Enter a number"))
while i <= n:
    print("*")
    i = i + 1
```

Enter a number3

*
*
*
*

In [16]:

```
img8 = Image.open(r"C:\Users\Administrator\Downloads\IMG_20230828_003017 (1).jpg")
img8
```

Out[16]:

⑧ $i = 0$
 $n = \text{int}(\text{input}(\text{"Enter a number"}))$
 $\text{while } i \leq n:$
 $\text{Print}(\text{"*"})$
 $i = i + 1$

Explanation:

$i = 0$
my n value = 3
 $0 \leq 3$ (T)
 *
 $i = 0 + 1$
 $1 \leq 3$ (T)
 *
 *

Output:

*
*
*
*

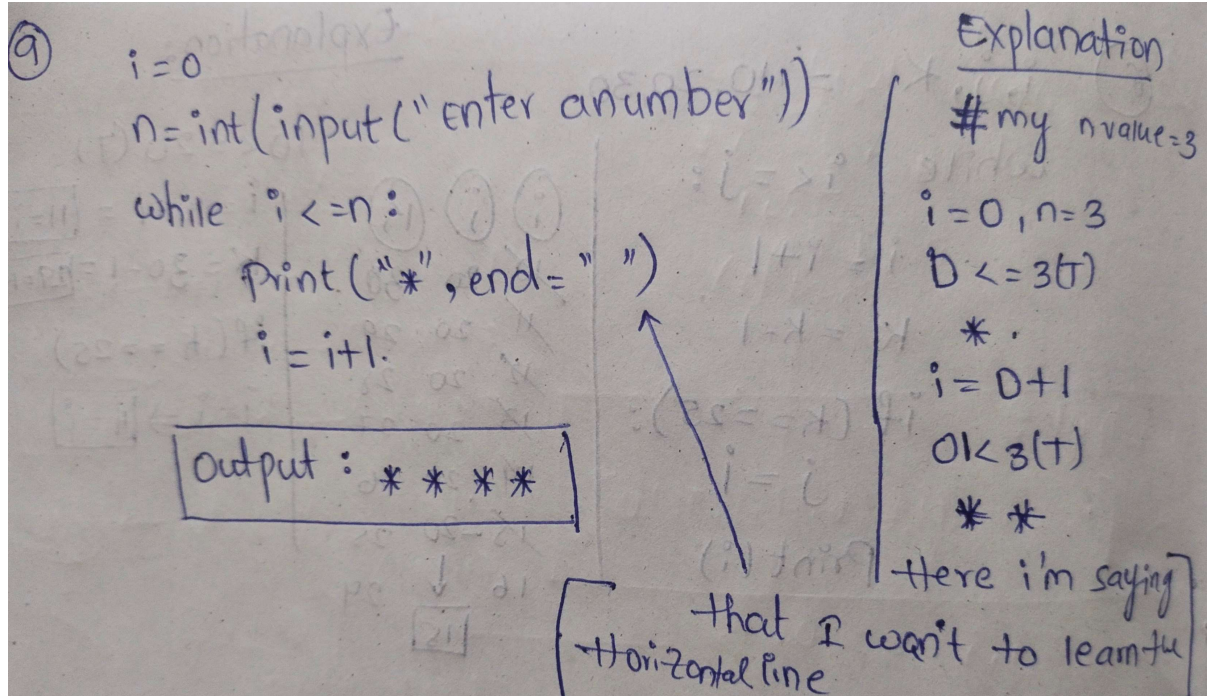
In [9]:

```
i = 0
n = int(input("Enter a number"))
while i <= n:
    print("*", end=" ")
    i = i + 1
```

Enter a number3
* * * *

```
In [17]: img9 = Image.open(r"C:\Users\Administrator\Downloads\IMG_20230828_004840.jpg")  
img9
```

Out[17]:



```
In [13]: temp = 5  
i = 0  
n = int(input("Enter a number"))  
while i <= n:  
    i = i + 1  
    print(temp + 5)
```

Enter a number3
10
10
10
10

```
In [18]: img10 = Image.open(r"C:\Users\Administrator\Downloads\IMG_20230828_004802.jpg")  
img10
```


Out[18]:

⑩

temp = 5

i = 0

n = int(input("Enter a number"))

while i <= n:

i = i + 1

Print (temp + 5)

Output : $\begin{bmatrix} 10 \\ 10 \\ 10 \\ 10 \end{bmatrix}$

Explanation:

my n value = 3

i = 0, n = 3

0 <= 3 (T)

i = 0 + 1

1 <= 3 (T)

i = 1 + 1

2 <= 3 (T)

i = 2 + 1

= 3