18th-nov

While Loop

- Intialization
- Increment or Decrement
- Condition to stop

- **in the for loop all the above 3 will happen in a single statement**

In [1]:
```
for i in range(2,20,2):
    print(i,end=" ")

# starting or intial value = 2
# condition or stop = 20
# increment or decrement/ step = +2
```

```
2 4 6 8 10 12 14 16 18
```

but in while loop all 3 are happped in each seperate line

- Intial value
- condition
  - Write your code here
  - incrememt or drecermennt

Syntax

In [ ]:
```
<intial value>
while <condition>:
    <write your code here>
    <increment or decrement>
```

Rule of contidion

- we need to write a condtion
- while should give enter inside the loop
- after some time whenever the condition satisfied
- The code should stop
- **So You will give that kind of condition**

In [4]:
```
2<20
```

Out[4]:
```
True
```

In [4]:
```
i = 2
while i<20:
    print(i,end=' ')
    i=i+2

#step-1: i=2 while 2<20 True pint(2) i = 2+2=4
#step-2: i=4 while 4<20 True print(4) i = 4+2=6
#step-3: i=6 while 6<20 True pint(6) i = 2+2=8
#step-4: i=8 while 8<20 True print(8) i = 4+2=10
#step-5: i=10 while 10<20 True pint(10) i = 2+2=12
#step-6: i=12 while 12<20 True print(12) i = 4+2=14
#step-7: i=14 while 14<20 True pint(14) i = 2+2=16
#step-8: i=16 while 16<20 True pint(16) i = 2+2=18
#step-9: i=18 while 18<20 True pint(18) i = 2+2=20
#step-1: i=20 while 20<20 False

# out from the while loop
```

```
2 4 6 8 10 12 14 16 18
```

In [5]:
```
for i in range(10,0,-1):
    print(i, end=' ')
```

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

In [5]:
```
10>0
```

Out[5]: True

In [8]:
```
0>-10
```

Out[8]: True

In [2]:
```
-1>-11
```

Out[2]: True

In [6]:
```
#Que1:-
# before solve
# I will check 10>0
# True

i = 10
while i>0:
    print(i,end=' ')
    i= i-1

#Que2:-
# before solve
# I will check 0>-10
# True

i = -10
while i >0:
    print(i,end=' ')
    i=i+1
print()
print()
#Que 3:-
```

```
# before solve
# I will check -1>-11
# True
i = -1
while i > -11:
    print(i,end=' ')
    i = i-1
```

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

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

In [ ]:

In [12]:
```
i=10
while i>0:
    print(i,end=' ')
    i=i-1
#step-1: i=10 while 10>0 True print(10) i = 10-1=9
#step-2: i=4 while 4<20 True print(4) i = 9-1=8
#step-3: i=6 while 6<20 True pint(6) i = 8-1=
```

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

In [11]:
```
for i in range(-10,0,1):
    print(i,end=' ')
```

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

In [15]:
```
i = -10
while i < 0:
    print(i,end=' ')
    i = i+1
```

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

In [17]:
```
for i in range(-1,-11,-1):
    print(i,end=' ')
```

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

In [19]:
```
i = -1
while i > -11:
    print(i,end=' ')
    i = i-1
```

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

True

- True is condition alwyas give a permision to enter inside the loop
- some time we can not fix the condition to enter inside the loop
- but we know the stop condition

In [7]:
```
i = 2
while True:
    print(i,end=' ')
    i = i+2 # 2+2 = 4 .... 20 then break
```

```
    if i ==20:
        break
```

```
2 4 6 8 10 12 14 16 18
```

In [8]:
```
i = -1
while True:
    print(i,end=' ')
    i = i-1 # -1-1 = -2 ..... -11 then break
    if i == -11:
        break
```

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

Difference for or while loop

- In for loop 1 condition to stop the loop
- but in **while loop** we no need to stop the loop
- It is a **infinite loop**

In [ ]:
```
**Syntax using True**

<intial value> # start point
while True:
    <write your code here>
    <increment or decrement>
    <if condition>:
        break
```

In [24]:
```
i = -10
while True:
    print(i,end=' ')
    i = i+1
    if i == 0:
        break
```

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

When to use while and for loop

- if we observe for loop **start stop step**
- There is no infinite loop situation here
- If we wnat to give infinite loop situation
    - Based on correct value we want to stop the loop then we go **for while loop**

Que

In [2]:
```
import random
n1 = random.randint(1,10)
n2 = eval(input("enter a number:"))
if n1==n2:
    print("Won")
```

```
else:
    print("Lost")
```

```
Lost
```

In [5]:
```
for i in range(3):
    n1 = random.randint(1,10)
    print(n1)
    n2 = eval(input("enter a number:"))
    if n1==n2:
        print("Won")
        break
    else:
        print("Lost")
```

```
8
Lost
6
Won
```

In [9]:
```
import random
while True:
    n1 = random.randint(1,10)
    print(n1)
    n2 = eval(input("enter a number:"))
    if n1==n2:
        print('won')
        break
    else:
        print("Lost")
```

```
10
Lost
1
Lost
7
Lost
8
Lost
1
Lost
9
won
```

In [6]:
```
while True:
    n1 = random.randint(1,10)
    print(n1)
    n2 = eval(input("enter a number:"))
    if n1==n2:
        print("Won")
        break
    else:
        print("Lost")
```

```
8
Lost
8
Won
```

In [2]:
```
i = 0
while True:
    n1 = eval(input('Enter a number'))
```

```
    if n1%2==0:
        print("even")
    else:
        print("odd")
    i = i+1
    if i == 5:
        break
```

```
odd
even
odd
even
odd
```

In [4]:
```
0<5
```

Out[4]: True

In [5]:
```
i = 0
while i<5:
    n1 = eval(input('Enter a number'))
    if n1%2==0:
        print("even")
    else:
        print("odd")
    i = i+1
```

```
odd
even
odd
odd
odd
```

In [8]:
```
for i in range(5):
    n1 = eval(input('Enter a number'))
    print(n1**n1)
```

```
256
823543
4
27
256
```

In [2]:
```
i = 0
while True:
    n1 = eval(input('Enter a number'))
    print(n1**n1)
    i = i +1
    if i > 4:
        break
```

```
256
3125
823543
387420489
46656
```

In [1]:
```
for i in range(5):
    num = eval(input('Enter a number'))
    if num %2==0:
        print("even")
```

```
    else:
        print("odd")
```

```
odd
even
odd
even
even
```

In [10]:
```
i = 0
while True:
    num = eval(input('Enter a number'))
    if num %2==0:
        print("even")
    else:
        print("odd")
    i = i+1
    if i > 4:
        break
```

```
even
odd
odd
even
odd
```

In [7]:
```
i = 1
n1 = eval(input("Enter a number"))
while True:
    print(f'{n1}*{i} = {n1*i}')
    i = i+1
    if i == 11:
        break
```

```
7*1 = 7
7*2 = 14
7*3 = 21
7*4 = 28
7*5 = 35
7*6 = 42
7*7 = 49
7*8 = 56
7*9 = 63
7*10 = 70
```

In [9]:
```
1<10
```

Out[9]: True

In [11]:
```
i = 1
n1 = eval(input("Enter a number"))
while i<11:
    print(f'{n1}*{i} = {n1*i}')
    i = i+1
```

```
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
```

In [6]:
```
n1 = eval(input("Enter a number"))
for i in range(1,11):
    print(f'{n1}*{i} = {n1*i}')
```

```
9*1 = 9
9*2 = 18
9*3 = 27
9*4 = 36
9*5 = 45
9*6 = 54
9*7 = 63
9*8 = 72
9*9 = 81
9*10 = 90
```

In [10]:
```
n1 = eval(input("Enter a number"))
i = 1
while True:
    print(f'{n1}*{i} = {n1*i}')
    i = i+1
    if i >=11:
        break
```

```
7*1 = 7
7*2 = 14
7*3 = 21
7*4 = 28
7*5 = 35
7*6 = 42
7*7 = 49
7*8 = 56
7*9 = 63
7*10 = 70
```

In [12]:
```
n1 = eval(input("enter a number"))
for i in range(1,n1+1):
    if n1%i==0:
        print(f"{i} is a divisor for {n1}")
```

```
1 is a divisor for 75
3 is a divisor for 75
5 is a divisor for 75
15 is a divisor for 75
25 is a divisor for 75
75 is a divisor for 75
```

In [17]:
```
n1 = eval(input("enter a number"))
i = 1
while True:
    if n1%i==0:
```

```
        print(f"{i} is a divisor for {n1}")
    i = i+1
    if i == n1+1:
        break
```

```
1 is a divisor for 76
2 is a divisor for 76
4 is a divisor for 76
19 is a divisor for 76
38 is a divisor for 76
76 is a divisor for 76
```

In [22]:
```
summ = 0
for i in range(1,11):
    summ = summ+i
print(summ)
```

```
55
```

In [30]:
```
i = 0
summ = 0
while True:
    summ = summ+i
    i = i+1
    if i > 10:
        break
print(summ)
```

```
55
```

In [34]:
```
count = 0
n1 = eval(input("enter a number"))
for i in range(1,n1+1):
    if n1%i==0:
        count = count+1
        print(i)
print(count)
```

```
1
3
5
15
25
75
6
```

In [1]:
```
count = 0
n1 = eval(input("Enter a number"))
i = 1
while True:
    if n1%i==0:
        print(i)
        count = count+1
    i = i+1
    if i ==n1+1:
        break
print(count)
```

```
1
3
5
15
25
75
6
```

In [6]:
```python
account_bal = 200
e_wallet = 5000
operation =
#while True:

if account_bal == 1000:
    print("Play the game")
else:
    print("You still do not have enough money")
    print("you want to add money then press 1")
    print("press 0 for exit")
```

```
You still do not have enough money
you want to add money then press 1
press 0 for exit
```

In [ ]:
```python

```