

Looping Statement - III & Control Transfer Statement



Session Objectives

- ✓ Understand is nested for/while loop
- ✓ Understand what a while loop is
- ✓ What control transfer statements are
- ✓ How to use the break statement
- ✓ How to use the continue statement
- ✓ How to use the pass statement

```
val = int(input("Enter the value : "))
multiplier = 1
counter = 1
while counter <= val:
    multiplier = multiplier * counter
    counter+=1
print(multiplier)
```

Enter the value : 10
3628800

Memory

```
val = 10
mul = 5040 * 8 =
40320 * 9 = 362880 * 10

count = 8 / 9 10
```

```
# 5 X 5 Matrix
i = 0
while i<5:
    j = 0
    while j < 5:
        print(f"{i,j}" , end = "\t")
        j = j + 1
    print()
    i = i + 1
```

```
(0, 0) (0, 1) (0, 2) (0, 3) (0, 4)
(1, 0) (1, 1) (1, 2) (1, 3) (1, 4)
(2, 0) (2, 1) (2, 2) (2, 3) (2, 4)
(3, 0) (3, 1) (3, 2) (3, 3) (3, 4)
(4, 0) (4, 1) (4, 2) (4, 3) (4, 4)
```

Memory

```
i = 1
j = 0
```

Console

0,0 0,1 0,2 0,3 0,4

| | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | | | | |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |

→ i →

↓ j ↓

```
# While Loop
while condition:
    # Code block to be executed repeatedly....

val = 10
while val >=1: # True -> At val = 0 : condition Break [False]
    print(f" {val} : Hello World!")
    val = val - 1

10 : Hello World!
9 : Hello World!
8 : Hello World!
7 : Hello World!
6 : Hello World!
5 : Hello World!
4 : Hello World!
3 : Hello World!
2 : Hello World!
1 : Hello World!
```

```
car_list = ['Taigun', 'Slavia', 'Verna', 'Thar', 'Innova', 'Defender', 'Lord Alto',
            'Safari', 'Harrier', 'Bolero', 'XUV700', 'Altroz']
len(car_list)

12

idx = 0
while idx < len(car_list): # 12
    print(car_list[idx] , end = " ")
    idx = idx + 1

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for car in car_list :
    print(car , end = " ")

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```

```
idx = 0
while idx < len(car_list): # 12
    print(car_list[idx] , end = " ")
    idx+=1

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```

```
# Range -> Even or odd : if-else with Loop [while]
val = int(input("Enter the value : "))
counter = 0
while counter <= val:
    if counter % 2 == 0: # Even
        print(f"{counter} is an even value")
    else: # Odd
        print(f"{counter} is an odd value")
    counter+=1
```

```
Enter the value : 5
0 is an even value
1 is an odd value
2 is an even value
3 is an odd value
4 is an even value
5 is an odd value
```

```
# Range -> Even or odd : if-else with Loop [while]
val = int(input("Enter the value : "))
counter = 0
while counter <= val:
    if counter % 2 == 0: # Even
        print(f"{counter} is an even value")
        counter+=1
    else: # Odd
        print(f"{counter} is an odd value")
        counter+=1
```

```
Enter the value : 7
0 is an even value
1 is an odd value
2 is an even value
3 is an odd value
4 is an even value
5 is an odd value
6 is an even value
7 is an odd value
```

```
# Range -> Even or odd : if-else with Loop [while]
val = int(input("Enter the value : "))
counter = 0
while counter <= val:
    if counter % 2 == 0: # Even
        print(f"{counter} is an even value")
    else: # Odd
        print(f"{counter} is an odd value")
    counter+=1 # Infinite Loop
```

```
val = int(input("Enter the value : "))
multiplier = 1
counter = 1
while counter <= val:
    multiplier = multiplier * counter
    counter+=1
print(multiplier)
```

Enter the value : 5
120

```
# While - Else [works if the loop runs successfully]
val = 10
while True:
    if val == 6:
        break
    print(val, end = " ")
    val = val - 1
else:
    print("Loop Runs Successfully!") # This line won't run as the loop breaks abruptly.
```

10 9 8 7

```
# While - Else [works if the loop runs successfully]
val = 10
while val >= 1:
    print(val, end = " ")
    if val == 6:
        break
    val = val - 1
else:
    print("Loop Runs Successfully!") # This line won't run as the loop breaks abruptly.
```

10 9 8 7 6

```

val = 10
while val >= 1:
    print(val, end = " ")
    val = val - 1
else:
    print()
    print("Loop Runs Successfully!") # Works

```

```

10 9 8 7 6 5 4 3 2 1
Loop Runs Successfully!

```

Shorthand Single Line While

```

val = 1
while val <= 11: print(val , end = " "); val +=2 # odd value print

```

```

1 3 5 7 9 11

```

Syntax of Nested While loop :

```

while Outer conditions :
    # Outer loop Body
    while inner conditions :
        # Inner Loop Body

```

5 X 5 Matrix

```

i = 0
while i<5:
    j = 0
    while j < 5:
        print(f"{i,j}" , end = "\t")
        j = j + 1
    print()
    i = i + 1
print("5*5 Matrix printted Successfully!")

```

```

(0, 0) (0, 1) (0, 2) (0, 3) (0, 4)
(1, 0) (1, 1) (1, 2) (1, 3) (1, 4)
(2, 0) (2, 1) (2, 2) (2, 3) (2, 4)
(3, 0) (3, 1) (3, 2) (3, 3) (3, 4)
(4, 0) (4, 1) (4, 2) (4, 3) (4, 4)
5*5 Matrix printted Successfully!

```



```
# 5 X 5 Matrix
i = 0
while i < 5:
    j = 0
    while j < 5:
        print(f"{i*j}" , end = "\t")
        j = j + 1
    print()
    i = i + 1
print("5*5 Matrix printted Successfully!")
```

| | | | | |
|---|---|---|----|----|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 1 | 2 | 3 | 4 |
| 0 | 2 | 4 | 6 | 8 |
| 0 | 3 | 6 | 9 | 12 |
| 0 | 4 | 8 | 12 | 16 |

5*5 Matrix printted Successfully!

Syntax :

```
while Loop:
    if cond :
        break
for iterators in iterables :
    if cond :
        break
```

```
car_list = ['Taigun','Slavia','Verna','Thar','Innova','Defender','Lord Alto',
            'Safari','Harrier','Bolero','XUV700','Altroz']
for car in car_list :
    if car == 'XUV700':
        break
    print(car , end = " ")
else:
    print("Car iterated Successfully ....")
```

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```
car_list = ['Taigun','Slavia','Verna','Thar','Innova','Defender','Lord Alto',
            'Safari','Harrier','Bolero','XUV700','Altroz']
for car in car_list :
    if car == 'Innova':
        break
    print(car , end = " ")
else:
    print("Car iterated Successfully ....")

print()
print("Hello Car Lovers :) ")
```

Taigun Slavia Verna Thar
Hello Car Lovers :)

```

car_list = ['Taigun','Slavia','Verna','Thar','Innova','Defender','Lord Alto',
            'Safari','Harrier','Bolero','XUV700','Altroz']
for car in car_list :
    if (car == 'Innova') or car == ('Lord Alto'):
        continue
    print(car , end = " ")
else:
    print()
    print("Car iterated Successfully ....")

```

Taigun Slavia Verna Thar Defender Safari Harrier Bolero XUV700 Altroz
Car iterated Successfully

```

car_list = ['Taigun','Slavia','Verna','Thar','Innova','Defender','Lord Alto',
            'Safari','Harrier','Bolero','XUV700','Altroz']
fav_car_list = []
for car in car_list :
    if (car == 'Innova') or car == ('Lord Alto'):
        continue
    print(car , end = " ")
else:
    for car in car_list:
        if (car == 'Innova') or car == ('Lord Alto'):
            pass
        else:
            fav_car_list.append(car)
print()
print(fav_car_list , end = " ")

```

Taigun Slavia Verna Thar Defender Safari Harrier Bolero XUV700 Altroz
['Taigun', 'Slavia', 'Verna', 'Thar', 'Defender', 'Safari', 'Harrier', 'Bolero', 'XUV700', 'Altroz']

```

car_list = ['Taigun','Slavia','Verna','Thar','Innova','Defender','Lord Alto',
            'Safari','Harrier','Bolero','XUV700','Altroz']
fav_car_list = []
for car in car_list :
    if (car == 'Innova') or car == ('Lord Alto'):
        break
    print(car , end = " ")
else:
    for car in car_list:
        if (car == 'Innova') or car == ('Lord Alto'):
            pass
        else:
            fav_car_list.append(car)
print()
print(fav_car_list , end = " ")

```

Taigun Slavia Verna Thar
[]

```

for i in range (1,11): # [1,2,3....10]
    print(i , end = " ")
    if i == 7:
        print()
        print("Hello Guys!, I'm going to terminate... Byeaaaa")
        break
else:
    print("Loop Runs Successfully!")

```

```

1 2 3 4 5 6 7
Hello Guys!, I'm going to terminate... Byeaaaa

```

```

for i in range (1,11): # [1,2,3....10]
    print(i , end = " ")
    if i == 11:
        print()
        print("Hello Guys!, I'm going to terminate... Byeaaaa")
        break
else:
    print()
    print("Loop Runs Successfully!")

```

```

1 2 3 4 5 6 7 8 9 10
Loop Runs Successfully!

```

```

for i in range (1,11): # [1,2,3....10]
    if i == 6:
        print()
        print(f"Skipping: {i} ")
        continue
    print(i , end = " ")
else:
    print()
    print("Loop Runs Successfully!")

```

```

1 2 3 4 5
Skipping: 6
7 8 9 10
Loop Runs Successfully!

```

```

offer_list = {'0' : 'exit',
              '1' : 'B2G1 Ajio T-Shirts',
              '2' : 'Swiggy 200 cash',
              '3' : 'Lenskart Gold Membership @49',
              '4' : 'Bombay Shaving B2G1' ,
              '5' : 'XYZZ@999' ,
              '6' : 'iXigo Flat 50% off on Hotels',
              '7' : 'Dot & Key Buy 1 Get 1 free' ,
              '8' : 'Minimalist B1G1' ,
              '9' : 'Belavitta Perfumes'}

```

```

offer_keys = offer_list.keys()
offer_value = offer_list.values()
print(offer_keys)
print(offer_value)

```

```

dict_keys(['0', '1', '2', '3', '4', '5', '6', '7', '8', '9'])
dict_values(['exit', 'B2G1 Ajio T-Shirts', 'Swiggy 200 cash', 'Lenskart Gold Membership @49', 'Bombay Shaving B2G1', 'XYZZ@999', 'iXigo Flat 50% off on Hotels', 'Dot & Key Buy 1 Get 1 free', 'Minimalist B1G1', 'Belavitta Perfumes'])

```



```

chances = 3
reward_list = []
while chances > 0:
    offer_key = input("Enter the Lucky Key between 0 to 9 : ")
    if offer_list[offer_key] == 'exit':
        break
    else :
        reward_list.append(offer_list[offer_key])
    chances -=1

print(reward_list)

```

Enter the Lucky Key between 0 to 9 : 1
Enter the Lucky Key between 0 to 9 : 7
Enter the Lucky Key between 0 to 9 : 9
['B2G1 Ajio T-Shirts', 'Dot & Key Buy 1 Get 1 free', 'Belavitta Perfumes']

```

chances = 3
reward_list = []
while chances > 0:
    offer_key = input("Enter the Lucky Key between 0 to 9 : ")
    if offer_list[offer_key] == 'exit':
        break
    else :
        reward_list.append(offer_list[offer_key])
    chances -=1

print(reward_list)

```

Enter the Lucky Key between 0 to 9 : 3
Enter the Lucky Key between 0 to 9 : 0
['Lenskart Gold Membership @49']