```
# lets use while loop usig some numbers
i = 1

while i <= 2 :
    j = 0
    while  j <= 2 :
        print(i*j, end=" ")
        j += 1
    print()
    i += 1
```

```
0 1 2
0 2 4
```

```
# lets use while loop usig some numbers
i = 1
while i <= 4 :
    j = 0
    while  j <= 3 :
        print(i*j, end=" ")
        j += 1
    print()
    i += 1
```

```
0 1 2 3
0 2 4 6
0 3 6 9
0 4 8 12
```

```
for i in [2, 3, 7.8, 'hi']:
    print(i)
```

```
2
3
7.8
hi
```

```
for i in range(5):
    print(i)
```

```
0
1
2
3
4
```

```
for i in range(1,10,3):
    print(i)
```

```
1
4
7
```

```
# print the value which is divisible by 5
for i in range(1,21):
    print(i)
```

```
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```

```
for i in range(1,51):
  if i % 5==0:
    print(i)
```

```
5
10
15
20
25
30
35
40
45
50
```

```
for i in range(1,51):
  if i%3!=0 and i%5!=0:
    print(i, end=" ")
```

```
1 2 4 7 8 11 13 14 16 17 19 22 23 26 28 29 31 32 34 37 38 41 43 44 46 47 49
```

LETS DISCUSS ABOUT 3 KEYWORDS -- BREAK || CONTINUE || PASS

BREAK STATEMNT - if you apply break statment in a loop then it will end the loop

Pass = skips block of code(function, class etc)

Continue= skips 1 step/iteration during loop

Break= jumps out of the function/loop

```
x = int(input("How many chocolate you want: ?"))
i =1
while i<=x:
  print('chocolate')
  i = i +1
```

```
How many chocolate you want: ?5
chocolate
chocolate
chocolate
chocolate
chocolate
```

- If the user says i need 10 choclet but vending machine dont have 10 choclate & machine has only 5 choclate so what you do on those scenario
- We have 3 choice now (eiter stop the transaction by you or you can give only 5 choclate) & may be vendor machine display the result as we are out of the stock
- Now lets try in the code

```
ava = 5
x = int(input("How many chocolates  u want"))
i = 1
while i<=x:
  print('chocolate')
  i = i + 1
```

```
How many chocolates  u want7
chocolate
chocolate
chocolate
chocolate
chocolate
chocolate
```

```
      chocolate


ava_choc = 5
x = int(input("How many chocolate u want"))
i =1
while i<=x:
  if i>ava_choc:
    break
  print('chocolet')
  i = i +1
print("Bye for now ")
```

```
How many chocolate u want6
chocolet
chocolet
chocolet
chocolet
chocolet
Bye for now
```

```
ava_choc= 5
x = int(input("How many chocolate u want "))
i =1
while i <=x:
  if i > ava_choc:
    print("Out of stock")
    break
  print("Cocolate")
  i = i+1
print("Bye now")
```

```
How many chocolate u want 7
Cocolate
Cocolate
Cocolate
Cocolate
Cocolate
Out of stock
Bye now
```

```
for i in range(1,11):
  print(i)
```

```
1
2
3
4
5
```

```
6
7
8
9
10
```

- i dont want 11 number i want only 5 number for the range of 1 to 10

```
for i in range(1,11):
    if i == 6:
       break
    print(i)
```

```
1
2
3
4
5
```

in continue loop wont be terminate & exclue the assign number it give you entire output

```
for i in range(1,11):
  if i == 3:
    continue
  print(i)
```

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

```
for i in range(1,11):
  if i == 6:
    continue
  print('hello:',i)
```

```
hello: 1
hello: 2
hello: 3
hello: 4
hello: 5
```

```
hello: 7
hello: 8
hello: 9
hello: 10
```

```
for i in range(1,11):
  if i == 6:
    break
  print('hello:',i)
```

```
hello: 1
hello: 2
hello: 3
hello: 4
hello: 5
```

```
for i in range(1,11):
  pass
```

```
for i in range(1,51):

    if i%3 == 0 or i%5 == 0:
        continue
    print(i)
#print('end')
# it will skip all the value which is divisible by 3 or 5
```

```
1
2
4
7
8
11
13
14
16
17
19
22
23
26
28
29
31
32
34
37
38
41
43
44
46
```

```
47
49
```

```
for i in range(1,50):
    if i%3 == 0 and i%5 == 0:
        continue
    print(i)
print('end')
# when you apply and you wont get the value which is divisible by both 3 & 5 (15)
```

```
1
2
3
4
5
6
7
8
9
10
11
12
13
14
16
17
18
19
20
21
22
23
24
25
26
27
28
29
31
32
33
34
35
36
37
38
39
40
41
42
43
44
46
47
48
```

```
      49
      end


for i in range(1,51):
  if (i%2 ==0):
    print('even')
    continue
  else:
    print(i)
print('bye')
```

```
1
even
3
even
5
even
7
even
9
even
11
even
13
even
15
even
17
even
19
even
21
even
23
even
25
even
27
even
29
even
31
even
33
even
35
even
37
even
39
even
41
even
43
```

```
even
45
even
47
even
49
even
bye
```

PRINTING PATTERN IN PYTHON

```
for i in range(1,5):
    i=i+1
    print('# # # # ')
```

```
# # # #
# # # #
# # # #
# # # #
```

```
for j in range(4):
    print('#')
```

```
#
#
#
#
```

```
for j in range(4):
    print('#', end = " ")
```

```
# # # #
```

```
for j in range(4):
    print('#', end=" ")

for j in range(4):
    print('#', end=" ")
```

```
# # # # # # # #
```

```
for j in range(4):
    print('#', end=" ")

print()
```

```
for j in range(4):
    print('#', end=" ")
```

```
# # # #
 # # # #
```

```
for j in range(4):
    print('#', end="  ")

print()

for j in range(4):
    print('#', end="  ")

print()

for j in range(4):
    print('#', end="  ")

print()

for j in range(4):
    print('#', end="  ")
```

```
#  #  #  #
 #  #  #  #
 #  #  #  #
 #  #  #  #
```

```
for i in range(4):
  for j in range(4):
    print('#', end=" ")
  print()
```

```
# # # #
 # # # #
 # # # #
 # # # #
```

```
for i in range(3):
  for j in range (5):
    print('8',end='  ')
  print()
```

```
8  8  8  8  8
 8  8  8  8  8
 8  8  8  8  8
```

```
for i in range(4):
  for j in range(i+1):
    print('*',end='  ')
  print()
```

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

```
for i in range(1,7):
  print('*'*i)
```

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

```
for i in range(1,5):
  for j in range(4):
    if i>j:
      print("#",end=" ")
  print()
```

```
#
# #
# # #
# # # #
```

```
list(range(5))
```

```
[0, 1, 2, 3, 4]
```

```
for i in range(4):
  for j in range(i):
    print('#', end="  ")
  print()
```

```

#
#  #
#  #  #
```

```
for i in  range(4):
  for j in  range(i+1):
    print('#',end= " ")
  print()
```

```
#
# #
# # #
# # # #
```

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

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

```
for i in range(1,5):
  print('*'*(5-i))
```

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

- For|Else in python
- In other language for else not supportable but in python it is supportable

eg- lets print the number from 1- 20 & we dont want print number which is divisible by 5

```
n =[12,15,18,221,26]
for a in n:
  if a%5==0:
    print(a)
```

```
15
```

```
n =[12,15,18,221,26,25,35,75]
for a in n:
  if a%5==0:
    print(a)
    break   # only print one number
```

```
15
```

```
n =[12,18,221,26,30]
for a in n:
  if a%5==0:
    print(a)
```

```
    break
  else:
    print('Numbers not found') # every iteration checking condition
```

```
Numbers not found
Numbers not found
Numbers not found
Numbers not found
30
```

- prime number - how to check given number is prime number or not

```
a = 6
for i in range(2,a):
  if a % i ==0:
    print("Not a prime number")
    break
  else:
    print('prime number')
```

```
Not a prime number
```

```
b = 7
for i in range(2,b):
  if b % i ==0:
    print("Not a prime number")
    break
  else:
    print('prime number')
```

```
prime number
prime number
prime number
prime number
prime number
```

```
from array import *
arr = array('i',[])

n = int(input('Enter the length of the array'))

for i in range(5):
    x = int(input('Enter the next value'))
    arr.append(x)
print(arr)
```

```
Enter the length of the array3
Enter the next value7
Enter the next value6
Enter the next value8
```

```
Enter the next value87
Enter the next value65
array('i', [7, 6, 8, 87, 65])
```

```
from numpy import *
arr = array([1,2,3,4,5])
print(arr)
type(arr)
```

```
[1 2 3 4 5]
numpy.ndarray
```

```
arr3 = array([1,2,3,4,5.6],int)
arr3
```

```
array([1, 2, 3, 4, 5])
```

```
import numpy as np
```

```
arr4 = np.linspace(0,16,10)
arr4
```

```
array([ 0.        ,  1.77777778,  3.55555556,  5.33333333,  7.11111111,
        8.88888889, 10.66666667, 12.44444444, 14.22222222, 16.        ])
```

```
arr5= np.zeros(5)
arr5
```

```
array([0., 0., 0., 0., 0.])
```

```
for i in range(5,0,-1):
  print(""*(5-i)+' * ' *(2*i-1))
```

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

```
for i in range(1,6):
  print(''*(5-i)+' * '*(2*i-1))
for i in range(4,0,-1):
  print(''*(5-i)+' *  '*(2*i-1))
```

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

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

```
for i in range(5):
  for j in range(5):
    if i == 0 or i == 4 or j==0 or j==4:
      print('*',end=' ')
    else:
      print(' ',end=' ')
  print()
```

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

```
for i in range(5):
  print(' * '*5)
```

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

```
for i in range(1,6):
  print(' '.join(str(x) for x in range(1, i + 1)))
```

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

```
for i in range(5,0,-1):
  print(' '.join(str(x) for x in range(1,i+1)))
```

```
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

```
num =1
for i in range(1,6):
  for j in range(1,i+1):
```

```
    print(num,end=' ')
    num = num +1
  print()
```

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

```
for i in range(1,6):
  for j in range(1,i+1):
    if j==1 or j==i or i==5:
      print('*',end=' ')
    else:
      print(' ',end= '  ')
  print()
```

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

```
def butterfly_star_pattern(n):
    # Upper half of the butterfly
    for i in range(1, n + 1):
        # Print stars for the left wing
        for j in range(1, i + 1):
            print("*", end=" ")
        # Print spaces in the middle
        for j in range(2 * (n - i)):
            print(" ", end=" ")
        # Print stars for the right wing
        for j in range(1, i + 1):
            print("*", end=" ")
        print()  # Move to the next line

    # Lower half of the butterfly
    for i in range(n, 0, -1):
        # Print stars for the left wing
        for j in range(1, i + 1):
            print("*", end=" ")
        # Print spaces in the middle
        for j in range(2 * (n - i)):
            print(" ", end=" ")
        # Print stars for the right wing
        for j in range(1, i + 1):
            print("*", end=" ")
        print()  # Move to the next line
```

```
# Set the number of rows for the butterfly pattern
n = 5
butterfly_star_pattern(n)
```

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

Start coding or generate with AI.