```python
# 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
```

```python
# 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
```

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

```
2
3
7.8
hi
```

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

```
0
1
2
3
4
```

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

```
1
4
7
```

```python
# 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
```

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

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

```python
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
```

```python
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
```

```python
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
```

```python
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
```

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

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

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

```python
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

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

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

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

```
#
#
#
#
```

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

```
# # # #
```

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

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

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

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

print()
```

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

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

```python
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="  ")
```

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

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

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

```python
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
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```python
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

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

```
15
```

```python
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
```

```python
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])
```

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

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

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

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

```python
import numpy as np
```

```python
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.        ])
```

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

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

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

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

```python
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))
```

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

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

```python
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()
```

```
→▾   * * * * *
     *       *
     *       *
     *       *
     * * * * *
```

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

```
→▾   *   *   *   *   *
     *   *   *   *   *
     *   *   *   *   *
     *   *   *   *   *
     *   *   *   *   *
```

```python
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
```

```python
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
```

```python
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()
```

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

Start coding or generate with AI.