#LOOPS IN PYTHON

1.while-loop

In [1]:
```
print('data')
print('data')
print('data')
```

```
data
data
data
```

In [2]:
```
i = 1        #intialization

while(i<=5):                  #condition
    print("Hello Python")
    i = i + 1                   #increment
```

```
Hello Python
Hello Python
Hello Python
Hello Python
Hello Python
```

In [5]:
```
# if we want repeatition in one line
i = 1        #intialization

while(i<=5):                  #condition
    print("HelloPython",end='  ')
    i = i + 1
```

```
HelloPython  HelloPython  HelloPython  HelloPython  HelloPython
```

In [6]:
```
cnt = 0
while (cnt < 3):
    cnt = cnt + 1
    print("Data science")
```

```
Data science
Data science
Data science
```

In [7]:
```
#print value from 1 to 10
i = 1

while(i<=10):
    print(i,end = " ")
    i=i+1
```

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

In [9]:
```
#print square of 1 to 10 in reverse
i = 10

while(i>=1):

```

```
    print(i**2,end =' ')
    i = i - 1      #decrement
```

```
100 81 64 49 36 25 16 9 4 1
```

Nested while-loop

In [10]:
```
i = 1

while i<=5:
    print("data science")
    j=1
    while j<=4:
        print('technology')
        j = j + 1

    i = i + 1
    print()
```

```
data science
technology
technology
technology
technology

data science
technology
technology
technology
technology

data science
technology
technology
technology
technology

data science
technology
technology
technology
technology

data science
technology
technology
technology
technology
```

In [13]:
```
#  when we mention end then new line will not create
i = 1

while i<=5:
    print("data science",end = " ")
    j=1
    while j<=4:
        print('technology',end = " ")
        j = j + 1
```

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

```
data science technology technology technology technology
data science technology technology technology technology
data science technology technology technology technology
data science technology technology technology technology
data science technology technology technology technology
```

In [16]:
```
# 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
```

In [18]:
```
i = 1
while i <= 2 :
    j = 0
    while  j <= 2 :
        print(i*j, end=" ")
        j += 1

    i += 1
```

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

In [19]:
```
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
```

In [21]:
```
num = 5 # the machine has only 5 choclet

x = int(input('How many choclets you want:?'))

i = 1
while i<=x:
    print('choclet')
    i += 1
# if you check the user wants 10 choclates  but availabe choclet is 5 but we got
# in this code we just declare but we didn't apply any condition to it
```

```
choclet
choclet
choclet
choclet
choclet
choclet
choclet
choclet
choclet
choclet
```

In [23]:
```
available_choclet = 5 # the machine has only 10 candis

x = int(input('How many choclets user want:?'))

i = 1
while i<=x:

    if i>available_choclet:    # we stop the execution but which code execution
        break                   # break is statement | means jump out of the loo
    print('choclet')
    i += 1

print('bye for now')
```

```
choclet
choclet
choclet
choclet
choclet
bye for now
```

In [25]:
```
available_choclet = 5 # the machine has only 10 candis

x = int(input('How many choclets you want:?'))

i = 1
while i<=x:

    if i>available_choclet: # we stop the execution but which code execution not
        print('out of stock')
        break                   # break is statement | means jump out of the loo
    print('choclet')
    i += 1

print('bye for now')
```

```
choclet
choclet
choclet
choclet
choclet
out of stock
bye for now
```

while-else

In [26]:
```
i = 10
```

```
while i <= 4 :
    j = 1
    while  j <= 3 :
        print(i*j, end=" ")
        j += 1

    print()
    i += 1

else:
    print('condition is not match')
```

```
condition is not match
```

In [27]:
```
# Check if a number is prime
num = 17
i = 2

while i < num:
    if num % i == 0:
        print(f"{num} is not a prime number.")
        break
    i += 1
else:
    print(f"{num} is a prime number.")
```

```
17 is a prime number.
```

2.For loop

In [28]:
```
name = 'hello'    #intialization

for i in name:
    print(i)
```

```
h
e
l
l
o
```

In [51]:
```
#Iterating Over List, Tuple, String and Dictionary Using for Loops
l = ["geeks", "for", "geeks"]    #list
for x in l:
    print(x)

tup = ("geeks", "bye", "geeks")   #tuple
for x in tup:
    print(x)

s = "hello"      #string
for x in s:
    print(x)

d = dict({'x':123, 'y':354})     #dictionary
for x in d:
    print("%s  %d" % (x, d[x]))

s = {10, 30, 20}              #set
```

```
for x in s:
    print(x),
```

```
geeks
for
geeks
geeks
bye
geeks
h
e
l
l
o
x  123
y  354
10
20
30
```

In [29]:
```
name1 = [1, 3.5,'hello',2+7j]

for i in name1:
    print(i)
```

```
1
3.5
hello
(2+7j)
```

In [30]:
```
#print 0 to 5 numbers
for i in range(6):
    print(i)
```

```
0
1
2
3
4
5
```

In [32]:
```
#print table of 5 using range
for i in range(5,51,5):
    print(i,end = ' ')
```

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

In [33]:
```
# print the value which is divisible by 3
for i in range(1,21):

    if i%3 == 0 :
        print(i)
```

```
3
6
9
12
15
18
```

In [34]:
```
for i in range(1,11):

```

```
    if i%3 == 0:

        print(i)
print('end')
```

```
3
6
9
end
```

nested-for loop

In [35]:
```
for i in range(4):
    for j in range(3):
        print(i)
```

```
0
0
0
1
1
1
2
2
2
3
3
3
```

In [36]:
```
for i in range(4):
    for j in range(3):
        print(i,end=" ")
```

```
0 0 0 1 1 1 2 2 2 3 3 3
```

In [37]:
```
for i in range(1, 5):
    for j in range(i):
        print(i, end=' ')
    print()
```

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

In [38]:
```
for i in range(1, 6):       # Outer loop for rows
    for j in range(1, 6):     # Inner loop for columns
        print(i * j, end=" ")
    print()                         # Newline after each row
```

```
1 2 3 4 5
2 4 6 8 10
3 6 9 12 15
4 8 12 16 20
5 10 15 20 25
```

for-else

In [39]:
```
nums = [12,18,21,26]

for num in nums:
    if num % 5 == 0:
        print(num)
        #break

else:
    print('number not found')
```

```
number not found
```

In [40]:
```
nums = [12,18,21,26,15]

for num in nums:
    if num % 3 == 0:
        print(num)
        break

else:
    print('number not found')
```

```
12
```

3.Break,Pass,Continue

In [41]:
```
for i in range(1,11):
    if i == 4:
       break
    print(i)
```

```
1
2
3
```

In [42]:
```
for i in range(1,11):
    if i == 6:
       continue
    print(i)
```

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

In [50]:
```
for i in range(1,11):
    pass                #we use pass statement in Python to write empty loops
```

In [44]:
```
for i in range(1,21):

    if i%3 == 0:
        continue
```

```
    print(i)
print('end')
```

```
1
2
4
5
7
8
10
11
13
14
16
17
19
20
end
```

In [47]:
```
for i in range(1,30):

    if i%3 == 0 or i%5 == 0:

        continue
    print(i,end = " ")
```

```
1 2 4 7 8 11 13 14 16 17 19 22 23 26 28 29
```

In [48]:
```
nums = [12,18,21,26]

for num in nums:
    if num % 5 == 0:
        print(num)
        break
```

In [49]:
```
for letter in 'geeksforgeeks':
    pass
print('Last Letter :', letter)
```

```
Last Letter : s
```

In [ ]: