In [1]:
```
2+2
```

Out[1]: 4

In [2]:
```
2+2
```

Out[2]: 4

Introduction to Python

Everyone loves pyton. We are learning R

Subsection

You can add LaTeX equations centered on their own lines with double dollar signs:

$$\sum_{i=1}^{\infty} \frac{1}{2^i}$$

In [8]:
```
2+3
```

Out[8]: 5

In [5]:
```
print("hello")
```

```
hello
```

In [11]:
```
print('hello')
```

```
hello
```

In [13]:
```
print("scaler's ds program")
```

```
scaler's ds program
```

In [10]:
```
print("Hello \n lets learn")
```

```
Hello
 lets learn
```

In [14]:
```
x = 5
```

In [15]:
```
X
```

```
---------------------------------------------------------------------------
```

```
NameError                                 Traceback (most recent call last)
<ipython-input-15-b5fec669aca1> in <module>
----> 1 X

NameError: name 'X' is not defined
```

In [16]:
```
x
```

Out[16]:
```
5
```

In [17]:
```
try = 1
```

```
  File "<ipython-input-17-b94734f8debf>", line 1
    try = 1
        ^
SyntaxError: invalid syntax
```

In [19]:
```
import keyword
print(keyword.kwlist)
print(len(keyword.kwlist))
```

```
['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'class', 'co
ntinue', 'def', 'del', 'elif', 'else', 'except', 'finally', 'for', 'from', 'global', 'i
f', 'import', 'in', 'is', 'lambda', 'nonlocal', 'not', 'or', 'pass', 'raise', 'return',
'try', 'while', 'with', 'yield']
35
```

In [20]:
```
x = 5
```

In [21]:
```
type(x)
```

Out[21]:
```
int
```

In [22]:
```
y = "scaler"
type(y)
```

Out[22]:
```
str
```

In [23]:
```
a,b,c = 2
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-23-4c07f34f665d> in <module>
----> 1 a,b,c = 2

TypeError: cannot unpack non-iterable int object
```

In [24]:
```
a, b, c = 2,2,2
```

In [27]:
```
a = b = c = 3
```

In [28]:
```
a = 10
b = 20
```

In [34]:
```
print(a+b)
print(a*b)
print(a/b)
print(a//b)
print(a%b)
print(a ** b)
```

```
30
200
0.5
0
10
100000000000000000000
```

In [35]:
```
2 ** 3
```

Out[35]: 8

Logical

In [36]:
```
# Logical
3 < 4
```

Out[36]: True

In [37]:
```
True and False
```

Out[37]: False

In [38]:
```
True or False
```

Out[38]: True

In [39]:
```
a = True
type(a)
```

Out[39]: bool

In [41]:
```
not a
```

Out[41]: False

string values and operators

In [42]:
```
x = "scaler"
y = "interviewbit"
x,y
```

Out[42]: ('scaler', 'interviewbit')

In [43]:
```
len(x), len(y)
```

Out[43]: (6, 12)

In [46]:
```
print(x.upper())
```

```
SCALER
```

In [45]:
```
y = "ABCD"
y.lower()
```

Out[45]: 'abcd'

In [47]:
```
a = "there is a space at the end       "
```

In [48]:
```
len(a)
```

Out[48]: 34

In [49]:
```
len(a.rstrip())
```

Out[49]: 27

In [50]:
```
b = '4%'
```

In [52]:
```
b.strip('%')
```

Out[52]: '4'

In [53]:
```
c = "  there is"
c.lstrip()
```

Out[53]: 'there is'

In [58]:
```
a = '**********444#'
a.rstrip('#').lstrip('*')
```

Out[58]: '444'

In [59]:

```
val = "4 apple"
val[0]
```

Out[59]: '4'

In [61]:
```
val[2:]
```

Out[61]: 'apple'

In [62]:
```
val[2:5]
```

Out[62]: 'app'

In [63]:
```
val[2:6]
```

Out[63]: 'appl'

In [65]:
```
val[:5]
```

Out[65]: '4 app'

In [67]:
```
a = "5 oranges 3 monkeys and"
a[:9]
```

Out[67]: '5 oranges'

In [69]:
```
a[-2]
```

Out[69]: 'n'

In [70]:
```
a[:-2]
```

Out[70]: '5 oranges 3 monkeys a'

In [71]:
```
a[10:-2]
```

Out[71]: '3 monkeys a'

In [77]:
```
a = '123456789'
even = a[1::2]
```

In [78]:
```
even
```

Out[78]: '2468'

In [80]:
```
a[::2]
```

Out[80]: '13579'

Break : 10 39

In [81]:
```
age = 20
```

In [91]:
```
my_age = "I am " + str(age) + "  years old"
```

In [86]:
```
my_age
```

Out[86]: 'I am 20 years old'

In [87]:
```
my_age = " I am {0} years old".format(age)
```

In [88]:
```
my_age
```

Out[88]: ' I am 20 years old'

In [96]:
```
a = "data"
b = "analytics"
c = "numpy"
print("{1} {0} using {2}".format(a,b,c))

#data analytics using numpy
```

analytics data using numpy

In [99]:
```
x = "ga"
y = "assignment"

x in y
```

Out[99]: False

Looping

if else

In [106…
```
a = int(input("Enter a number"))
if a>50:
    print('a is larger than 50')
else:
```

```
    difference=50-a
    print('a is smaller than 50 by '+str(difference)+' units')
```

```
Enter a number55
a is larger than 50
```

For/while loop

In [107…
```
subjects = ["maths","science","hindi","history"]
```

In [108…
```
print(len(subjects[0]))
print(len(subjects[1]))
print(len(subjects[2]))
print(len(subjects[3]))
```

```
5
7
5
7
```

In [109…
```
for i in range(4):
    print(len(subjects[i]))
```

```
5
7
5
7
```

In [110…
```
for i in range(1,10,3):
    print(i)
```

```
1
4
7
```

In [111…
```
cmd = input("Input a command: ")
```

```
Input a command: hello
```

In [112…
```
while cmd != 'exit':
 print(cmd)
 cmd = input("Input a command: ")
```

```
hello
Input a command: hello
hello
Input a command: scaler
scaler
Input a command: girija
girija
Input a command: exit
```

List

In [113…
```
a = []
```

In [114…
```
type(a)
```

Out[114… list

In [115…
```
languages = ['R','Python', 'SAS', 'Scala', 42]
print(languages)
```

```
['R', 'Python', 'SAS', 'Scala', 42]
```

In [117…
```
languages[-2]
```

Out[117… 'Scala'

In [118…
```
languages.append('ML')
print(languages)
```

```
['R', 'Python', 'SAS', 'Scala', 42, 'ML']
```

In [119…
```
languages.pop()
```

Out[119… 'ML'

In [120…
```
languages
```

Out[120… ['R', 'Python', 'SAS', 'Scala', 42]

In [121…
```
languages.pop(0)
```

Out[121… 'R'

In [122…
```
languages
```

Out[122… ['Python', 'SAS', 'Scala', 42]

In [123…
```
languages.pop(1)
```

Out[123… 'SAS'

In [124…
```
a = languages
```

In [125…
```
id(a)
```

Out[125… 1579177626880

In [126…
```
id(languages)
```
Out[126… 1579177626880

In [127…
```
a
```
Out[127… ['Python', 'Scala', 42]

In [128…
```
languages
```
Out[128… ['Python', 'Scala', 42]

In [129…
```
a[0] = 100
```

In [130…
```
a
```
Out[130… [100, 'Scala', 42]

In [131…
```
languages
```
Out[131… [100, 'Scala', 42]

In [132…
```
b = languages.copy()
```

In [135…
```
id(b)
```
Out[135… 1579184985728

In [136…
```
id(languages)
```
Out[136… 1579177626880

In [137…
```
d = languages[:]
```

In [138…
```
id(d)
```
Out[138… 1579159388928

In [139…
```
id(languages)
```
Out[139… 1579177626880

In [140…
```
mail = "hi scaler, how are you doing"
```

In [141…
```
words = mail.split()
```

In [142…
```
words
```

Out[142… ['hi', 'scaler,', 'how', 'are', 'you', 'doing']

In [143…
```
list1 = ["scaler"]
```

In [144…
```
list1*6
```

Out[144… ['scaler', 'scaler', 'scaler', 'scaler', 'scaler', 'scaler']

In [145…
```
list1 + list1
```

Out[145… ['scaler', 'scaler']

In [147…
```
[1,2,3] * 3
```

Out[147… [1, 2, 3, 1, 2, 3, 1, 2, 3]

In [148…
```
[1,2,3] * [1,2,3]
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-148-efb732392402> in <module>
----> 1 [1,2,3] * [1,2,3]

TypeError: can't multiply sequence by non-int of type 'list'
```

In [150…
```
max([1,2,3])
```

Out[150… 3

In [151…
```
sum([1,2,3])
```

Out[151… 6

In [152…
```
matrix = [[1,2,3], [4,5,6]]
```

In [154…
```
matrix[1][1]
```

Out[154… 5

In [ ]: