Task 1

```
In [1]: # This is my first comment
        spam = 1  # second commeent
                  #.. and now a third
        text = "#This is not a comment because it's inside quotes."
```

```
Using Python as a Calculator
```

```
 In [2]: 2 + 2

Out[2]: 4

 In [3]: 50-5*6

Out[3]: 20

 In [4]: (50-5*6)/4

Out[4]: 5.0

 In [5]: 8/5

Out[5]: 1.6

 In [6]: 13/3

Out[6]: 4.333333333333333

 In [7]: 17//2

Out[7]: 8

 In [8]: 17%3

Out[8]: 2

 In [9]:  5 * 4 +2

Out[9]: 22

 In [10]: 5 ** 2

Out[10]: 25

 In [11]: 2 ** 7

Out[11]: 128
```

```
In [12]: width = 20
         height = 5*9
         width * height

Out[12]: 900
```

```
In [13]: # If a variable is not "defined"(assigned a value, trying to use it will give
         n  # try to access an uderdefined variable
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[13], line 2
      1 # If a variable is not "defined"(assigned a value, trying to use it
will give an error)
----> 2 n

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

```
In [14]: 4 * 3.78-1

Out[14]: 14.12
```

```
In [15]: tax = 12.7/100
         price = 120.56
         price * tax

Out[15]: 15.31112
```

```
In [16]: price + _

Out[16]: 135.87112
```

```
In [17]: round(_,2)

Out[17]: 135.87
```

```
In [18]: 'spam eggs' #single quotes

Out[18]: 'spam eggs'
```

```
In [19]: "Paris rabbit got your back:)! Yay!" #double quotes

Out[19]: 'Paris rabbit got your back:)! Yay!'
```

```
In [20]: '1975'

Out[20]: '1975'
```

```
In [21]: 'doesn\'t' # use \' to escape the single quote..

Out[21]: "doesn't"

In [22]: "doesn't" #....or use double quotes instead

Out[22]: "doesn't"

In [23]: '"Yes," they said.'

Out[23]: '"Yes," they said.'

In [24]: "\"Yes,\"they said."

Out[24]: '"Yes,"they said.'

In [25]: '"Isn\'t,"they said.'

Out[25]: '"Isn\'t,"they said.'

In [26]: s = 'First line.\nSecond line.' #\n means newline

In [27]: s    # without print(), special characters are included in the string

Out[27]: 'First line.\nSecond line.'

In [28]: print(s)   # with print(), special characters are interpreted, so \n produces

         First line.
         Second line.

In [29]: print('C:\some\name')   # here \n means newline!

         C:\some
         ame

In [30]: print(r'C:\some\name') #note the r before the quote

         C:\some\name

In [31]: print("""\
         Usage: thingy [OPTIONS]
                -h                         Dispaly this usage message
                -H hostname                Hostname to connect to
                    """)

         Usage: thingy [OPTIONS]
                -h                         Dispaly this usage message
                -H hostname                Hostname to connect to
```

In [32]:

```
# 3 times 'un' followed by 'ium'
3 * 'un' + 'ium'
```

Out[32]:

```
'unununium'
```

In [33]:

```
'Py'  'thon'
```

Out[33]:

```
'Python'
```

In [34]:

```
text = ('Put several strings witnin parenthesis'
        'to have them joined together')
text
```

Out[34]:

```
'Put several strings witnin parenthesisto have them joined together'
```

In [35]:

```
prefix ='Py'
prefix 'thon'   # can't concatenate a variable and a string literal

('un' * 3) 'ium'
```

```
  Cell In[35], line 2
    prefix 'thon'   # can't concatenate a variable and a string literal
           ^
SyntaxError: invalid syntax
```

In [36]:

```
prefix = 'Py'
prefix + 'thon'
```

Out[36]:

```
'Python'
```

In [37]:

```
word ='Python'
word[0]
```

Out[37]:

```
'P'
```

In [38]:

```
word[5]
```

Out[38]:

```
'n'
```

In [39]:

```
word[-1]
```

Out[39]:

```
'n'
```

In [40]:

```
word[-2]
```

Out[40]:

```
'o'
```

```
In [41]: word[::-1]

Out[41]: 'nohtyP'

In [42]: word[::-2]

Out[42]: 'nhy'

In [43]: word[::-3]

Out[43]: 'nt'

In [44]: word[0:2]   # characters from position 0(included) to 2 (excluded)

Out[44]: 'Py'

In [45]: word[2:5]      # characters from position 2(included) to 5 (excluded)

Out[45]: 'tho'

In [46]: word[:2]       # character from beginning to position 2 (excluded)

Out[46]: 'Py'

In [47]: word[4:]         # character from position 4 (included) to the end

Out[47]: 'on'

In [48]: word[-2:]             # character from the second last (included) to the end

Out[48]: 'on'

In [49]: word[:2] + word[2:]

Out[49]: 'Python'

In [50]: word[:4]+word[4:]

Out[50]: 'Python'

In [51]: word[4:43]

Out[51]: 'on'

In [52]: word[42:]

Out[52]: ''
```

```
In [53]: 'J' +  word[1:]
```

```
Out[53]: 'Jython'
```

```
In [54]: word[:2] + 'py'
```

```
Out[54]: 'Pypy'
```

```
In [55]: s ='sddfghjklwertuii'
         len(s)
```

```
Out[55]: 16
```

List

```
In [56]: squares =[1,4,9,16,25]
```

```
In [57]: squares
```

```
Out[57]: [1, 4, 9, 16, 25]
```

```
In [58]: squares[0]
```

```
Out[58]: 1
```

```
In [59]: squares[-1]
```

```
Out[59]: 25
```

```
In [60]: squares[-3:]
```

```
Out[60]: [9, 16, 25]
```

```
In [61]: squares + [36,49,64,81,100]
```

```
Out[61]: [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

```
In [62]: cubes =[1,8,7,65,125]
```

```
In [63]: 4**3
```

```
Out[63]: 64
```

```
In [64]: cubes[4]
```

```
Out[64]: 125
```

In [65]:

```
cubes[3]=64    # replacing value 65 as 64
```

In [66]:

```
cubes
```

Out[66]:

```
[1, 8, 7, 64, 125]
```

In [67]:

```
cubes.append(216)     # add the cube of 6
cubes
```

Out[67]:

```
[1, 8, 7, 64, 125, 216]
```

In [68]:

```
cubes.append(7**3)
```

In [69]:

```
cubes
```

Out[69]:

```
[1, 8, 7, 64, 125, 216, 343]
```

First Steps towards Programming

In [86]:

```
#Fibonacci series
# the sum of two elements defines next

a, b = 0, 1
while a<10:
    print(a)
    a,b = b,a+b
```

```
0
1
1
2
3
5
8
```

In [88]:

```
i = 256*256
print('The value of i is',i)
```

```
The value of i is 65536
```

In [89]:

```
a,b=0,1
while a< 1000:
    print(a,end=',')
    a,b = b,a+b
```

```
0,1,1,2,3,5,8,13,21,34,55,89,144,233,377,610,987,
```