String

A string is a sequence of characters.

A string uses single and double quotes

For string + means Concatenate

when a string contains numbers it's still a string

we can convert numbers in a string into a number using int

In [2]:
```
print("Hello")
```
```
Hello
```

In [5]:
```
string1 = "Hello "
string2 = "world "
contac = string1 + string2
print(contac)
```
```
Hello world
```

In [6]:
```
x = '123'
print(x + 1)
```
```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[6], line 2
      1 x = '123'
----> 2 print(x + 1)

TypeError: can only concatenate str (not "int") to str
```

In [7]:
```
type(x)
```
Out[7]:
```
str
```

In [10]:
```
y = int(x)
print(type(y))
```
```
<class 'int'>
```

In [11]:
```
print(y)
```
```
123
```

In [1]:
```
name = input("Please enter your name:")
print(name)
```
```
owais iqbal
```

reading and converting

In [2]:
```
name = input ('Enter:')
```

In [3]:
```
print(name)
```
```
Owais
```

In [4]:
```
apple = input("Enter:")
```

In [5]:
```
x = apple - 10
```
```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[5], line 1
----> 1 x = apple - 10

TypeError: unsupported operand type(s) for -: 'str' and 'int'
```

In [6]:
```
y = int(apple) - 10
print(y)
```
```
90
```

Looking inside of a string

we can get any single character in a string using an index specified in squre braket

the index value must be an interger and start from zero

In [7]:
```
fruit = 'banana'
letter = fruit[1]
print(letter)
```
```
a
```

In [10]:
```
x = '123'
letter1 = x[0]
print(letter1)
```
```
1
```

In [12]:
```
x = '12345'
y = x[2]
print(y)
```
```
3
```

In [13]:
```
string = "I am learning python"
print(string[3])
```
```
m
```

In [14]:
```
book = "this book is amazing"
print(len(book))
```
```
20
```

In [16]:
```
my_fav_fruit = "Mango"
letter_z = my_fav_fruit[1]
print(letter_z)

x = 3
w = my_fav_fruit[x - 3]
print(w)
```
```
a
M
```

In [17]:
```
fav_game = " Human Life Simulator:"
y = fav_game[0]
print(y)

r = 4
xx = fav_game[r - 2]
print(xx)
```
```

u
```

In [21]:
```
book = "Python for everybody"
tt = book[1]
print(tt)

mini = 4
joule = book [r - 1]
print(joule)
```
```
y
h
```

In [22]:
```
facebook = "I hate using facebook"
x = facebook[1]
print(x)

g = 6
y = facebook[g - 2]
print(y)
```
```

t
```

String len function

the built function len give us the lenght of the function

In [23]:
```
fruit = "Banana"
print(len(fruit))
```
```
6
```

Looping thourgh a string

In [24]:
```
fruit = "Banana"
index = 0
while index < len (fruit):
    letter = fruit[index]
    print(index, letter)
    index = index + 1
```
```
0 B
1 a
2 n
3 a
4 n
5 a
```

In [25]:
```
name = "Owais Iqbal"
index = 0
while index < len(name):
    letter = name[index]
    print(index, letter)
    index = index + 1
```
```
0 O
1 w
2 a
3 i
4 s
5
6 I
7 q
8 b
9 a
10 l
```

In [26]:
```
book = "Python for everybody"
index = 0
while index < len(book):
    letter = book[index]
    print(index, letter)
    index = index + 1
```
```
0 P
1 y
2 t
3 h
4 o
5 n
6
7 f
8 o
9 r
10
11 e
12 v
13 e
14 r
15 y
16 b
17 o
18 d
19 y
```

In [28]:
```
ielts = "I took 6.5 band in ielts"
index = 0
while index < len(ielts):
    letter = ielts[index]
    print(index, letter)
    index = index + 1
```
```
0 I
1
2 t
3 o
4 o
5 k
6
7 6
8 .
9 5
10
11 b
12 a
13 n
14 d
15
16 i
17 n
18
19 i
20 e
21 l
22 t
23 s
```

In [29]:
```
temp = "The temp is 16 celcius"
index = 0
while index < len(temp):
    letter = temp[index]
    print(index, letter)
    index = index + 1
```
```
0 T
1 h
2 e
3
4 t
5 e
6 m
7 p
8
9 i
10 s
11
12 1
13 6
14
15 c
16 e
17 l
18 c
19 i
20 u
21 s
```

In [30]:
```
statement = "I love this instruction:"
index = 0
while index < len(statement):
    letter = statement[index]
    print(letter, index)
    index = index + 1
```
```
I 0
  1
l 2
o 3
v 4
e 5
  6
t 7
h 8
i 9
s 10
  11
i 12
n 13
s 14
t 15
r 16
u 17
c 18
t 19
i 20
o 21
n 22
: 23
```

In [35]:
```
fruit = "Mango"
index = 0
while index < len(fruit):
    letter = fruit[index]
    print(index, letter)
    index = index + 1
```
```
0 M
1 a
2 n
3 g
4 o
```

Definite Loop

A defenite loop using a for statement is much more elegent

In [36]:
```
fruit = "Banana"
for letter in fruit:
    print(letter)
```
```
B
a
n
a
n
a
```

In [37]:
```
name = "Owais Iqbal Baloch"
for letter in name:
    print(letter)
```
```
O
w
a
i
s

I
q
b
a
l

B
a
l
o
c
h
```

In [38]:
```
book = "python for everybody"
for letter in book:
    print(letter)
```
```
p
y
t
h
o
n

f
o
r

e
v
e
r
y
b
o
d
y
```

In [39]:
```
name = "Owais Iqbal"
index = 0
while index < len(name):
    letter = name[index]
    print(index, letter)
    index = index + 1
```
```
0 O
1 w
2 a
3 i
4 s
5
6 I
7 q
8 b
9 a
10 l
```

In [40]:
```
name = "Owais Iqbal"
for letter in name:
    print(letter)
```
```
O
w
a
i
s

I
q
b
a
l
```

In [42]:
```
# looping and counting
word = "banana"
count = 0
for letter in word:
    if letter == 'a':
        count = count + 1
        print(count)
```
```
1
2
3
```

Looping and counting

In [43]:
```
name = "Rabia"
count = 0
for letter in word:
    if letter == 'a':
        count = count + 1
        print(count)
```
```
1
2
3
```

In [45]:
```
name = "owais"
index = 0
while index < len(name):
    letter = name[index]
    print(index, letter)
    index = index + 1
```
```
0 o
1 w
2 a
3 i
4 s
```

In [46]:
```
name = "owais"
for letter in name:
    print(letter)
```
```
o
w
a
i
s
```

In [47]:
```
# Looping and counting
name = "owais"
count = 0
for letter in name:
    if letter == 'a':
        count = count + 1
        print(count)
```
```
1
```

In [48]:
```
# Looping and counting
name = "I am learning python"
count = 0
for letter in name:
    if letter == 'a':
        count = count + 1
        print(count)
```
```
1
2
```

In [49]:
```
# Looping and counting
name = "This is ok"
count = 0
for letter in name:
    if letter == 'i':
        count = count + 1
        print(count)
```
```
1
2
```

In [52]:
```
# Looping and Counting
book = "Data Analysis and Visualization"
count = 0
for letter in book:
    if letter == 'a':
        count = count + 1
        print(count)
```
```
1
2
3
4
5
6
```

Look deeper into in

the iteration variable iterates through the sequence

In [53]:
```
for letter in 'Banana':
    print(letter)
```
```
B
a
n
a
n
a
```

In [54]:
```
for name in "owais Iqbal":
    print(name)
```
```
o
w
a
i
s

I
q
b
a
l
```

In [55]:
```
for book_name in "Python for everybody":
    print(book_name)
```
```
P
y
t
h
o
n

f
o
r

e
v
e
r
y
b
o
d
y
```

Slicing String

In [57]:
```
s = "Monty Python"
print(s[0:4])
```
```
Mont
```

In [58]:
```
print(s[6:7])
```
```
P
```

In [59]:
```
print(s[6:20])
```
```
Python
```

In [60]:
```
print(s[3:5])
```
```
ty
```

In [61]:
```
print(s[8:12])
```
```
thon
```

In [62]:
```
print(s[:2])
```
```
Mo
```

In [63]:
```
print(s[2:])
```
```
nty Python
```

In [65]:
```
print(s[:])
```
```
Monty Python
```

String Manipulation

In [67]:
```
a = "owais "
b = "iqbal "
print(a + b)
```
```
owais iqbal
```

In [68]:
```
# N in logical operator
fruit = "Banana"
"B" in fruit
```
Out[68]:
```
True
```

In [69]:
```
"a" in fruit
```
Out[69]:
```
True
```

In [70]:
```
"n" in fruit
```
Out[70]:
```
True
```

In [71]:
```
"na" in fruit
```
Out[71]:
```
True
```

String Libraries

python has a number of string functions which are in the string libraries

these functions are already built into every string we invoke them by appending the function to string variable

In [75]:
```
greet = "HELLO WORLD"
ana = greet.lower()
print(ana)
```
```
hello world
```

In [76]:
```
print("hello")
```
```
hello
```

In [77]:
```
string_libraries = "Python has a number of string functions which are in the string libraries"
print(string_libraries.upper())
```
```
PYTHON HAS A NUMBER OF STRING FUNCTIONS WHICH ARE IN THE STRING LIBRARIES
```

Searching a string

find function

we use find function to search for a sub string within another

if the sub string is not found, find returns -1

Remember the string position starts at zero

In [78]:
```
fruit = "Banana"
pos = fruit.find("na")
print(pos)
```
```
2
```

In [79]:
```
y = fruit.find("a")
print(y)
```
```
1
```

In [80]:
```
name = "Owais Iqbal"
find_letter_in_this_string = name.find("Iqbal")
print(find_letter_in_this_string)
```
```
6
```

In [82]:
```
food = "Baking the bread"
b = food.find("br")
print(b)
```
```
11
```

In [83]:
```
# Search and Replace
name = "Hello World"
y = name.replace("Hello", "Happy")
print(y)
```
```
Happy World
```

In [84]:
```
# Search and replace
name = "Owais Iqbal"
d = name.replace("Owais", "Umair")
print(d)
```
```
Umair Iqbal
```

In [85]:
```
string = "this is ok"
f_t = string.replace("t", "T")
print(f_t)
```
```
This is ok
```

Stripping White

sometimes we want to take a string and remove the whitespaces at the beginning and end

In [87]:
```
name = "          this "
name.lstrip()
```
Out[87]:
```
'this '
```

In [89]:
```
name.rstrip()
```
Out[89]:
```
'          this'
```

In [90]:
```
name.strip()
```
Out[90]:
```
'this'
```

In [91]:
```
name.lstrip()
```
Out[91]:
```
'this '
```

In [92]:
```
name.rstrip()
```
Out[92]:
```
'          this'
```

In [93]:
```
name.strip()
```
Out[93]:
```
'this'
```

In [94]:
```
name.lstrip()
```
Out[94]:
```
'this '
```

In [95]:
```
name.rstrip()
```
Out[95]:
```
'          this'
```

In [96]:
```
name.strip()
```
Out[96]:
```
'this'
```

In [97]:
```
# Prefixes
x = "I am ok with using python:"
x.startswith("I")
```
Out[97]:
```
True
```

In [98]:
```
x.startswith("Python")
```
Out[98]:
```
False
```

In [99]:
```
x.startswith("am")
```
Out[99]:
```
False
```

In [100…
```
x.startswith("j")
```
Out[100…
```
False
```

In [101…
```
x.startswith("I am ok")
```
Out[101…
```
True
```

In [102…
```
x.startswith("i")
```

Out[102… False

In [ ]: