Python course with Baba_Ammar

How to use Jupyter Note Book

Basics of Python

01- My First Program

In [7]:
```
print(2+3)
print("hello_world")
print("we are learning python from start")
```

```
5
hello_world
we are learning python from start
```

02- Operators

In [8]:
```
print(2+5)
print(40-5)
print(2*5)
print(90/30)
print(3**2)

print(30//4)
print(2**8/7*9/50-20+8)
```

```
7
35
10
3.0
9
7
-5.417142857142858
```

PEMDAS (Parenthesis, Exponents, Multiply, Divide, Addition, Substraction)

Left to Right Sequence for M D & A S

03- Strings

In [9]:
```
print('test for single quotes')
print("test for double quotes")
print('''test for tripple quotes''')

print("what's your age")
```

```
test for single quotes
test for double quotes
test for tripple quotes
what's your age
```

04- Comments

In [10]:
```
print("hlo brother")
print(3+6)              #print operators functions with numbers
print("zaheer malik")   #print a strings
```

```
hlo brother
9
zaheer malik
```

The Shortcut Key to Comments is Ctrl+/

05- Variables (objects containing specific values)

In [11]:
```
x=6   #numeric or integer variable
print(x)
x=3
y=4
print(x+y)
y=("we are students")  #string variable
print(y)

#type/class of variables
type(x)
print(type(x))
print(type(y))

print(x)
fruit_basket= "Apply,mangoes"
print(fruit_basket)
print(type(fruit_basket))
```

```
6
7
we are students
<class 'int'>
<class 'str'>
3
Apply,mangoes
<class 'str'>
```

 # Rules to assign a variable:

1- The variable should contain letters, numbers or underscores

2- Do not start with number

3- Spaces are not allowed

4- Do not use keywords used in functions(breaks,mean,media,test,etc.)

5- Short and descriptive

6- Case senstivity (lowercase, uppercase, letters, Lowercase letters should be used)

06- Input Variables

In [12]:
```
fruit_basket="mangoes"
print(fruit_basket)
```

```
# 1st Stage input function:
fruit_basket=input("what is your favourite fruit?")
print(fruit_basket)

# 2nd Stage input function:
name=input("what is your name?")
greetings="hello"
print(greetings,name)

# Another way of 2nd Stage input function:
name=input("what is your name?")
print("hello!",name)

# 3rd Stage input function:
name=input("what is your name?")
age=input("how old are you ?")
greetings="hello!"
print(greetings,name,age)
print("hi!", name, ",you are still young")
```

```
mangoes
what is your favourite fruit?Apple
Apple
what is your name?Zaheer Abbas
hello Zaheer Abbas
what is your name?Zaheer Malik
hello! Zaheer Malik
what is your name?Malik
how old are you ?24
hello! Malik 24
hi! Malik ,you are still young
```

07- Conditional Logics

logical operators are either "true or false" or "yes or no" or "0 or 1"

equal to ==

not equal to !=

greater than >

less than <

greater than and equal to >=

less than and equal to <=

In [13]:
```
print(8==8)
print(3!=3)
print(3>2)
print(6<9)
print(4>2)
print(5>=8)
print(6<=9)
print(2>=5)
```

```
# Application of logical operators
nazar_age=5
school_age_requirement=4
print(nazar_age==school_age_requirement)

# Input function & logical operator
age_at_school=5
nazar_age=input("how old nazar is?  ")
nazar_age=int(nazar_age)
print(type(nazar_age))
print(nazar_age==age_at_school)             #logical operator

# Logical operator without input function
five=5
age_at_school=five
nazar_age= five
print(type(nazar_age))
print(nazar_age==age_at_school)
```

```
True
False
True
True
True
False
True
False
False
how old nazar is?  4
<class 'int'>
False
<class 'int'>
True
```

08- Type Conversion

In [14]:

```
x=12               #integer
y=12.5             #float
z="hi"             #string

# Implicit type conversion
x=x+y
print(x,type(x))
print(x,"type of x is:", type(x) )

# Explicit type conversion
age=input("what is your age")
age=int(age)
print(type(age))

age=input("what is your age")
age=int(age)
print(age,type(age))
print(age,type(int(age)))
print(age,type(str(age)))
```

```
24.5 <class 'float'>
24.5 type of x is: <class 'float'>
what is your age20
<class 'int'>
what is your age15
15 <class 'int'>
15 <class 'int'>
15 <class 'str'>
```

09- If, Else & Elif

In [17]:
```
age_at_school=5
nazar_age=4

# Can nazar go to school
if nazar_age==age_at_school:
    print("nazar can go to school")
else:
   print("nazar can not go to school")


age_at_school=5
nazar_age=12

#  Can nazar go to school
if nazar_age==age_at_school:
    print("nazar can go to school")
elif nazar_age>age_at_school:
   print("nazar should join elementory school")
else:
    print("nazar is still a baby")
```

```
nazar can not go to school
nazar should join elementory school
```

10- Functions

Defining a Function

In [18]:
```
#1
def print_codanics():
    print("i am a student")
    print("i am a student")
    print("i am a student")
    print("i am a student")

print_codanics()

#2
def print_codanics():
    text="i am learning python"
    print(text)
    print(text)
    print(text)
print_codanics()

#3
def print_codanics(text):
    print(text)
```

```
    print(text)
    print(text)
print_codanics("i am zaheer abbas")

#4 Defining a function with if,else & elif
def school_calculator(age):
 if age==5:
    print("nazar can join the school")
 elif age>5:
    print("nazar should go to school")
 else:
    print("nazar is still a baby")
school_calculator(7)

# Defining a function of future
def future_age(age):
    new_age=age+20
    print(new_age)
future_predicted_age= future_age(5)
print(future_predicted_age)


# Other Examples
def print_age():
    print(12)
    print(12)
    print(12)
print_age()

def nazar_age():
    age=(25)
    print(age)
    print(age)
    print(age)
nazar_age()


def nazar_age(age):
    print(age)
    print(age)
    print(age)
nazar_age(20)
```

```
i am a student
i am a student
i am a student
i am a student
i am learning python
i am learning python
i am learning python
i am zaheer abbas
i am zaheer abbas
i am zaheer abbas
nazar should go to school
25
None
12
12
12
25
25
25
20
20
20
```

11- For & While Loops

In [19]:
```
# For & while loops

# while loop:
x=0
while (x<=4):
    x=x+1
    print(x)

# for loop:
for x in range(2,10):
    print(x)


# Array (data set)
days=["mon","tue","wed","thu","fri","sat","sun"]
for d in days:
    print(d)
days=["mon","tue","wed","thu","fri","sat","sun"]

# Other Examples
for d in days:
    # if (d=="sat"):break   #loop stops
    if(d=="fri"):continue   #skips d
    print(d)


days=["mon","tue","wed","thu","fri","sat","sun"]
for d in days:
    print(d)
```

```
1
2
3
4
5
2
3
4
5
6
7
8
9
mon
tue
wed
thu
fri
sat
sun
mon
tue
wed
thu
sat
sun
mon
tue
wed
thu
fri
sat
sun
```

12- Import Libraries

How to Import the Libraries

In [20]:
```
#Example 01
#if you want to print the value of pi
import math
print("the value of pi", math.pi)

#Example 02
import statistics
x=[10,12,13,14,15,16]
print(statistics.mean(x))
print(statistics.median(x))
print(statistics.mode(x))
print(statistics.stdev(x))
```

```
the value of pi 3.141592653589793
13.333333333333334
13.5
10
2.160246899469287
```

Ioportant Statistical Data Analysis Libraries: numpy, pandas etc

13- Trouble Shooting (How to do trouble shooting of errors occuring in python)

In [22]:
```
# Example 01
# print(we are learning python)     #syntaxError
print("we are learning python")   #solution

# Example 02
# print(25/0)     #zero division error or runtime error
print(25/5)     #solution

# Example 03
name="Malik"
# print("Hi name")   #samantic error
print("Hi", name)    #solution
```

```
we are learning python
5.0
Hi Malik
```