Python Basic by Mrittika Megaraj

Introduction to Python

```
Code : To write codes
Markdown : To write formatted text
Raw NBConvert : To write unformatted text
Jupyter Notebook : One editor where you can write codes, formatted text,
unformatted text, create charts and graphs etc
Esc + DD : To delet the cell
Run the cell : shift + enter
```

In [1]:
```
print('Hello Everyone')
```

```
Hello Everyone
```

In [2]:
```
print("Hi Today I am learning Python")
```

```
Hi Today I am learning Python
```

Variables

```
In Python, variables are used to store values that can be referenced and
manipulated within a program. Variables in Python are dynamically typed,
which means you don't need to explicitly declare their types. Here's an
explanation of variables and the commonly used data types in Python:

Variable Naming: To create a variable, you need to choose a name that
follows certain rules. Variable names can contain letters (a-z, A-Z),
digits (0-9), and underscores (_), but they cannot start with a digit.
Additionally, Python is case-sensitive, so myVar and myvar would be
considered different variables.

Assigning Values: To assign a value to a variable, use the assignment
operator =. For example:

my_var = 10
```

Datatypes

```
Str : Any combination of alphabets, numbers and special characters
int : whole numbers both positive as well as negative including 0
float : decimal numbers
Bool : True /False
type() function : To check the datatype
```

```
variables : containers that hold some value
```

In [3]:
```
type("Hello")
```

Out[3]:
```
str
```

In [4]:
```
type(123)
```

Out[4]:
```
int
```

In [5]:
```
type(12.34)
```

Out[5]:
```
float
```

In [6]:
```
type(True)
```

Out[6]:
```
bool
```

In [7]:
```
type("123.45")
```

Out[7]:
```
str
```

In [8]:
```
type("true")
```

Out[8]:
```
str
```

In [9]:
```
x=10
```

In [10]:
```
x
```

Out[10]:
```
10
```

In [11]:
```
type(x)
```

Out[11]:
```
int
```

In [12]:
```
student_name="John"
```

In [13]:
```
type(student_name)
```

Out[13]:
```
str
```

In [14]:
```
print("Student name is ",student_name)
```

```
Student name is  John
```

Operators

```
Arithmatic operators : +,-,/,*,%(modulus),**
```

```
Relational operators/Comparison operator : >,>=,<,<=,==,!=
Assignment operator : =
Increment/Decrement operator : +=,-=
```

In [15]:
```
12/5
```

Out[15]: 2.4

In [16]:
```
12%5
```

Out[16]: 2

In [17]:
```
5**3
```

Out[17]: 125

In [18]:
```
2==5
```

Out[18]: False

In [19]:
```
Age=25
```

In [20]:
```
Age
```

Out[20]: 25

In [21]:
```
Age-=5
```

In [22]:
```
Age-=1
```

In [23]:
```
Age
```

Out[23]: 19

```
input () function : To accept values from users
No matter what user enter, it will be always stored as string
Casting function : int() : It will convert the string to integer
```

In [24]:
```
student_name=input("Please enter your name")
print("Your name is",student_name)
```

```
Please enter your nameMrittika
Your name is Mrittika
```

In [25]:
```
Age=int(input("Please enter your age"))
print("Your age is",Age)
```

```
Please enter your age21
Your age is 21
```

In [26]:
```
type(student_name)
```

Out[26]:
```
str
```

In [27]:
```
type(Age)
```

Out[27]:
```
int
```

Conditionals

```
if else statement : Conditional
if condtion
else
nested if
elif : To check multiple conditions
```

In [28]:
```
# program to check voting eligibility
age=int(input("Please enter your age"))
if age>=21:
    print("You are eligible to vote")
else:
    print("You are not eligible to vote")
```

```
Please enter your age21
You are eligible to vote
```

In [29]:
```
age=input("Please enter your age")
if age.isdigit():
    if int(age)>=21:
        print("You are eligible to vote")
    else:
        print("You are not eligible to vote")
else :
    print("Invalid input")
```

```
Please enter your age14
You are not eligible to vote
```

In [30]:
```
# program to assign a grade on the basis of marks
marks=int(input("Please enter your marks"))
if marks>=90:
    print("Your Grade is A")
elif marks>=80:
    print("Your Grade is B")
elif marks>=70:
    print("Your Grade is C")
else:
    print("Your Grade is D")
```

```
Please enter your marks90
Your Grade is A
```

Loops

```
While loop
break : To terminate the loop
for loop
```

In [31]:
```
# program to print numbers from 1 to 10
x=1
while x<=10:
    print(x)
    x+=1
```

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

In [32]:
```
# Program to guess a correct no
correct_no =7
x=1
while x<=3:
    num=int(input("Please enter a no between 1 and 10"))
    if num==correct_no:
        print("Congratulations !! You have won a jackpot")
        break
    else:
        x+=1
```

```
Please enter a no between 1 and 1010
Please enter a no between 1 and 1010
Please enter a no between 1 and 105
```

In [33]:
```
# Program to count no of vowels and consonants in the word
word=input("Please enter a word")
vowel=0
consonants=0
for i in word:
    if i in ("a","e","i","o","u"):
        vowel+=1
    else:
        consonants+=1
print("No of vowels are",vowel)
print("No of consonants are",consonants)
```

```
Please enter a wordMrittika
No of vowels are 3
No of consonants are 5
```

String Slicing

```
Positive Index : 0
Negative Index : -1
String slicing : string[start:Stop:Step]
it stop at stop -1 index
default start index : 0
default stop index : last index
default step : 1
```

In [34]:
```
word="Acknowledgement"
```

In [35]:
```
word[1]
```

Out[35]: 'c'

In [36]:
```
word[-2]
```

Out[36]: 'n'

In [37]:
```
word[0:4]
```

Out[37]: 'Ackn'

In [38]:
```
word[3:8]
```

Out[38]: 'nowle'

In [39]:
```
word[:4]
```

Out[39]: 'Ackn'

In [40]:
```
word[3:]
```

Out[40]:
```
'nowledgement'
```

In [41]:
```
word[:]
```

Out[41]:
```
'Acknowledgement'
```

In [42]:
```
word[::2]
```

Out[42]:
```
'Akoldeet'
```

In [43]:
```
word[::-1]
```

Out[43]:
```
'tnemegdelwonkcA'
```

Importing a file

In [44]:
```
!curl https://raw.githubusercontent.com/MicrosoftLearning/intropython/maste
```

```
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  C
urrent
                                 Dload  Upload   Total   Spent    Left  S
peed

  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--
0
100    56  100    56    0     0    125      0 --:--:-- --:--:-- --:--:--
126
```

```
Opening a Local File in read mode
poem_file = open('poem1.txt', 'r')
Read mode 'r'
MODE and Description
'r'-read only mode
'w'-write - overwrites file with same name
'r+'-read and write mode
'a'-opens for appending to end of file
open() creates an object that can be addressed in python code
```

In [45]:
```
poem=open('poem1.txt','r')
```

In [46]:
```
poem_read=poem.readlines()
```

In [47]:
```
type(poem_read)
```

Out[47]:
```
list
```

In [48]:
```
print(poem)
```

```
<_io.TextIOWrapper name='poem1.txt' mode='r' encoding='cp1252'>
```

In [49]:
```
print(poem_read)
```

```
['Loops I repeat\n', 'loops\n', 'loops\n', 'loops\n', 'I repeat\n', 'unti
l I\n', 'break\n']
```

In [50]:
```
poem.close()
```

In [51]:
```
for i in poem_read:
    print(i)
```

```
Loops I repeat

loops

loops

loops

I repeat

until I

break
```

In [52]:
```
# [ ] define and call a function short_rhyme() that prints a 2 line rhyme
def short_rhyme():
    print("Roses are red,")
    print("Violets are blue.")

# Call the function
short_rhyme()
```

```
Roses are red,
Violets are blue.
```

```
# [ ] define (def) a simple function: title_it() and call the function
# - has a string parameter: msg
# - prints msg in Title Case
```

In [54]:
```
def title_it(msg):
    print(msg.title())

# Call the function
message = "hello, world!"
title_it(message)
```

```
Hello, World!
```

```
# [ ] get user input with prompt "what is the title?"
# [ ] call title_it() using input for the string argument
```

In [55]:
```
def title_it(msg):
    print(msg.title())

# Get user input
user_input = input("What is the title? ")

# Call the function using user input
title_it(user_input)
```

```
What is the title? sherlock holmes
Sherlock Holmes
```

```
# [ ] define title_it_rtn() which returns a titled string instead of
printing
# [ ] call title_it_rtn() using input for the string argument and print
the result
```

In [56]:
```
def title_it_rtn(msg):
    return msg.title()

# Get user input
user_input = input("What is the title? ")

# Call the function and print the result
result = title_it_rtn(user_input)
print(result)
```

```
What is the title? sherlock holmes
Sherlock Holmes
```

In [ ]: