



# Python Lab

## Code Snippets

### *Disclaimer*

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```
""" MODULE Docstring: RSTFORUM DEVNET Python LAB SCRIPTS """
'=====
# "print Welcome to RSTForum"
'=====

print ("Welcome to RSTForum")

'=====
# print ("Hello, World") and ("Welcome") one below the other
'=====

print ("Hello, World"); print ("Welcome")

'=====
# run a "test.py" script that was downloaded on computer by issuing following
# python -i test.py
'=====

python -i test.py

'=====
# Variables
'=====

my_number = 5
my_number

'=====
# function
'=====

def my_function():
    print("Hello from a function")

my_function()

'=====
# class
'=====

class Myclass:
    x = 5

Myclass
```



```
'=====
# object
'=====
```

```
myobject = Myclass ()
myobject.x
```

```
'=====
# Lines and indentation
'=====
```

```
if True:
    print ("True")
else:
    print ("False")
```

```
'=====
# quotation # comment strings
'=====
```

```
'This is a comment'
" This is also a comment"
""" This is also a comment"""
```

```
'=====
# comment strings
#example 1
'=====
```

```
#This is a comment
'Welcome to RSTForum'
```

```
'=====
#example 2
'=====
```

```
print "Hello, Python!" #This is a comment
```

```
'=====
#example 3
'=====
```

```
"""
This is a comment
"""
```



```
print("Hello, RSTForum")
```

```
'===== '  
# Waiting for user input  
#example 1  
'===== '
```

```
input ("\n\nPress the enter key to exit.")
```

```
'===== '  
# run a "wait.py" script that was downloaded on computer by issuing following  
# python -i wait.py  
'===== '
```

```
python -i wait.py
```

```
'===== '  
# multiple Statements on single line  
'===== '
```

```
import sys; x='RST'; sys.stdout.write(x + '\n')
```

```
'===== '  
#Python Variables examples  
#example 1  
'===== '
```

```
x = 1  
print (x)
```

```
'===== '  
#example 2  
'===== '
```

```
name, weight = "aliya" , 42.8  
print(name, weight)
```

```
'===== '  
#example 3  
'===== '
```

```
name = "ash"  
weight = 48.5  
name; weight
```



```
'=====
#example 4
'
```

```
a = b = c = 1
a, b, c
```

```
'=====
#example 5
'
```

```
a = b = c = 1
a; b; c
```

```
'=====
# Python Output Variables Examples
#example 1
'
```

```
x = "RSTForum"
print ("Welcome to " + x)
```

```
'=====
#example 1
'
```

```
x = 5
y = 10
print(x + y)
```

```
'=====
#example 2
'
```

```
x = "Python is "
y = "Great"
z = x + y
print(z)
```

```
'=====
#example 3 TypeError: unsupported operand type(s) for +: 'int' and 'str'
'
```

```
x = 5 ; y = "RST"
print(x+y)
```



```
#should return "error TypeError:unsupported operand type(s) for +: 'int' and 'str'  
,
```

```
'===== '  
#Python Global Variables  
#example 1  
'===== '
```

```
x = "RSTForum"  
def myfunction():  
    print ("Welcome to " + x)
```

```
myfunction()
```

```
'===== '  
#example 2  
'===== '
```

```
x = "Python"  
def myfunction():  
    x = "RSTForum"  
    print("Welcome to " + x)
```

```
myfunction()  
print("Welcome to " + x)
```

```
'===== '  
#example 3  
'===== '
```

```
Welcome to RSTForum  
print("Welcome to " + x)
```

```
'===== '  
#Python Global Variables inside a  
#example 1  
'===== '
```

```
def myfunction():  
    global x  
    x = "RSTForum"
```

```
myfunction()  
print ("Welcome to " + x)
```



```
'=====
#example 2
'=====
```

```
x = "RSTForum"
def myfunction():
    global x
    x = "Python"
```

```
myfunction()
print("Welcome to " + x)
```

```
'=====
#Python Data Type
#string
'=====
```

```
x = "Hello RSTForum"
print(x) ; print(type(x))
```

```
'=====
#integer
'=====
```

```
x = 5
print(x) ; print(type(x))
```

```
'=====
#float
'=====
```

```
x = 5.8
print(x) ; print(type(x))
```

```
'=====
#complex
'=====
```

```
x = 5j
print(x) ; print(type(x))
```

```
'=====
#list
'=====
```



```
x = ["jay", "veeru", "gabbar"]
print(x) ; print(type(x))
```

```
'=====
#Tuple
'
```

```
x = ("jay", "veeru", "gabbar")
print(x) ; print(type(x))
```

```
'=====
#range
'
```

```
x = range(5)
print(x) ; print(type(x))
```

```
'=====
#dictionary
'
```

```
x = {"name" : "Rohish", "age" : 31}
print(x) ; print(type(x))
```

```
'=====
#set
'
```

```
x = {"jay", "veeru", "gabbar"}
print(x) ; print(type(x))
```

```
'=====
#frozenset
'
```

```
x = frozenset({"jay", "veeru", "gabbar"})
print(x) ; print(type(x))
```

```
'=====
#boolean
'
```

```
x = True
print(x) ; print(type(x))
```





```
'-----'  
#bytes  
'-----'
```

```
x = b"RSTForum"  
print(x) ; print(type(x))  
'-----'
```

```
#bytearray  
'-----'
```

```
x = bytearray(5)  
print(x) ; print(type(x))  
'-----'
```

```
#Memoryview  
'-----'
```

```
x = memoryview(bytes(5))  
print(x) ; print(type(x))  
'-----'
```

```
#Python Numbers Type Conversion  
#example 1  
'-----'
```

```
x = 1    # int  
y = 2.8  # float  
'-----'
```

```
a = float(x)  
b = int(y)  
c = complex(x)  
'-----'
```

```
print(a);print(b);print(c);print(type(a)); print(type(b));print(type(c))  
'-----'
```

```
#Python Random Numbers  
#example 1  
'-----'
```

```
import random  
print (random.randrange (1, 10))  
'-----'
```



```
#Python playing around with Strings
#example 2
#String: "Hello, World!"
#To get the character at position 4
#(first character has the position 0)
```

```
=====
a = "Hello, World!"
print(a[4])
```

```
=====
#example 3
#To get the character from position 2 to position 5:
```

```
=====
a = "Hello, World!"
print(a[2:5])
```

```
=====
#example 4
#To Get the characters from position 4 to position 1,
#starting the count from the end of the string
```

```
=====
a = "Hello, World!"
print(a[-4:-1])
```

```
=====
#example 5
#To Get the length of a string use the len() function
```

```
=====
a = "Hello, World!"
print(len(a))
13
```

```
=====
#example 6
#String: "    Hey RSTForum    "
#The strip() method removes any whitespace from the beginning or the end:
```

```
=====
b = "    Hey RSTForum    "
print(b.strip())
```



```
'=====
#example 7
# The lower() function returns the string in lower case:
'
```

```
"WhO wRoTe THIs? " .lower()
```

```
'=====
#example 8
#The upper() function returns the string in upper case:
'
```

```
b = "Hey RSTForum"
print(b.upper())
```

```
'=====
#example 9
#The replace() replaces a string with another string:
'
```

```
b = "Hey RSTForum"
print(b.replace("e", "o"))
```

```
'=====
#example 10
#The split() splits a string into 2 parts: if it finds " , "
'
```

```
a = "Hello, RSTForum!"
print(a.split(", "))
```

```
'=====
#example 11
#Merge variable x with variable y into variable z:
'
```

```
x = "Welcome" ; y = "RSTForum" ; z = x + y
print(z)
```

```
'=====
#example 12
#To add a space between them, add a " " :
'
```

```
x = "Welcome" ; y = "RSTForum"
```



```
z = x + " " + y
print(z)
```

```
#example 13
#To add strings
```

```
"RST" + "Forum"
```

```
#example 14
#display a string twice
```

```
"RST" * 2
```

```
#example 15
#The format() helps insert number into the string:
```

```
age = 21 ; txt="My name is Lee, and I am {}"
print(txt.format(age))
```

```
#example 16
#Insert multiple items in a string:
```

```
name = "Lee" ; age = 21
txt="My name is {}, and I am {}"
print(txt.format(name, age))
```

```
#example 17
#new way to Insert items in a string:
```

```
"Welcome to {}".format("RSTForum")
```

```
#example 18
#The join() joins string separated by " " , " " into one string
```



```
",".join(['a','b','c'])  
'a,b,c'
```

```
'===== '  
#Escape Characters  
#Single Quote: \'  
'===== '
```

```
txt = 'It\'s alright.' ; print(txt)
```

```
'===== '  
#Escape Characters  
#Slash: \  
'===== '
```

```
txt = 'Five \\ Two' ; print(txt)
```

```
'===== '  
#Escape Characters  
#New Line: \  
'===== '
```

```
txt = 'RST \  
Forum' ; print(txt)
```

```
'===== '  
#Escape Characters  
#Tab: \  
'===== '
```

```
txt = 'RST\  
Forum.' ; print(txt)
```

```
'===== '  
#Escape Characters  
#Backspace: \  
'===== '
```

```
txt = 'RST \  
Forum.' ; print(txt)
```

```
'===== '  
#Arithmetic Operators  
#addition  
'===== '
```

```
x=4 ; y=2 ; z=x+y ; print(z)
```



```
'=====
#Arithmetic Operators
#substraction
'
```

```
x=4 ; y=2 ; z=x-y ; print(z)
```

```
'=====
#Arithmetic Operators
#Multiplication
'
```

```
x=4 ; y=2 ; z=x*y ; print(z)
```

```
'=====
#Arithmetic Operators
#Division
'
```

```
x=4 ; y=2 ; z=x/y ; print(z)
```

```
'=====
#Arithmetic Operators
#Modulus
'
```

```
x=4 ; y=2 ; z=x%y ; print(z)
```

```
'=====
#Arithmetic Operators
#exponential
'
```

```
x=4 ; y=2 ; z=x**y ; print(z)
```

```
'=====
#Arithmetic Operators
#floor division
'
```

```
x=4 ; y=2 ; z=x//y ; print(z)
```

```
'=====
#Comparison Operators
```



```
#Equal x==y
```

```
x=4 ; y=2 ; print(x == y)
```

```
#Comparison Operators
```

```
#Not Equal x!=y
```

```
x=4 ; y=2 ; print(x!=y)
```

```
#Comparison Operators
```

```
#Greater Than x>y
```

```
x=4 ; y=2 ; print(x>y)
```

```
#Comparison Operators
```

```
#Greater Than x<y
```

```
x=4 ; y=2 ; print(x<y)
```

```
#Comparison Operators
```

```
#Less Than x<y
```

```
x=4 ; y=2 ; print(x>=y)
```

```
#Comparison Operators
```

```
# Greater Than Equal To x>=y
```

```
x=4 ; y=2 ; print(x>=y)
```

```
#Comparison Operators
```

```
# Less Than Equal To x<=y
```



```
x=4 ; y=2 ; print(x<=y)
```

```
=====
#Comparison Operators if if else loop
=====
```

```
x=4
if x<4:print("x is less than four")
elif x==4:print("x is equal to four")
else:print("x is greater than four")
```

```
=====
# Logical and Identity Operators
# and x < 5 and x < 10
=====
```

```
x=5 ; print (x<5 and x<10)
```

```
=====
# Logical and Identity Operators
# or x < 5 or x < 4
=====
```

```
x=5 ; print (x<5 or x<4)
```

```
=====
# Logical and Identity Operators
# and not(x<5 and x<10))
=====
```

```
x=4 ; print(not(x<5 and x<10))
```

```
=====
# Logical and Identity Operators
# and x is y; x==y
=====
```

```
x=["cat", "dog"] ; y=["cat", "dog"] ; z=x
print(x is z)
print(x is y) #False, as x and y are 2 different objects
print(x == y)
print("dog" in x)
print("rat" not in x)
```





```
# Functions
# example 1
'=====

def my_function():print("RSTForum")

my_function()
```

```
# Functions
# example 2
'=====

def function(name):
    print(name + " " + "RSTForum")

function("H!")
function("Hello")
```

```
# Functions
# example 3
'=====

def function(name1, name2):
    print(name1 + " " + name2)

function("Hi" , "Hello")
```

```
# Functions with Arbitrary Arguments(*args):
#if we don't know how many arguments will be passed in our function, add a * :
# example 4
'=====
```

```
def function(*day):
    print("Today is " + day[2])

function("Monday", "Tuesday", "Wednesday")
```

```
# Functions with Arbitrary Arguments(*args):
# Passing a List as an Argument:
# example 5
'=====
```



```
def my_function(items):
    for x in items:
        print(x)

comp = ["CPU", "RAM", "SSD"]
vehicle = ["Cycle", "Car", "Bus"]
my_function(comp)
my_function(vehicle)
```

```
'=====
# Functions
# example 6
=====
```

```
def add(num1, num2):
    result = num1 + num2
    return result
```

```
add(3, 5)
```

```
'=====
# A list is a collection which is ordered and changeable.
# lists are written with square brackets.
# example 1
=====
```

```
x = ['a', 5, 16.4]
x[2]
```

```
'=====
# List
# example 2
=====
```

```
x = ['a', 5, 16.4]
x[2] = 20.5
x
```

```
'=====
# List
# example 3
=====
```

```
x = ['a', 5, 20.5]
```



```
x.append ("new")
x
```

```
'=====
# List
# example 4
'
```

```
x = ['a', 5, 20.5]
x.insert (1, "new")
x
```

```
'=====
# List
# example 5
'
```

```
x = ['a', 'new', 5, 20.5]
x.remove ('new')
x
```

```
'=====
# List
# example 6
'
```

```
x = ['a', 5, 20.5]
del x[0]
x
```

```
'=====
# List
# example 7
'
```

```
x = ['a', 5, 20.5]
y=x.copy()
y
```

```
'=====
# Tuples
# example 1
'
```

```
x = ('a', 5, 16.4)
```



```
x[2]
```

```
'=====
# Dictionary: Python dictionaries are written with curly brackets,
# They have keys and values.
# example 1
'
```

```
mydict = {"name": "RSTForum", "since": "1997"}
mydict
```

```
'=====
# Dictionary:
# example 2
'
```

```
mydict = {"name": "RSTForum", "since": "1997"}
mydict["since"]
```

```
'=====
# Dictionary:
# example 3
'
```

```
mydict = {"name": "RSTForum", "since": "1997"}
x = mydict["since"]
print(x)
```

```
'=====
# Dictionary:
# example 4
'
```

```
mydict = {"name": "RSTForum", "since": "1997"}
x=mydict["since"] =2020
mydict
```

```
'=====
# Dictionary:
# example 5
'
```

```
mydict = {"name": "RSTForum", "since": "2020"}
y=mydict.get("name")
y
```



```
'=====
# Dictionary:
# example 6
'
```

```
if "since" in mydict:
    print("Yes, 'since' is a keys in our dictionary")
'
```

```
'=====
# Dictionary: You can loop through a dictionary by using a for loop:
# Print all key names in the dictionary, one by one:
'
```

```
mydict = {"name": "RSTForum", "since": "1997"}
for x in mydict: print(x)
'
```

```
'=====
# Dictionary: You can loop through a dictionary by using a for loop:
# Print all values in the dictionary, one by one:
'
```

```
mydict = {"name": "RSTForum", "since": "1997"}
for x in mydict: print(mydict[x])
'
```

```
'=====
# Dictionary: You can loop through a dictionary by using a for loop:
# we can also use the value() method to return values of dict:
'
```

```
mydict = {"name": "RSTForum", "since": "1997"}
for x in mydict.values(): print(x)
'
```

```
'=====
# Dictionary: You can loop through a dictionary by using a for loop:
# Print the number of items in the dictionary:
'
```

```
mydict = {"name": "RSTForum", "since": "1997"}
len(mydict)
'
```

```
'=====
# While Loop: Statements keep executing till condition is true:
# example 1
'
```



```
i = 1
while i < 4:
    print(i)
    i += 1
```

```
'=====
# While Loop:
# example 2
=====
```

```
i = 1
while i < 6:
    print(i)
    if (i == 2):
        break
    i += 1
```

```
'=====
# While Loop:
# example 3
=====
```

```
i = 1
while i < 3:
    print(i)
    i += 1
else:
    print("i is no longer less than 3")
```

```
'=====
# While Loop:
# example 4
=====
```

```
from time import sleep
while True:
    try:
        print("Polling.")
        sleep(1)
    except KeyboardInterrupt:
        break
```

```
'=====
# For Loop:
```



```
# example 1
```

```
for i in range(3):  
    print(i)
```

```
# For Loop:  
# example 2
```

```
names = ["RST", "Forum"]  
for x in names:  
    print(x)
```

```
# For Loop:  
# example 3
```

```
list = [ ("apple", 2) , ("banana" , 3) ]  
for fruit in list:  
    print(fruit)
```

```
# For Loop:  
# example 4
```

```
dict = { "apple" : 2 , "banana" : 3 }  
for x,y in dict.items(): # using items function  
    print(x,y)
```

```
# For Loop:  
# example 5
```

```
dict = { "apple" : 2 , "banana" : 3 }  
for x, y in dict.items():  
    print(y)
```

```
# For Loop:  
# example 6
```



```
'====='
```

```
dict = { "apple" : 2 , "banana" : 3 }  
for x in dict.values(): # using values function  
    print(x)
```

```
'====='
```

```
''' Thank You From RSTForum '''
```

```
'====='
```

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