Mawlana Bhashani Science and Technology University

Lab report

Lab report no: 02

Lab report title: Programming with python.

Course Code: ICT - 3207

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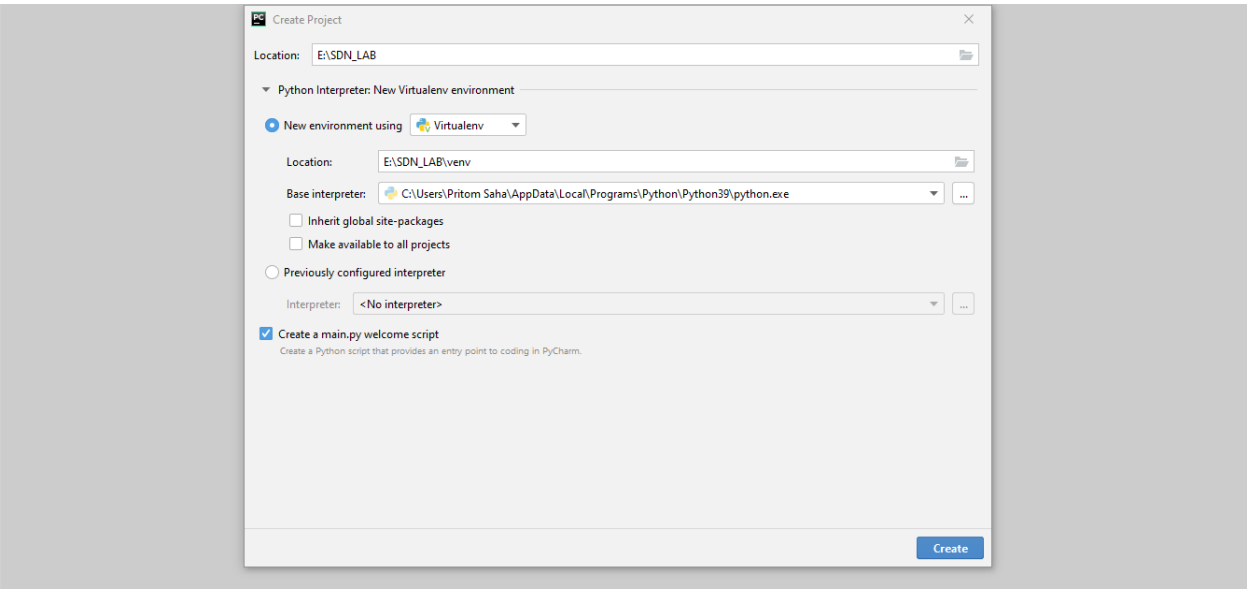
Exercise 4.1.1: Create a python project with SDN_LAB.



Exercise 4.1.2:

Exercise 4.1.3:

function_2.py

```
def print_max(a, b):
    if a > b:
        print(a, "is maximum")
    elif b > a:
        print(b, "is maximum")
    else:
        print("a and b are equal")

a = int(input())
b = int(input())
print_max(a, b)
```

Run: function_2

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/function_2.py
19
4
19 is maximum

Process finished with exit code 0
```

Exercise 4.1.4: Local variable

function_local.py

```
x = 50

def func(x):
    print("x is = ", x)
    x = 10
    print("now x is = ", x)

func(x);
```

Run: function_local

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/function_local.py
x is =  50
now x is =  10

Process finished with exit code 0
```

Exercise 4.1.5: Global variable

function_global.py

```
x = 50
def func():
    global x
    print("x is = ", x)
    x = 2
    print("Changed global x is = ", x)

func()

print("Value of x is = ", x)
```

func()

Run: function_global

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/function_global.py
x is =  50
Changed global x is =  2
Value of x is =  2

Process finished with exit code 0
```

Exercise 4.1.6: Python modules.

mymodule.py

```
import mymodule

def function():
    print('Hi, this is mymodule speaking.')

mymodule.function()
```

Run: mymodule

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/mymodule.py
Hi, this is mymodule speaking.
Hi, this is mymodule speaking.

Process finished with exit code 0
```

Exercise 4.2.1: Printing your machines name and IPv4 address.

local_machine_info.py

```
import socket
def machine_info():
    host_name = socket.gethostname()
    ip_address = socket.gethostbyname(host_name)
    print("Host name is = ", host_name)
    print("IP addresss is = ", ip_address)

machine_info()
```

Run: local_machine_info

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/local_machine_info.py
Host name is =  DESKTOP-F29D8GA
IP addresss is =  192.168.56.1

Process finished with exit code 0
```

Exercise 4.2.2: Retrieving a remote machine's IP address.

remote_machine_info.py

```
import socket
def get_remote_machine_info():
    remote_host = "www.python.org"
    try:
        print("Remote host name = ", remote_host)
        print("IP address is = ", socket.gethostbyname(remote_host))
    except socket.error as err_msg:
        print("Error accesing ", remote_host, ": error number and detail", err_msg)

get_remote_machine_info()
```

Run: remote_machine_info

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/remote_machine_info.py
Remote host name =  www.python.org
IP address is =  151.101.8.223

Process finished with exit code 0
```

Exercise 4.2.3: Converting an IPv4 address to different format.

IP4_address_conversion.py

```
import socket
from binascii import hexlify

def convert_ip4_address():
    for ip_addr in ['127.0.0.1', '192.168.0.1']:
        packed_ip_addr = socket.inet_aton(ip_addr)
        unpacked_ip_addr = socket.inet_ntoa(packed_ip_addr)
        print("IP address :", ip_addr, "=> packed:", hexlify(packed_ip_addr),
              "Unpacked:", unpacked_ip_addr)

convert_ip4_address()
```

convert_ip4_address() › for ip_addr in ['127.0.0.1', '1...

Run: IP4_address_conversion

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/IP4_address_conversion.py
IP address : 127.0.0.1 => packed: b'7f000001' Unpacked: 127.0.0.1
IP address : 192.168.0.1 => packed: b'c0a80001' Unpacked: 192.168.0.1

Process finished with exit code 0
```

Exercise 4.2.4: Finding a service name, given the port and protocol

finding_service_name.py

```
import socket

def find_service_name():
    protocolname = "tcp"
    for port in [80, 25]:
        print("port:", port, "=> serice name:,",
              socket.getservbyport(port, protocolname))

find_service_name()
```

find_service_name() › for port in [80, 25]

Run: finding_service_name

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/finding_service_name.py
port: 80 => serice name:, http
port: 25 => serice name:, smtp

Process finished with exit code 0
```

Exercise 4.2.5: Setting and getting the default socket timeout.

socket_timeout.py

```
1  import socket
2  def test_socket_timeout():
3      s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
4      print("Default socket timeout:", s.gettimeout())
5      s.settimeout(100)
6      print("Current socket timeout:", s.gettimeout())
7  test_socket_timeout()
```

Run: socket_timeout

```
E:\SDN_LAB\venv\Scripts\python.exe E:/SDN_LAB/socket_timeout.py
Default socket timeout: None
Current socket timeout: 100.0

Process finished with exit code 0
```