Subject:	**Python Lab. (ITL404)**		
Class:	**SE IT / Semester – IV (Rev-2016) / Academic year: 2017-18**		
Name of Student:	**Kazi Jawwad A Rahim**		
Roll No:	**28**	**Date of performance (DOP) :**	
Assignment/Experiment No:	**12**	**Date of checking (DOC) :**	
Title: Python program using pickle, lambda, map, and filter.			
Marks:		**Teacher's Signature:**	

1. Aim: To understand how to have formatted file I/O in Python, unnamed function, and *map* and *filter* functions in Python.

2. Prerequisites:

1. Basics of Python programming

3. Hardware Requirements:

1. PC with minimum 2GB RAM

4. Software Requirements:

1. Windows / Linux OS.
2. Python 3.6 or higher

5. Learning Objectives:

1. To understand the importance of formatted file I/O and the way to implement in Python.
2. How to implement unnamed function using *lambda*.
3. How to map all list elements as per the predefined function using *map* function.
4. How to filter existing list as per the predefined criterion using *filter* function.

6. Learning Objectives Applicable: LO 4

7. Program Outcomes Applicable: PO5, PO7, PO9, PSO1, PSO2

8. Program Education Objectives Applicable: PEO1, PEO5, PEO6

SOURCE CODE:

```
import math
print("Demonstration of Pickle\n")
import pickle
a=3.14
b=["Jawwad",1]
c="Kazi"
d={"Kolhapur":1,"Mumbai":2}
f=open("sample.dat","wb")
pickle.dump(a,f)
pickle.dump(b,f)
pickle.dump(c,f)
pickle.dump(d,f)
f.close()
f=open("sample.dat","rb")
p=pickle.load(f)
print(p)
p=pickle.load(f)
print(p)
p=pickle.load(f)
print(p)
p=pickle.load(f)
print(p)
f.close()

print("\n\nDemonstration of Lambda\n")
f=lambda x,y:(x*x)+(y*y)
print("Hypotenious=",math.sqrt(f(3,4)))


print("\n\nDemonstration of Map\n")
def square(x):
   return x*x
a=[1,4,5,7,8,-9,-10,-20,30]
b=list(map(square,a))
print(b)


print("\n\nDemonstration of Filter\n")
def isodd(x):
   if(x%2!=0):
      return True
   else:
      return False
def iseven(x):
   if(x%2==0):
      return True
   else:
      return False
a=[1,4,5,7,8,-9,-10,-20,30]
b=list(filter(isodd,a))
print("List of odd numbers:",b)
b=list(filter(iseven,a))
print("List of even numbers:",b)
```

OUTPUT:

Demonstration of Pickle

3.14

['Jawwad', 1]

Kazi

{'Kolhapur': 1, 'Mumbai': 2}

Demonstration of Lambda

Hypotenious= 5.0

Demonstration of Map

[1, 16, 25, 49, 64, 81, 100, 400, 900]

Demonstration of Filter

List of odd numbers: [1, 5, 7, -9]

List of even numbers: [4, 8, -10, -20, 30]

Learning Outcomes Achieved:

1. Understood the importance of formatted file I/O and the way to implement in Python.
2. Understood how to implement unnamed function using *lambda*.
3. Understood how to map all list elements as per the predefined function using *map* function.
4. Understood how to filter existing list as per the predefined criterion using *filter* function.

Conclusion:

Thus we have studied pickle, lambda, map, and filter in Python.

13. Experiment/Assignment Evaluation

SR	Parameters	Weight	Excellent	Good	Average	Poor	Not as per requirement
		Scale Factor ->	5	4	3	2	0
1	Technical Understanding	25					
2	Performance / Execution	25					
3	Question Answers	20					
4	Punctuality	20					
5	Presentation	10					
	Total out of 40 --> #(to be converted as per term-work evaluation applicable to the subject)		**∑ (Weight * Scale Factor)*4/50 = …….. / 40**				

References:

[1] James Payne, "Beginning Python using Python 2.6 and Python 3.1", Wrox Publications.

[2] Dr. R. Nageswara Rao, "Core Python Programming", Dreamtech Press, Wiley Publications.

[3] Charles R. Severance "Python for Everybody: Exploring Data in Python 3"

Viva Questions

1. What is *pickle*? Why is it important?
2. What is *lambda* operator? What is its importance?
3. What is *map* function?
4. What is *filter* function?