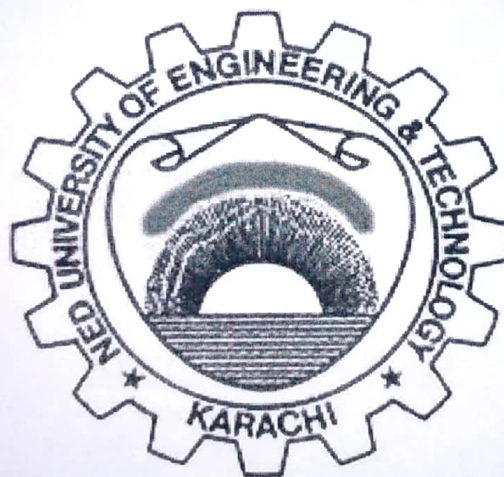


Practical Workbook

PROGRAMMING FUNDAMENTALS (CT – 175)



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Running Python in a Terminal Session:

Enter the following line in your Python session, and make sure you see the output Hello Python world!

```
File Edit Shell Debug Options Windows Help
Python 3.2.5 (default, May 15 2013, 23:06:03) [MSC v.1500 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print ("Hello Python World!")
Hello Python World!
>>> |
```

Saving Python Program:

To start your first program, open Python shell. Then make a folder somewhere on your system for your projects and call it python_work. (It's best to use lowercase letters and underscores for spaces in file and folder names because these are Python naming conventions.) Go back to python shell and save an empty Python file (File→Save As) called hello_world.py in your python_work folder. The extension .py tells shell your file will contain a Python program. It also tells shell how to run your program and highlight the text in a helpful way. After you've saved your file, enter the following line:

```
print("Hello Python world!")
```

Lab Exercise:

Write the output of the following statements and mention the reason of error (if any).

S. #	Python Statement	Output or Error Reason
1	print("Welcome to CSIT")	Output: <i>Welcome to CSIT</i>
2	Print('Welcome to (CSITY)')	Error: <i>It should be 'print' not 'Print'.</i>
3	PRINT("Welcome to NEDUET")	Error: <i>It should be 'print' not 'PRINT'.</i>
4	pRint("Welcome to Karachi")	Error: <i>It should be 'print' not 'pRint'.</i>

Lab Exercise:

1. Write a script that take user input for a number then adds 3 to that number. Then multiplies the result by 2, subtract 4, then again adds 3, then print the result.

```
num=int(input("Enter any number"))  
result=((num+3)*2)-4)+3  
print(result)
```

2. Write a script that takes input as radius then calculate area of circle.
(hint: $A = \pi r^2$).

```
rad=int(input("Enter the radius"))  
area = (3.141)*(rad**2)  
print("Area of circle is ", area)
```

3. Write a Python program to take user input and then calculate the sum of three given numbers.

```
num1 = int(input("Enter first number"))  
num2 = int(input("Enter second number"))  
num3 = int(input("Enter third number"))  
sum = num1 + num2 + num3  
print("The sum of these numbers are", sum)
```

4. Write a script that print first and last name in reverse order with a space between them. For e.g.

Input your First Name : Rahim

Input your Last Name : Khan

Hello Khan Rahim

```
f_name = input("Enter first name")  
l_name = input("Enter last name")  
print("Hello", l_name, " ", f_name)
```


Lab Exercise:

1. Which of the following are invalid variable names and why?

Import123	Valid
AVERAGE	Valid
Name	Valid
Float	Valid
my name	Invalid because space isn't allowed.
A2\$4	Invalid because ^{of} special character '\$'.

2. Indicate the datatype of each of the following. Also indicate which are invalid datatypes and also provide reason.

17	integer (int)
987.00	float
77,234	tuple
24997	integer (int)
647.122332	float
'z'	string (str)
"ABC"	string (str)

Lab Exercise:

1. Write a single print statement to display the following text:

"I am displaying the use

of

various 'Escape Sequence'

Back Slash (\) is the 'escape character'."

```
print("I am displaying the use \n of \n varrous 'Escape  
sequence' \n Back Slash (\) is the 'escape character'."
```

2. Convert the following equation into single python statement:

$$\frac{3+4x}{5} - \frac{10(x-5)(a+b+c)}{x} + 9\left(\frac{4}{x} + \frac{9+x}{y}\right)$$

```
((3+(4*x))/5)-((10*(y-5)*(a+b+c))/x)+(9*((4/x)  
+ ((9+x)/y)))
```