Experiment: 1

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Subject: Python Lab

Experiment – 1: Introduction to Python IDE (IDLE) with simple Python program

1. **Aim:** To install python IDE IDLE and run Python program using the same.

2. **Objective:** After performing this experiment, a student will be able to install Python on a PC or a laptop and will be able to write and execute basic program keeping in mind structure, syntax and semantics.

3. **Prerequisite:** Basics of Python

4. **Requirements:** PC, Python 3.9, Windows 10/ MacOS/ Linux

5. **Pre-experiment Exercise:**

   Theory:

   IDLE (Integrated Development and Learning Environment) is an integrated development environment (IDE) for Python. The Python installer for Windows contains the IDLE module by default. IDLE can be used to execute a single statement just like Python Shell and also to create, modify, and execute Python scripts. IDLE provides a fully-featured text editor to create Python script that includes features like syntax highlighting, autocompletion, and smart indent. It also has a debugger with stepping and breakpoints features.

6. **Laboratory Exercise**

A. Procedure (Installation)

i. Go to https://www.python.org/downloads/.
ii. Click on required Python 3.9.1. An installer will be downloaded.
iii. Run the installer.
iv. Do as directed by the installer program.
v. Python will be installed on your PC and an icon for IDLE will be created on the desktop.

B. Procedure (Programming)

i. Open IDLE by clicking on the icon created on the desktop.
ii. Open a new file from menu file-new.
iii. Type Python code with proper syntax.
iv. Save file with .py extension.
v. Using “Run Module” command from “Run” menu, run your code.
vi. Check the output in IDLE Shell.

7. **Post-Experiments Exercise**

A. Extended Theory:

Explain the default layout of IDLE.

Ans:

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7. Post Experiment Theory

A. Extended Theory

Explain the default layout of IDLE.

Ans IDLE is python's IDE featuring:

(a) Coded using tkinter GUI toolkit

(b) Cross platform support windows, unix, macOS.

(c) debugger with breakpoints

Layouts:

Menus, IDLE has two main window types, the Shell window and the Editor window. Output windows, such as used for Edit -> find in files, are a subtype of editor window.

1. File Menu (Shell and editor)
2. Edit Menu (Shell and editor)
3. Format Menu (Editor window only)
4. Run Menu (Editor window only)
5. Shell Menu (Shell window only)
6. Debug Menu (Shell window only)
7. Option Menu (Shell and Editor)
8. Window Menu (Shell and Editor)
9. Help Menu (Shell and editor)

B. Results/Observations/Program output:

Program Code:

```
print ('-----Comments-----')
print('Single Line "#"')
print('MultiLine("""---""")')
print("MultiLine('''---''')")
print("")
print("")
print("--Datatypes, Expressions, Output Statement & Conversions-")
a = 6 #int datatype
print(a)
a1 = "abcdef" #string datatype
b= 23.485  #float datatype
c = 4.6 + 8.2j  #complex datatype
d = 5.8 - 7.4j  #complex datatype
e = c + d  #expression
e1 = a * b #expression
print("Sum is",e)  # output statement
print("Multiplication is", e1)  # output statement
f = float(a)  # convert integer to float
print("float value",f)
g = complex(b)
print("complex value", g)
o = oct(a)  # decimal to octal
print("decimal to octal", o)
b= bin(a)  # decimal to binary
print("decimal to binary", b)
h = hex(a)  # decimal to hexadecimal
print("decimal to hexadecimal", h)
print("")
print("--------Knowing data types--------")
j= 19
print(type(j))
k = "hii"
```

```
k = "hii"
print(type(k))
l = 1.2 + 4j
print(type(l))
print("")
print("")
print("----Input Statement----")
l = input("Enter value of x ")
print('Entered using String Function is'+str(l))
print('Entered using format Function is {0}'.format(l))
print("accept integer input",int(input()))
print("")
```

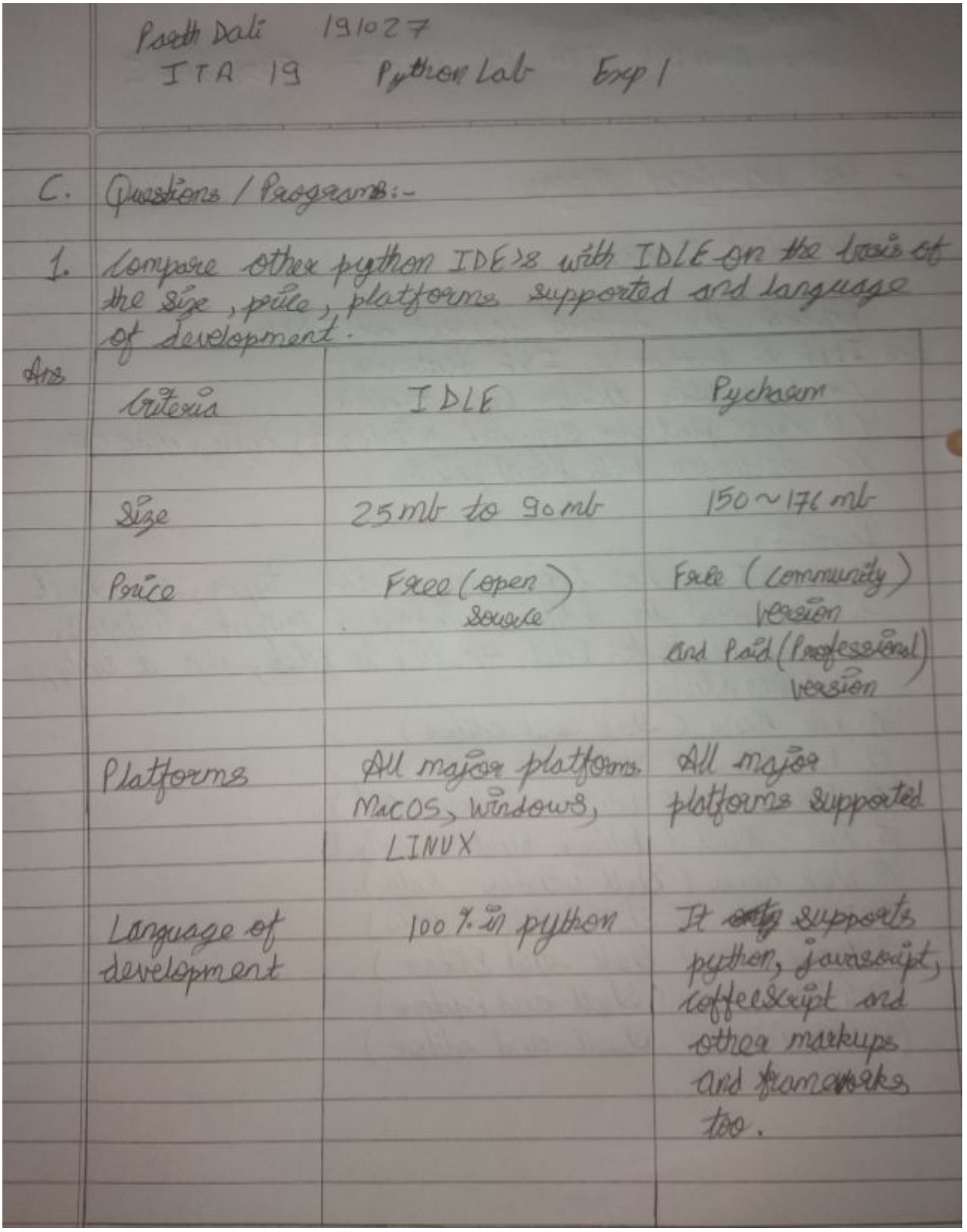
Output:

```
D:\Desktop\OnlineLectureSEM4\LabPython\venv\Scripts\python.exe D:/Desktop/OnlineLectureSEM4/LabPython/venv/exp1.py
-----Comments-----
Single Line "#"
MultiLine("""---""")
MultiLine('''---''')


--Datatypes, Expressions, Output Statement & Conversions-
6
Sum is (10.399999999999999+0.7999999999999989j)
Multiplication is 140.91
float value 6.0
complex value (23.485+0j)
decimal to octal 0o6
decimal to binary 0b110
decimal to hexadecimal 0x6

--------Knowing data types--------
<class 'int'>
<class 'str'>
<class 'complex'>


----Input Statement----
Enter value of x 78
Entered using String Function is78
Entered using format Function is 78
96
accept integer input 96


Process finished with exit code 0
```

C. Questions/Programs:

1. Compare other Python IDEs with IDLE on the basis of size, price, platforms supported and language of development.

Ans:



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C. Questions / Programs:-

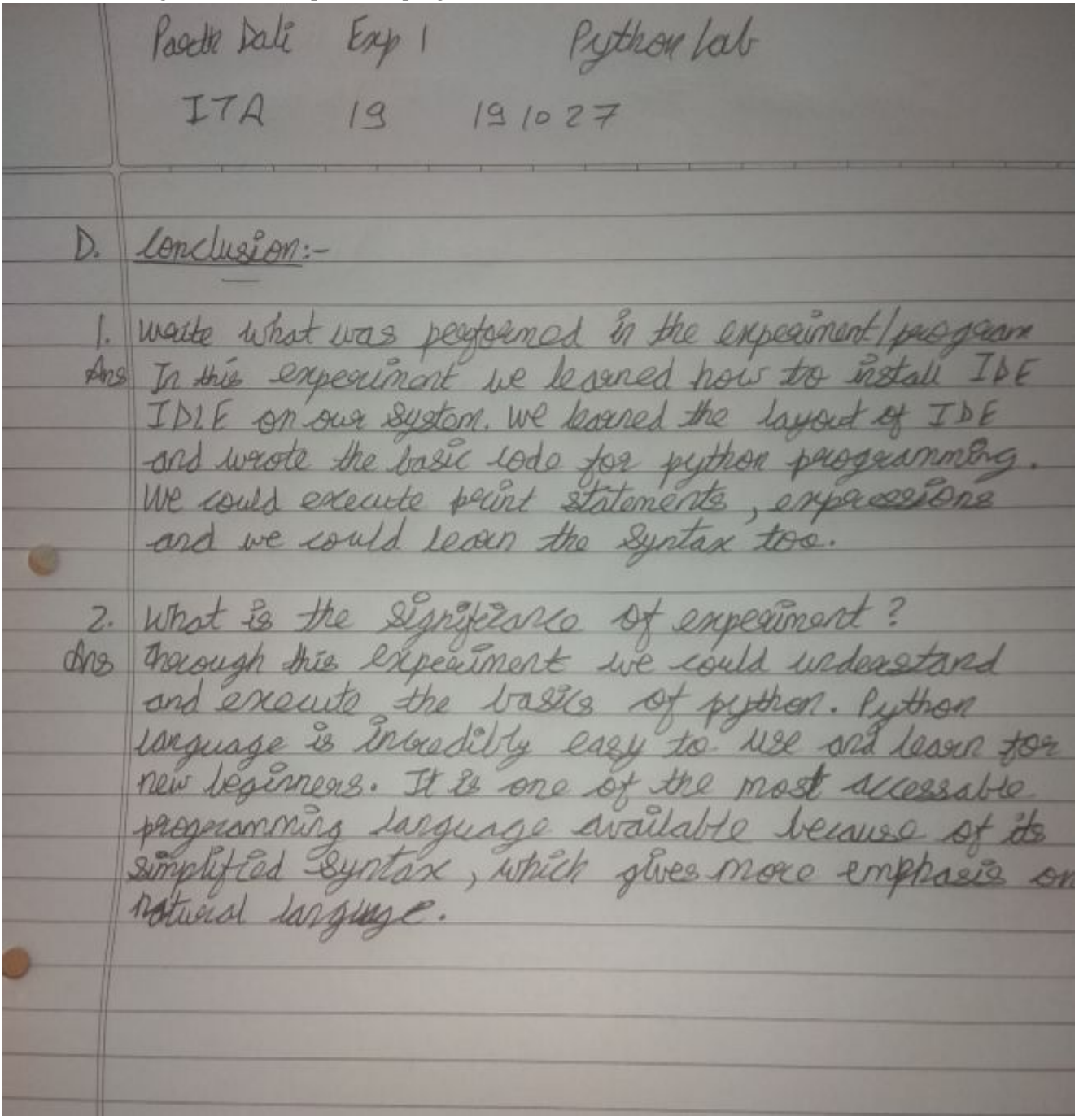
1. Compare other python IDE's with IDLE on the basis of the size, price, platforms supported and language of development.

Ans

Criteria	IDLE	Pycharm
Size	25mb to 90mb	150~176 mb
Price	Free (open source)	Free (community) version and Paid (Professional) version
Platforms	All major platforms MacOS, Windows, LINUX	All major platforms supported
Language of development	100% in python	It supports python, javascript, coffeeScript and other markups and frameworks too.

D. Conclusion:

1. Write what was performed in the experiment/program.
2. What is the significance of experiment/program?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D. Conclusion:-

1. Write what was performed in the experiment/program
Ans In this experiment we learned how to install IDE IDLE on our system. We learned the layout of IDE and wrote the basic code for python programming. We could execute print statements, expressions and we could learn the Syntax too.

2. What is the significance of experiment?
Ans Through this experiment we could understand and execute the basics of python. Python language is incredibly easy to use and learn for new beginners. It is one of the most accessable programming language available because of its simplified Syntax, which gives more emphasis on natural language.

E. References

[1] https://docs.python.org/3/library/idle.html

[2] https://www.spaceo.ca/python-ide-code-editor/