**## Assignment Part-1**

**Q1. Why do we call Python as a general purpose and high-level programming language?**

Python is considered as general purpose language because it is not associated with a particular industry. It covers a wide range of tasks and it designed to be used in a wide range of applications such as data science, software and web development, automation and used to create a variety of different programs and isn’t specialized for any specific problems. Also, it is known as a high-level programming language as it is known for its ease of readability. Pythons’ syntax is to be read and understand resulting in fewer coding steps for developers than imposed by Java or C++

**Q2. Why is Python called a dynamically typed language?**

We don’t have to declare the type of a variable or manage the memory while assigning a value to a variable in Python whereas in other languages there is a strict declaration of variables before assigning a variable. Python states the kind of variable in the runtime of program. It also takes care of memory management which is crucial in programming. So, python is called as a dynamically typed language.

**Q3. List some pros and cons of Python programming language?**

**PROS:**

1. It is easy to learn and read which will facilitate the way to become a top python developer
2. It has a vast collection of libraries, so one doesn’t have to depend on external libraries because it has more than enough functions which will need to carry out in project
3. It is portable programming language – where one can work on any platform without requiring the developer to make changes to the code.
4. It is free, open-source, and has a vibrant community which allows the users to access the source code and legally share the outcome of modifications.

**CONS:**

1. It has speed limitations, while your program runs in python, it has to do more work in line-by-line execution, so the process will be slow
2. It is not so strong with mobile computing. Low rate of processing a program, as well as the sub-par memory efficiency, are the two major reasons why mobile computing is not supported in python
3. Python can have run time errors because of the dynamical typing feature.
4. It consumes a lot of memory space , so if you are building an application that needs memory optimization, it will restrict your memory space.

**Q4. In what all domains can we use Python?**

In several domains python can be used such as a Machine Learning/ Artificial intelligence, Desktop GUI, Data Analytics and visualization, Big Data, Web Development, Embedded systems

**Q5. What are variable and how can we declare them?**

Variable cab be defined as a name of specific memory location. To declare a variable in python just name the variable and assign the require value to it, the datatype will be automatically determined from the value assigned, we need not define it explicitly.

There are certain rules while declaring a variable such as special character such @,# are not allowed, variable name should not start with numeric values, variable can start with underscore, alphabets and it can be mix of alpha-numeric values but cannot startwith numeric values.

**Eg:** var1 = 10, \_var = 1, var\_str\_1 = “hi”

**Q6. How can we take an input from the user in Python?**

We can take input from the user using input() function.

**Eg:** name = input(“enter name”)

**Q7. What is the default datatype of the value that has been taken as an input using input() function?**

Default data type is string. <class str>

**Q8. What is type casting?**

It is a method to convert the variable datatype into a required datatype in order to perform different operations by users.

**Eg:** int\_data = 10

new\_int data = float(int\_data)

print(new\_int\_data)

**O/P**: 10.0

**Q9. Can we take more than one input from the user using single input() function? If yes, how? If no, why?**

Yes using split() method we can take multiple inputs from users

**Eg:** x,y = input(“Enter two values: “).split()

print(“No of boys:”, x)

print(“No of girls:”,y)

**O/P:** Enter a two value: 5 10

No of boys: 5

No of girls: 10

**Q10. What are keywords?**

Keywords are some predefined and reserved words in python that have special meanings. It is used to define syntax of the coding. The keyword cannot be used as an identifier, function, variable name.

**Eg :** and, or, not

**Q11. Can we use keywords as a variable? Support your answer with reason.**

The keyword cannot be used as a variable name as it will create ambiguity. Keywords have predefined meanings and used to define the syntax and structure of the python language

**Q12. What is indentation? What's the use of indentation in Python?**

Indentation refers to the spaces at the beginning of a code line. Where in other programming languages the indentation in code is for readability only, but in python it is important as it uses to indicate a block of code

**Q13. How can we throw some output in Python?**

We use the print() function to output data to the screen

**Q14. What are operators in Python?**

In python operators are special symbols that designate that some sort of computation should be performed. There are different types od operators such as arithmetic operators, comparison and logical operators

**Q15. What is difference between / and // operators?**

/ - used for float division

// - used for integer division

**Eg:** x=5, y=3

print(“Float division of x/y is”, x/y)

print(“Integer division of x//y is”, x//y)

O/P:

Float division of x/y is 1.66

Integer division of x//y is is 1

**Q16. Write a code that gives following as an output.**

**```**

**iNeuroniNeuroniNeuroniNeuron**

**```**

str\_data = "iNeuron"

new\_str\_data = str\_data \* 4

print(new\_str\_data)

**Q17. Write a code to take a number as an input from the user and check if the number is odd or even.**

number = int(input("enter number = "))

if number % 2 == 0:

print("even")

else:

print("odd")

**Q18. What are boolean operator?**

Boolean operators are those that result in the Boolean values of True and False. These include and, or, not. They are mostly used in arithmetic computations and logical comparisions.

**Q19. What will the output of the following?**

**```**

**1 or 0 🡪** True

**0 and 0 🡪** False

**True and False and True 🡪** False

**1 or 0 or 0 🡪** True

**```**

**Q20. What are conditional statements in Python?**

It is used to handle conditions in your program. These statements guide the program while making decisions based on the conditions encountered by the program.

**Eg:** if, if-else, nested if

**Q21. What is use of 'if', 'elif' and 'else' keywords?**

The if/elif/else structure is a common way to control the flow of a program, allowing you to execute specific blocks of code depending on the value of some data.

**if statement**

If the condition following the keyword if evaluates as true, the block of code will execute.

### else statement

You can optionally add an else response that will execute if the condition is false:

### elif statement

Multiple conditions can be checked by including one or more elif checks after your initial if statement.

**Q22. Write a code to take the age of person as an input and if age >= 18 display "I can vote". If age is < 18 display "I can't vote".**

age = int(input("enter age = "))

if age>=18:

print("I can vote")

else:

print("I can't vote")

**Q23. Write a code that displays the sum of all the even numbers from the given list.**

**```**

**numbers = [12, 75, 150, 180, 145, 525, 50]**

**```**

numbers = [12, 75, 150, 180, 145, 525, 50]

sum = 0

for i in numbers:

if i % 2 == 0:

sum = sum + i

print("Total sum of even numbers is :", sum)

**O/P:**

Total sum of even numbers is : 392

**Q24. Write a code to take 3 numbers as an input from the user and display the greatest no as output.**

num1 = input("enter first number:")

num2 = input("enter second number:")

num3 = input("enter third number:")

if(num1 >= num2) and (num1 >= num3):

largest = num1

elif(num2 >= num3) and (num2 >= num1):

largest = num2

else:

largest = num3

print("The greatest number is :", largest)

**O/P:**

enter first number:89

enter second number:98

enter third number:2

The greatest number is : 98

**Q25. Write a program to display only those numbers from a list that satisfy the following conditions**

**- The number must be divisible by five**

**- If the number is greater than 150, then skip it and move to the next number**

**- If the number is greater than 500, then stop the loop**

**```**

**numbers = [12, 75, 150, 180, 145, 525, 50]**

**```**

numbers = [12, 75, 150, 180, 145, 525, 50]

for i in numbers:

if i > 500:

break

if i % 5 == 0 and i<=150:

print(i, " ")

**O/P:**

75

150

145