**Assignment 1**

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

Ans.

* Python is called a general-purpose language since a wide variety of tasks can be accomplished using it & it is not designed for a particular set of problems. It’s applications are in a variety of domains hence the term general-purpose.
* It is a high-level programming language since it is in a human-readable form unlike machine code or assembly language.

Q2. Why is Python called a dynamically typed language?

Ans. In Python, we do not need to declare the data type of a variable unlike other languages like Java, etc. Python automatically assigns a data type to the variable at run-time i.e. when the code is run. Hence, it’s known as a dynamically typed language.

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

Ans.

Pros of Python:

* It’s very beginner friendly and easy to understand.
* Unlike other languages, we do not need to write long code to solve a problem. In Python, problems can be solved using shorter code lengths as compared to other languages.
* Python has been around for more than 20 years, hence there is a large eco-system of libraries and tools for our use such as libraries for Data Science and Machine learning & frameworks such as Django for web development.
* Python is free and open source.
* Python is a portable language i.e., it can be run on different platforms without the need of changes to be made to the code.

Cons of Python:

* Since Python code executes line by line, it is slower in speed.
* It is prone to cause run-time errors since the code is interpreted at runtime.
* It has high usage of system resources such as memory since it does not immediately return resources to the system immediately after an object becomes unnecessary.
* It is mostly not used in mobile computing and front-end development. It takes too much memory than what mobile hardware and operating systems can afford.

Q4. In what all domains can we use Python?

Ans. Python can be used in the following domains:

* Web-Development
* Data Science
* Machine Learning
* Automation
* OS Development
* Data Analytics
* Game Development
* Embedded Systems

Q5. What are variables and how can we declare them?

Ans. Variables are the names given to a memory location. In Python, variables are not declared i.e. their datatype is decided at runtime.

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

Ans. We can take input from the user in Python using the input function which is inbuilt. E.g.:

Suppose we want to take the input of the number and store it in a variable a, we can use the following code:

a = input("Please enter the number ")

print("The number is: ", a)

This code will take the input from the user and store that in variable a and then print the variable a.

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

Ans. String

Q8. What is typecasting?

Ans. Typecasting is the conversion of the datatype of a variable from one datatype to another.

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

Ans. Yes, we can take multiple inputs from the user using a single input() function. The following code demonstrates taking 2 inputs from the user and assigning them to variables a & b.

a,b = input("Please enter 2 numbers: ")

print("The numbers are:",a,b)

Q10. What are keywords?

Ans. Keywords in Python are a set of reserved words that cannot be used as variable names, function names or any other identifiers.

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

Ans. No, we cannot use keywords as variables as they have a specific meaning/use and we cannot assign meaning/use as per us to a keyword.

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

Ans. Indentation refers to the space before a block of code. In Python, indentation is used to show a block of code which is executed as per the indentation done.

Q13. How can we throw some output in Python?

Ans. We can show some output in Python using the “print” command.

For e.g.:

print("This is output")

Q14. What are operators in Python?

Ans. Operators in Python are used to perform operations on variables and values.

For e.g., +,-,\*,/,etc.

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

Ans. ‘/’ operator does float division in Python i.e., it divides the left-hand operand from the right-hand operand and gives the result as a float whereas ‘//’ operator does floor division in Python, it also divides the left-hand operand by the right-hand operand but removes the numbers after the decimal in the quotient and in case one of the operands is negative, it rounds them off away from 0 towards negative infinity.

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

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iNeuroniNeuroniNeuroniNeuron

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Ans.

print("'''\n#iNeuroniNeuroniNeuroniNeuron\n''''")

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

Ans.

a = input("Please enter the number: ")

a = int(a)

if (a%2) == 0:

    print("The number entered is even.")

else:

    print("The number is odd.")

Q18. What are Boolean operators?

Ans. Boolean operators in Python are the operators which give the result in True or False.

* And
* Or
* Not

Q19. What will the output of the following be?

1 or 0

0 and 0

True and False and True

1 or 0 or 0

Ans. No output

Q20. What are conditional statements in Python?

Ans. The statements in Python which check whether one or multiple conditions are true or not and then execute a block of code accordingly are known as conditional statements; for e.g., if statement, if else statement, etc

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

Ans. if: The “if” keyword is used to create conditional statements and the code indented after the if statement only executes if the condition mentioned after the if statement is true.

elif: The “elif” keyword is used to create conditional statements and elif is used after the “if” statement in Python. Similar to “if”, the code indented after the “elif” statement also executes if the condition mentioned after the “elif” statement is true.

Else: The “else” keyword is also used to create conditional statements. It is used after the “if” or the “elif” statement. If no other statement preceding the “else” keyword is true, the code indented after the “else” statement is executed.

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".

Ans.

a = input("Enter the age of the person: ")

a = int(a)

if a >=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]

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

sum = 0

for num in numbers:

    if num%2 == 0:

        sum = num + sum

print(sum)

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

Ans.

a = input("Enter 1st number: ")

b = input("Enter 2nd number: ")

c = input("Enter 3rd number: ")

#a = float(a)

#b = float(b)

#c = float(c)

if a>b and a>c:

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

elif b>a and b>c:

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

elif c>a and c>b:

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

else:

    print("The numbers provided are equal")

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

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

Ans.

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

for num in numbers:

    if num%5 == 0:

        if num < 151:

            print("The number satisfying the condition is: ",num)

    elif num > 150:

        continue

    elif num > 500:

        break