Python Programming

Practice – 1

This practice reinforces the basics of Python Programming.

- *It helps to understand the different modes in which Python works.*
- *The basic data types of Python, the numbers and strings.*
- *Arithmetic and String operators.*
- *IO operation with Python programs.*

We shall put these elements together to create simple basic Python programs.

Hands On

1. Start **Python** in *Interactive Mode* and understand the following:.

   a) The different **keywords** of Python
   b) The basic **arithmetic operators** of Python
   c) The different **number types** supported by Python
   d) The use of **type( )** function for RTTI
   e) The Python **special variable _** (underscore)
   f) Different representations of **Python strings**.
   g) The different **string operators**
   h) Strings Features like : String slicing, Immutable property of string, Usage of negative subscripts with stings.

2. Write a program to find the area and circumference of a circle.

```
Area = PI * Radius^2
Circumference = 2.0 * PI * Radius
```

   NOTE : Import the **math** module (import math) and use the **PI** constant as **math.pi** in this program.

3. Write a program to find the temperature is in Fahrenheit, given the temperature in Celsius equivalent and vice-versa.

```
*Celsius = ( 5.0 / 9.0 ) * ( Fahrenheit – 32.0 )
*Fahrenheit = (( 9.0 / 5.0 ) * Celsius ) + 32.0
```

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Practice – 2

This practice session enables us to understand the different control structures of Python programming language like:

- *Selection Statement*
- *Iterative Statements*
- *Branch Statements*

We make use of control structures to write Python programs which make decisions and repetitions.

Hands On

1. Write a program to find the given number is Even or Odd.

2. Accept a year from the user and find whether it is a leap year or not.

   HINT : A leap year is divisible by 4 and not by 100, or is divisible by 400
   NOTE: Try the above program with nested selection statements and an
            selection statement with a compound condition.

3. Accept three positive integers from the user representing the three sides of
   a triangle. Determine whether they form a valid triangle or not.

   HINT : In a triangle, the sum of any two sides must always be greater than the
   third side.

4. Write a program to generate a multiplication table for a given integer.

   [a] Using **while** repetition construct
   [b] Using **for** repetition construct

5. Write a program to find the factorial of any positive integer.

6. Write a program to reverse a given integer.

7. Write a program to check the given number is Prime or not.

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8. Write a program to generate all Prime numbers between 1 to 999

   NOTE : Make use of else clause with the iterative construct while generating Prime numbers.

9. Write a program to print all the reciprocals between -5 to +5

10. Print every number from 1 to 20 in base 8 and base 16 along with its decimal equivalent in tabular format.

11. Write a program to generate all **Amstrong** numbers between 1 to 999

   NOTE : Amstrong numbers are those numbers where the sum of the cubes of the individual digits equals the number itself.