INT108:PYTHON PROGRAMMING

L:3 T:0 P:2 Credits:4

Course Outcomes: Through this course students should be able to

CO1 :: describe the installation of python environment and basics of Python language

CO2 :: apply the conditional and iterative statements for evaluating the appropriate alternates

CO3 :: explore functions, including recursion, with parameters and arguments in Python.

CO4 :: construct the core data structures like lists, dictionaries, tuples and sets in Python to store, process and sort the data

CO5 :: apply the concepts of Object-oriented programming as used in Python using encapsulation, polymorphism, and inheritance.

CO6 :: examine file handling operations and effectively apply regular expressions for pattern matching.

Unit I

Setting up your Programming Environment : Python versions, Python on windows, running a ‘Hello World’ program

Variables, Expression and Statements: : Naming and using variables, Avoiding Name Error when using variables, Values and types, variables, variables name and keywords, statements, operators and operand, order of operations, operations on string, composition and comments

Unit II

Conditional statements : modulus operator, Random numbers, Boolean expressions, logic operators, conditional, nested conditionals

Iterative statements : while statements, for loop statement, Nested for, Nested while, Random numbers in loops, encapsulation and generalization

Unit III

Functions and recursion : function calls, type conversion and coercion, math functions, adding new function, parameters and argument, recursion and its use

Unit IV

String : string a compound data type, length, string traversal, string slices, comparision, find function, looping and counting

Lists : list values, length, membership, operations, slices, deletion, accessing elements, list and for loops, list parameters and nested list

Tuples and Dictionaries : mutability and tuples, tuple assignment, tuple as return values, dictionaries operations and methods, sparse matrices, aliasing and coping

Unit V

Classes and objects : Creating classes, creating instance objects, accessing attributes

Object oriented programming terminology : Class Inheritance, Overriding Methods, Data Hiding, Function Overloading

Unit VI

Files and Exceptions : text files, writing variables, Reading from a file, writing to a file, directories, pickling, handling the zero Division error exception, using try-except blocks, The else block, Handling the File Not found error exception

Regular Expressions : Concept of regular expression, various types of regular expressions, using match function, Web Scraping by using Regular Expressions

List of Practicals / Experiments:

List of Practical's

- 1. Program to enter two numbers and print the arithmetic operations like +,-,*, /, // and%.
- 2. Write a program to find whether an inputted number is perfect or not.
- 3.Write a Program to check if the entered number is Armstrong or not.
- 4.Write a Program to find factorial of the entered number.

- 5.Write a Program to enter the number of terms and to print the Fibonacci Series.
- 6.Write a Program to enter the string and to check if it’s palindrome or not using loop.
- 7.Recursively find the factorial of a natural number.
- 8.Read a file line by line and print it.
- 9.Remove all the lines that contain the character “a” in a file and write it into another file.
- 10.Read a text file and display the number of vowels/consonants/uppercase/lowercase characters in the file.
- 11.Create a binary file with name and roll no. Search for a given roll number and display the name, if not found display appropriate message.
- 12.Write a random number generator that generates random numbers between 1 and 6(simulates a dice)
- 13.Write a python program to implement a stack using a list data structure.
- 14.Take a sample of ten phishing e-mails (any text file) and find most common
- 15.Read a text file line by line and display each word separated by a #

Text Books:

1. FUNDAMENTALS OF PYTHON –FIRST PROGRAM by KENNETH A. LAMBERT, CENGAGE LEARNING

References:

1. PYTHON PROGRAMMING: USING PROBLEM SOLVING APPROACH by REEMA THAREJA, OXFORD UNIVERSITY PRESS