SEMESTER-III

Course Code	Course Name	Course Category	Credits			
			L	T	P	C
CSE 106 L	Hands on Using Python	C	0	0	4	2

LIST OF PRACTICAL EXPERIMENTS

Decision Making Control

1. Write a Python program to find the distance between two coordinate points (x1, y1) and (x2, y2).
2. Write a Python program to input Percentage. Calculate percentage and grade according to following:
   Percentage >= 90% : Grade A
   Percentage >= 80% : Grade B
   Percentage >= 70% : Grade C
   Percentage >= 60% : Grade D
   Percentage >= 40% : Grade E
   Percentage < 40% : Grade F
3. Write a Python program to find maximum between three numbers.
4. Write a Python program that computes the real roots of a quadratic function. Your program should begin by prompting the user for the values of a, b and c. Then it should display a message indicating the nature of real roots, along with the values of the real roots (if any).
5. Write a program to input angles of a triangle and check whether triangle is valid or not. Also, validate the angles entered by the user. (Sum of the three angles of triangle is 180^0)
6. Write a program to input basic salary of an employee and calculate its Gross salary according to following:
   Basic Salary <= 10000 : HRA = 20%, DA = 80%
   Basic Salary <= 20000 : HRA = 25%, DA = 90%
   Basic Salary > 20000 : HRA = 30%, DA = 95%

Looping Control

15. Write a Python program to print the sum of the series 1/2+1/3+1/4+ ... +1/N. Where N is natural number.
16. Write a Python program that prompts user to enter numbers. The process will repeat until user enters 0. Finally, the program prints sum of the numbers entered by the user.
17. Write a Python program to print all the numbers from 1 to 1000 that are not divisible by 2, 3, 5, 7, 11, 13, 17 and 19.
18. Write a Python program to find HCF (GCD) of two numbers.
19. Write a Python program to check whether a number is Armstrong number or not.
20. Write a Python program to swap first and last digits of a number.
21. Write a Python program for printing prime numbers up to N. (N>100).
22. Write a Python program to construct the following pattern, using a nested for loop.
    *
    * *

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*       *       *
*       *       *       *
*       *       *       *       *
*       *       *       *
*       *       *
*       *
*
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23. Write a Python program to print following matrix.

1	0	1	0
0	1	0	1
1	0	1	0
0	1	0	1

Functions

24. Define a function to find sum of all odd numbers between 1 to n.
25. Define a function to check whether a number is palindrome or not.
26. Define a function to calculate the area of a circle using the formula.
27. Define a function to check whether number is perfect or not.
28. Define a function to print multiplication table of any number.
29. Define a function to print table of a number. Using this function display table of numbers from 1 to 10.
30. Define a recursive function to find power of a number.
31. Define a recursive function count number of digits in a number.
32. Write a recursive function to find a find $1^5 + 2^5 + \ldots\ldots\ldots..+n^5$.
33. Write a python program to find the factorial value of a number using recursion.
34. Write a python program to implement Tower of Hanoi using recursive function.
35. Write function for finding factors (n) and use factors function to check whether given number n is prime or not.
36. Write a python program for printing Fibonacci series
    a. Write recursive approach implementation
    b. Write iterative implementation

Files

37. Write a Python program to copy the content of one file to other file.
38. Write a Python program to number of words in the above txt file.
39. Write a Python program to number of characters without space in the above txt file.
40. Write a program that reads data from a file and print the no of vowels and constants in the file.
41. Write a python program that accept file Name as input from the user. Open the file and count the number of times a character appears in the file.

List, Tuples and Dictionary

42. Write a Python program to create a list of each digit is a element in a list from a number. Example: Input: 5467, Output: [5,4,6,7]
43. Write a Python program to form a number from a given list of digits Example: Input: [5, 4, 6, 7], Output: 5467
44. Write a Python program to find the second smallest number and second largest in a list.
45. Write a python program to create dictionary of index is the key and corresponding prime number as value up to 100. Output: {1:2, 2:3, 3:5, 4:7, 5:11, 6:13, 7:17, 8:19 ……. and soon }

46. Write a Python program to find the smallest value and largest value in a dictionary.
47. Example: Input: D1={1:200,2:3000,3:100,5:20} output: 20, 3000.

48. Write a Python script to generate and print a dictionary that contains a number (between 1 and n) in the form (x, x*x).
    Sample Dictionary (n = 5) :
    Expected Output : {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}
49. Write a Python program to convert a list of characters into a string. Example: Input: ['s','t','r','i','n','g'], Output: string.
50. Write a Python program to combine two dictionary adding values for common keys.
    d1 = {'a': 10, 'b': 20, 'c':30}
    d2 = {'a': 30, 'b': 20, 'd':40}
    Sample output: {'a': 40, 'b': 40, 'd': 40, 'c': 30}
51. Write a program to print index at which a particular value exists. If the value exists a multiple location in the list, then print all the indices. Also, count the number of times the value is repeated in the list.
52. Write a program to remove all duplicate elements in a list.
53. Write a program to create a list of numbers in the range 1 to 10. Then delete all the odd numbers from the list and print the final list.

Strings

54. Write a program that counts up the number of vowels contained in the string S. Valid vowels are: 'a', 'e', 'i', 'o', and 'u'. For example, if s = 'azcbobobegghakl', your program should print: number of vowels 5

55. Assume s is a string of lower-case characters. Write a program that prints the number of times the string 'bob' occurs in s. For example, if s = 'azcbobobegghakl', then your program should print Number of times bob occurs is 2.
56. Write a Python program that finds whether a given character is present in a string or not. In case if it is present then it prints the index at which it is present. Do not use built-in find functions to search the character.
57. Write a Python program that counts the occurrence of a character in a string. Do not use built-in function.
58. Write a python program for following:
    a. Take a input string with spaces, split it into list of words
    b. From the list of words, create dictionary with keys (only unique words) and values (length of the word)
59. Write a python program to count number of vowels, spaces and to find longest word in a given input string. (Take input string with spaces)
60. Write a python program to reverse a string. Do not use inbuilt function.

Searching and Sorting

61. Write a Python program for binary search algorithm.
62. Write a Python program for linear search algorithm.
63. Write a Python program to display the elements in an ascending order using bubble sort algorithm.
64. Write a Python program to display the elements in a descending order using selection sort algorithm.

Object Oriented Programming

65. Write a Python program to create a student class (id, Name, mid1_marks, mid2_marks, quiz_marks). Create a student objects and write a function marksList() to display student's result as given below:
    ROLL NUMBER:
    NAME:
    MID1:
    MID2:
    QUIZ:
    TOTAL: MID1+MID2+QUIZ
    RESULT: A GRADE (IF TOTAL>=80), B GRADE (TOTAL<80 and TOTAL>=60), C GRADE (TOTAL>=50 and TOTAL<60)
    (Assume that maximum marks for mid_term1 and mid2_marks is 25 each , and quiz_marks is 50).
66. Write a Python program to create a EMP class (id, Name, sal), create employee objects and write a function PaySlip(empobj) to display particular employee Pay Slip as given below:
    EMP ID:
    EMP NAME:
    EMP BASIC: It is equal to sal.
    EMP HRA:
    EMP DA:
    EMP TAX:
    EMP GROSS SAL: BASIC (sal) +HRA (18% of sal) +DA (10% of sal)
    EMP NET SAL: GROSS SAL-10% of GROSS SAL
67. Write a Python program to define rectangle class with field's length and breadth. Define color rectangle class which is inherited from rectangle class with additional field color. Create N color rectangle objects and print which color rectangle is having minimum area.
68. Write a Python program to define CAR class (model, speed, price) and Firing CAR class which inherits from CAR with additional field number of bullets and fire method ().
69. Write a Program in python using object-oriented concept to create a base class called Polygon and there are three derived classes Named as triangle, rectangle and square.
70. The base class consists of the input function for accepting sides length
71. The derived classes must have output function for displaying area of triangle, rectangle and square.