

MCA 305 Python for data science lab programmes

1ST MODULE LAB CYCLE

TOTAL QUESTIONS:15

1. Write a program to find the sum and average of a set of numbers.
 2. Write a program to identify Prime number, Armstrong number, Perfect number, Fibonacci numbers.
 3. Develop a python program to accept a text string "hello student welcome to mes aimat give your details" & replace the word "student" in the text with the name accepted from the user.
 4. Write a program to read a year (4-digit integer) and tell whether the given year is /was a leap year.
 5. write a program to find the odd and even sum of an integer.
 6. write a program to find vowels, consonants, digits, special characters in a string.
 7. Demonstrate 3-digit combination in python.
 8. Write a program to enter the name and degree of students and give the grade according to the mark.
 9. Write a program to print the current bill using if operation.
 10. Write a program to implement student record processing with tuple and list applications.
 11. Write a program to implement 4 set operations.
 12. Write a program to implement a dictionary (create, add an item, remove an item, modify an item).
 13. Write a program to implement a user-defined function for calculating mean, median, mode
 14. Write a function that takes text as an argument and calculate
 - a. Calculate how many words start with the letter 't'.
 - b. Calculate how many words ends with the letter 's'.
 - c. Calculate how many 6 letters words are appearing.
 - d. Calculates how many words are there in the given text.
 - e.
 15. Write a function to find out the area and perimeter of the rectangle and circle.
 16. Write a program to implement class variable and instance variable using a counter
 17. Write a program to implement a class rectangle that represents rectangles
- Setsize(width,length)**
- Perimeter (): return perimeter**
- Area (): return area of rectangle**

18. write a program to print the employee details and total count using class

19. Create a file that stores details of the book in the library. perform different file operations for writing reading appending.

20. write a program to count the words “to” and “the” present in a text file file1.txt

21. write a program for modules.

22. write a program to create a user-defined Exception function for handling the occurrence of a particular letter in an entered string.

23. define a class stack that implements stack operation. The function push can throw only one exception i.e., FULL if the stack is full and function pop can throw only one exception i.e., Empty if stack.

24. Write a program for the computation of tax with user-defined exceptions.

25. create a database (student or employee) in MySQL and perform the operation of insertion, selection, and updating through the cursor program.

26.STRING MANIPULATIONS

1. Write a single program for below questions.

- a. Python program to print even length words in a string
- b. Python program for removing l - th character from a string
- c. Python program to split and join a string

27.RECURSION

Write factorial program with and without recursion

LIST PROGRAM

- 28. Python program to interchange first and last elements, swap two elements in a list.
- 29. python program to find the length, reverse, element exist or not in a list also do the sorting.
- 30. python program to find the sum of element and multiply all number in a list.
- 31. python program to find the smallest, largest, second largest element in a list.
- 32. python program to print even number and odd number in a list.
- 33. python program to print odd number, even number in a list.

34.EXCEPTION

1. write a program to evaluate a quadratic equation and find its roots. Catch any exception that can be caught.

DATA STRUCTURES

- 35. implementation of queue
- 36. implementation of stack

MATRIX MANIPULATIONS

- 37. write a program to right rotate the elements in the array
- 38. To add, subtract and multiply two matrices.
- 39. Program to find the sum of each row of the matrix.

Django framework

- 40. create a static webpage.
- 41. create a dynamic webpage

Pandas, NumPy

- 42. Develop programs for data pre-processing with pandas and numeric analysis using NumPy (5)

Matplotlib

- 43. Develop programs for implementing plots with Matplotlib (2)

Regression, classification, clustering

- 44. Develop programs based on Linear regression
- 45. Implementation of at least one classification algorithm using Scikit-learn
- 46. Implementation of at least one clustering algorithm using Scikit-learn