

Department of Computer Science and Applications

A.Y. 2024-2025.

Even Semester

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ASSIGNMENT NUMBER -01

FYMCA- Div-A and Div-B

Topic- Fundamentals of Python Programming

Date: 23/1/2025

Submission Date: 1/02/2025

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1. Write a program that accepts the string from user and displays the same string after removing vowels from it.
2. Explain positional and keyword arguments in function. Use suitable examples.
3. Describe instance variable, static variable and local variables in python object-oriented programming with example
4. Compare List and tuple with suitable example.
5. Explain lambda with example.
6. Create class called, library with data attributes like Acc-number publisher, title and author, the methods of the class should include
 - i) Read () - Acc- number, title, author, publisher.
 - ii) ii) Compute () - to accept the number of days late, calculate and display the fine charged at the rate of Rupees 5/- per day.
 - iii) iii) Display the data
7. Write a pythan program
 - i) To remove all leading 'zeros' from an IP address
 - ii) ii) To find all 5 character long words in a string Accept string from user.
8. Prepare the pandas dataframe from csv file.
 - i) perform following operations.
 - ii) Fill all 'NaN' values with the mean of respective column.
 - iii) Display last 5 rows.

9. Read data from csv five and create dataframe. Perform following operations.
- Display list of all columns.
 - Display data with last three rows and first three columns

10. Write a Python Program for

Given a dataframe df in Pandas as below:

City	MaxTemp	MinTemp	RainFall
Delhi	40	32	24.1
Bengaluru	31	25	36.2
Chennai	35	27	40.8
Mumbai	29	21	35.2
Kolkata	39	23	41.8

Write commands:

- to compute sum of every column of the dataframe.
 - to compute mean of column rainFall.
 - to compute Median of the MaxTemp column.
 - to display all column names.
11. Create a 4×3 numPy array and find it's column-wise mean.
12. Create a series from a numPy array and find frequency count of unique items of a series
13. Create a pandas dataframe using CSV file and perform a following: i) Display first 10 rows. ii) Display list of all columns.
14. Create a 5×5 2D numPy array and retrieve bottom right corner 2×2 array from it.
15. Write a program to check if the input year is leap year or not. Validate the input.
16. Write a program to print the sum of natural numbers using recursion
17. Do the following operations on dictionaries :
- Initialize two dictionaries with key & value pair.
 - Find keys that are in first and not in second dictionary.
18. Write a program to get the 4th element from front and fourth element from last of a tuple
19. Write a function which print Fibonacci series for a given number
20. Write a program to accept a string from user and display the string in reverse order eliminating the letter 's' from the string.
21. Write a Python program to check that a string contains only a certain set of characters (in this case a-z, A-Z and 0-9).

22. Write a Python program to add 'ing' at the end of a given string (length should be at least 3). If the given string already ends with 'ing', add 'ly' instead. If the string length of the given string is less than 3, leave it unchanged
23. Write a Python program to combine values in a list of dictionaries. Sample data: [{'item': 'item 1', 'amount': 400}, {'item': 'item2', 'amount': 300}, {'item': 'item1', 'amount': 750}]
Expected Output: Counter ({'item1': 1150, 'item2': 300})
24. Write a Python program to extract year, month, date and time using Lambda.
25. Write a Python program to calculate the cube and square of a given number
26. Write a python program for
Represent the following facts in First-order logic.
- i) Ravi likes all kinds of Food
 - ii) Apple and Mango are Food
 - iii) Anything anyone eats and is not killed is a Food
 - iv) Vijay eats peanuts and still is alive
 - v) Soham eats anything that Vijay eats
27. Write a Python program to create class student (rollno., name, course) and class test which inherits the student attributes. Display the student information with test marks using inheritance.
28. Write a Python program to find GCD of numbers using recursion.
29. Write a Python program to generate and print a dictionary that contains a number between 1 and 10 in the form (x, x * x).
Expected output is : { 1 : 1, 2 : 4, 3 : 9, 4 : 16, }.
30. Write a program which finds sum of digits of a number also Write a Python program to find maximum and the minimum value in a set.