

Class XII - List of Practical Programs from Python.

1. Write a menu driven program to perform addition ,subtraction, multiplication & division of Rational numbers using the concept of operator overloading.

2. Write a class MYCLASS with method used to implement the following on strings:

- a) To count the number of characters in the string.
- b) To change the first character of the string in capital letter.
- c) To check whether given character is letter or a number
- d) To change lower case to upper case letter.

3. Define the class with following specification:

Class donor

Private members:

Name, date of birth, address, phone number, blood group

Public members:

Input()(reads the details of donor)

Append()(adds a new donor to the list)

Show()(display the details of the specified donor)

Search()(given the blood group displays name, address of the donor)

4. Define a class ITEMINFO in Python with the following description:

ICode (Item Code) Item (Item Name) Price (Price of each item) Qty (quantity in stock)

Discount (Discount percentage on the item) Netprice (Final Price)

Methods:

A member function FindDisc() to calculate discount as per the following rule:

If Qty<=10 Discount is 0 If Qty (11 to 20) Discount is 15 If Qty>=20 Discount is 20 A

constructor(__init__ method) to assign the value with 0 for ICode, Price, Qty, Netprice and Discount and null for Item respectively

A function Buy() to allow user to enter values for ICode, Item, Price, Qty and call function FindDisc() to calculate the discount and Netprice(Price*Qty-Discout).

A Function ShowAll() to allow user to view the content of all the data members.

5. Pay roll information system:

Declare the base class 'employee' with employee's number, name, designation, address, phone number. Define and declare the function getdata() and putdata() to get the employee's details and print employee's details.

Declare the derived class salary with basic pay, DA, HRA, Gross pay, PF, Income tax and Net pay.

Declare and define the function getdata1() to call getdata() and get the basic pay, Define the function calculate() to find the net pay. Define the function display() to call putdata() and display salary details .

Create the derived class object. Read the number of employees. Call the function getdata1() and calculate() to each employees. Call the display() function.

6. Define a class Departmental with the following specification :

private data members

| | | | |
|------------------|-------------------------------|------------------|-------------------|
| Prod_name | string (45 charactes) | Listprice | long |
| Dis_Price | long [Discount Price] | Net | long [Net Price] |
| Dis_type | char(F or N) [Discount type] | | |

Cal_price() – The store gives a 10% discount on every product it sells. However at the time of festival season the store gives 7% festival discount after 10% regular discount. The discount type can be checked by tracking the discount type. Where ‘F’ means festival and ‘N’ means Non-festival .The Cal_price() will calculate the Discount Price and Net Price on the basis of the following table.

| Product Name | List Price(Rs.) |
|-------------------|-----------------|
| Washing Machine | 12000 |
| Colour Television | 17000 |
| Refrigerator | 18000 |
| OTG | 8000 |
| CD Player | 4500 |

public members

- ➔ Constructor to initialize the string elements with “NULL”, numeric elements with 0 and character elements with ‘N’
- ➔ Accept() - Ask the store manager to enter Product name, list Price and discount type . The function will invoke Cal_price() to calculate Discount Price and Net Price .
- ➔ ShowBill() - To generate the bill to the customer with all the details of his/her purchase along with the bill amount including discount price and net price.

7. Define a class PhoneBill in with the following descriptions.

Private members:

| | | | | |
|--------------|-------------|-------------|------|--------|
| CustomerName | PhoneNumber | No_of_units | Rent | Amount |
|--------------|-------------|-------------|------|--------|

calculate() This member function should calculate the value of amount as Rent+ cost for the units. Where cost for the units can be calculated according to the following conditions.

| <u>No_of_units</u> | <u>Cost</u> |
|--------------------|-------------|
| First 50 calls | Free |
| Next 100 calls | 0.80 @ unit |
| Next 200 calls | 1.00 @ unit |
| Remaining calls | 1.20 @ unit |

Public members:

- * A constructor to assign initial values of CustomerName as “Raju”, PhoneNumber as 259461, No_of_units as 50, Rent as 100, Amount as 100.
- * A function accept () which allows user to enter CustomerName, PhoneNumber, No_of_units and Rent and should call function calculate ().
- * A function Display () to display the values of all the data members on the screen.

8. Write a menu driven program to perform basic list operations

- Insertion in a sorted list
- Deletion of an element from a list

9. Write a menu driven program to perform Searching Techniques in a list using
- Linear Search
 - Binary Search
10. Write a menu driven program to perform Sorting a list using
- Selection Sort
 - Bubble Sort
 - Insertion Sort
11. Write a menu driven program using list to perform the following operations
- Insert an element
 - Delete an element
 - Display the contents of the list
 - Exit
12. Write a program using lists in python to:
- Find the sum of two matrices
 - Find the difference of two matrices
 - Product of two matrices
 - Exit
13. Write a program to implement Stack Operations as a list
- Push
 - Pop
 - Peek
 - Display Stack
 - Exit
14. Write a program to implement Queue Operations as a list
- Enqueue
 - Dequeue
 - Peek
 - Display Queue
 - Exit
15. Assuming that a text file named TEXT1.TEXT already contains some text written into it, write a function named vowelwords(), that reads the file TEXT1.TEXT and creates a new file named TEXT2.TEXT, which shall contain only those words from the file TEXT1.TEXT which does not start with a vowel (i.e, with 'A', 'E', 'I', 'O', 'U'). FOR example, if the file TEXT1.TXT contains.
- Carry umbrella and Overcoat when it Rains**
then the file TEXT2.TXT shall contain
Carry when it Rains.
16. Write a program that stores the decimal numbers and equivalent roman numbers in the form of a dictionary in a file. Next, read the file, load the dictionary and ask the user to enter a numeral and print its equivalent roman number.

17. Write a Program in Python to count and display the number of lines not starting with alphabet 'A' present in a text file "STORY.TXT" Example:
following lines,

- The rose is red.
- A girl is playing there.
- There is a playground.
- An aero plane is in the sky.
- Numbers are not allowed in the password.

The function should display the output as 3.

18. Write a menu driven program to:

- Create a text file
- Count number of vowels, digits and words
- Create another file using the original which will contain the text after replacing all the blanks spaces with #.

19. Define a class **Movie** with following description:

Private Members

Mcode //Data member for Movie code
Type //Data member for the type of Movie
Rating //Data member for Movie critic rating
Collections //Data member for movie collections per day
Assign() //A function to assign Rating a value based on Collections as follows:

| Collections | Rating |
|--|---------------|
| <=1000000 | 2** |
| >1000000 && <=5500000 | 3*** |
| >5500000 | 4**** |

Public Members

Read() //A function to enter value of Mcode,Type and Collections . It will invoke Assign() function.

Display() //A function to display Mcode,Type,Rating and Collections

Ret_Rating() //A function to return value of Rating

Write the contents to a file.

20. Write a generator program in Python to find:

- Cube of a number
- Fibonacci Series
- 2ⁿ Series

21. Write function definition for Non_Diagonal() in python to display all the elements other than the diagonal of a two dimensional linear list Q of size 4 x 4 passed as a parameter to the function.

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