

1. Write a Program using class to process Shopping List for a Departmental Store. The list includes details such as the Code No and Price of each item and perform the operations like Adding, Deleting Items to the list and Printing the Total value of a Order.

2. Write a Program which creates & uses *array of object of a class* implementing the list of Managers of a Company having details such as Name, Age, base\_salary, insurance paid, traveling allowance, departmental allowance, income tax, professional tax, take home salary etc..)

Note: TA & DA will be added to base\_salary and tax will be deducted from base salary and display take home salary.

3. Write a Program to design a student class representing student roll no. and a test class (derived class of student) representing the scores of the student in various subjects and sports class representing the score in sports. The sports and test class should be inherited by a result class having the functionality to add the scores and display the final result for a student.

Note: use relevant inheritance and implement the program

4. Write a program to design a class representing the information regarding digital library (books, CD, magazines, novels, journal should be separate classes having the base class as library).

Note: a. book has isbn no, authername, published by, year of published

b. CD has title of project, submitted by, year of submission, rating.

c. novel has author name, number of copies sold, rating.

d. journal has journal name, indexed by

use suitable inheritance and implement.

5. Create class restraint with data members item\_no, name, price, type(south indian ,north indian, continental) and member function getdata() and putdata().

Create a class second with data members item ordered, type and members getdata() and showdata(). Derive a class third from first and second with data member price to pay and GST. Display all these information using object third class. note: display atleast 4 bills.

6. Design three classes FLIGHT, TRIN and BUS. The FLIGHT class has data Members such as flight\_no, airways\_name, fare\_on\_ticket. create a class train trin\_no, class\_of\_train(1A,2A,3A),fare on ticket. The BUS class bus\_no, travels\_name, fare\_on\_ticket. Derive the TRAVEL\_EXP from FLIGHT, TRIN and BUS and calculate total year traveling expenditure.

7. Define a class named 'patient' with p\_id, p\_name, p\_age and address.

Derive two classes namely 'in\_patients' and 'out\_patients' from 'patient'. The class 'in-patient' should include room no, date\_of\_admission, date\_of\_discharge, no\_of\_days and charge/day. The 'out\_patients' class should include consultation\_fees and test-fees. Derive a class named 'Bill' from both 'out\_patients' and 'in\_patients' which include date\_of\_bill, to\_amount. Write a program to calculate total amount and produce bill for 'n' patients.

8. Create a base class called SHAPE. Use this class to store two double type values. Derive two specific classes called TRIANGLE and RECTANGLE from the base class. Add to the base class, a member function getdata() to initialize base class data members and another member function display to compute and display the area of

figures. Make display a virtual function and redefine this function in the derived classes to suit their requirements. Using these three classes design a program that will accept driven of a TRINGLE or RECTANGLE interactively and display the area.

9. Write a program to write and read object using read and write functions of file to store the student details like name, rool no, branch, rank, subject names(atlest 6),marks in 6 subjects, total , percentage ? take 4 student details and modify the second student details ?
10. Write a program to implement I/O operations on characters. I/O operations includes inputing a string, calculating length of the string, Storing the String in a file, fetching the stored characters from it, etc.
11. Write a program to write and read object using read and write functions of file to store the student details like name, rool\_no, branch, rank, subject names(atlest 6),marks in 6 subjects, total , percentage ?
12. WAP in C++ to perform operations on sequential access file using **f stream object** and if/of stream objects with appropriate functions. Print 1 to n prime numbers in file and display in console.
13. WAP in C++ to implement Command Line Arguments for files to save even and odd data in to two files .
14. Write a program to read file using constructor and save the 10 student names and read the same file using constructor and print data on console ?

15. Write a program for method overloading implementing single inheritance dependent upon his designation the program prints the details of person including salary. (HR manager, program analyst, program manager, team lead, tester, Sr. programmer, Jr. programmer, technical assistant, assistant)
16. Write a program to maintain the records of person with details (*Name and Age*) and find the eldest among them. The program must use *this pointer* to return the result.
17. Write a program to perform addition of two complex numbers using constructor overloading. The first constructor which takes no argument is used to create objects which are not initialized, second which takes one argument is used to initialize real and image parts to equal values and third which takes two arguments is used to initialize real and image to two different values.
18. Create a class called LIST with two pure virtual functions store() and retrieve(). To store a value call store and to retrieve call retrieve function. Derive two classes stack and queue from it and override store and retrieve.
19. Create a class pre\_post and write two functions get() and post() and overload unary ++ (post fix and prefix) using friend function and accept values using get() and print the values using post() in the main().
20. Write a program to implement c++ references concept by creating LIVE object  
Accept the data using getdata() function And the print the data using setdata function()  
.

21. Create a class distance implement two methods read() and write() accept distance in kilometers and meters and calculate using unary + operator overloading using friend function.
22. Create a class distance implement two methods read() and write() accept distance in kilometers convert into meters and display using unary + operator overloading. The display values indicate in negative distance manner ? (Ex: -200m.-300m etc..)
23. Create a class distance implement two methods read() and write() accept distance in kilometers and meters and calculate using binary + operator overloading .
24. Create class complex and perform addition of two complex numbers numbers by overloading binary ( + ) using friend function ?
25. WAP in C++ to illustrate the use of public, private, protected members and public, private, protected functions in a base class and derived class and how base class and derived class objects access those DataMembers and Function Members.
26. Write a Program illustrating how the constructors are implemented and the order in which they are called when the classes are inherited. Use three classes named alpha, beta, gamma such that alpha, beta are base class and gamma is derived class inheriting alpha & beta. And implement the order of destruction ?
27. WAP in C++ to illustrate template classes, template class with default types, template class with multiple data types ?

28. Write a Program to swap private data members of classes named as class\_1, class\_2 using friend function.
29. Write a program to implement generic programming using templates and implement a swap operation on int, float, double, long double.
30. Create two pure virtual functions student data and parent data (name, occupation, address, age, etc...) and override them in the derived class and call in the main using base pointer.