APPRENTICESHIP

SET 54 – C++ Programming Language

(Private Inheritance, Protected Inheritance and Function template)

1. Write a program to find circumference and area of circle using two different classes called Circumference & Area by inheriting a Class called PI .Inherit the value of PI as private data member and set the value to PI using private member function.

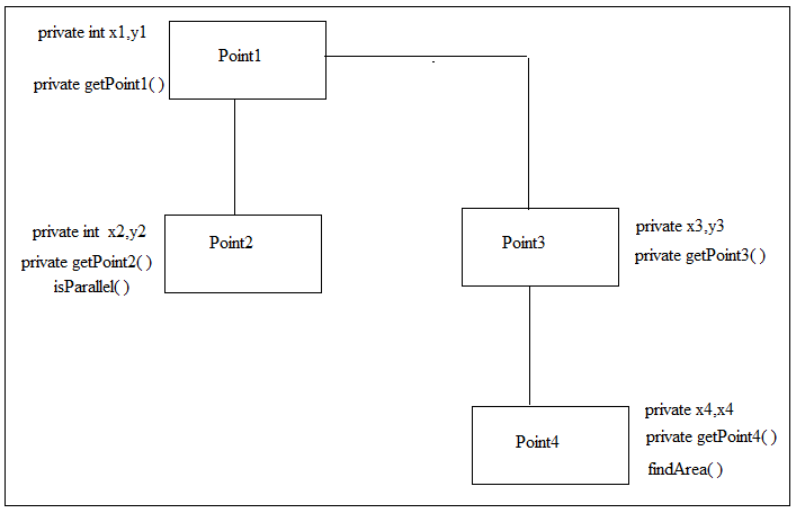
2. WAP to reverse an array using multi-level inheritance having class One, Two, Three, Four and Five with their private data member and private member functions to load the data for data member and create a function called formArray() in class Five to create array. Create another class called Reverse with one member function getReverse() to get the reverse of the array and print the result in class Five.

3. Write a program to check a matrix is Unit or not by inheriting the Class one, Two, Thee and Four with their private data member and private member functions to load the data member into a class called Matrix. Create a function called formMatrix() in class Matrix to form a matrix of size 2 X 2 and send this matrix to class called Unit to check whether the matrix is Unit or not.

4. WAP to print student information using hierarchical inheritance having class Student, Grade, Attendance and Percentage. Class Student is the super class which is having two private data members i.e; name, roll no. and set these values using private member functions. Inherit student class by class Grade, class Percentage and class Attendance which are having respective private data members and member functions to load the data. Print the values along with the super class data members in each of the classes in a public member function called displayData( )

5. Write a program to print the trace and normal of a 2X2 matrix where it has five classes Row1, Row2, Matrix, TraceNormal and Datakeeper. Class Row1 has two private data members which are the elements of first row and set it's value by using private member functions. Same for class Row2 as Row1 class. In class Matrix form a matrix and return it to main(). And in class TraceNormal calculate trace and normal. Class Datakeeper stores the value of trace and normal to return it to main function and print it.

6. WAP to find whether a line is parallel to X-axis or not using points (x1,y1) & (x2, y2) and also find if it forms a triangle or not by taking three points (x1,y1), (x3,y3) & (x4,y4) where it has four classes P1, P2, P3 and P4.



7. Write a program to find the biggest of two numbers, where one number is inherited from Super class and another belongs to subclass. Super class Data members and its respective member function should be protected.
8. Write a program to find the average of three numbers belongs to three classes in multi-level manner. All the super class data members and their respective member functions are protected.
9. Write a program to inherit five classes in Multi-Level manner into a 6^{th} class called **Array**. Each super class are having One protected data member and one protected member function. In class called **Array** form an array and sort the Even array elements into ascending order and print the resulted array.
10. Write a program to inherit 4 classes in Multi- Level manner into a 5^{th} class called **Matrix**. Each super class are having One protected data member and one protected member function. In class called **Matrix** form a matrix and sort the principal diagonal elements into Ascending order and print the resulted matrix.
11. Write a program to create a function template to find the maximum of two data items of type int,float,char and double.
12. Write a program to create a function template to find the average of three data items of type int,float and double.
13. Write a program to define a function template to swap the contents of the two data items of type int,float and double.