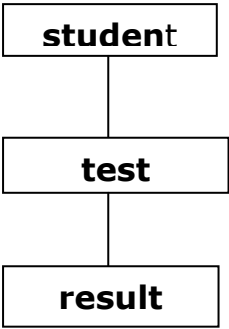


- 1. Declare a class STAFF that can store code, name, salary from that derive
 - (a) a class TEACHER that can store subject name and periods
 - (b) a class TYPIST that can store speed

Write a main() to accept data and display it.

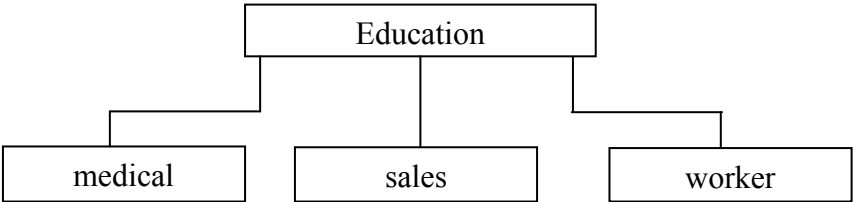
- 2. Consider the following figure to solve this problem.

The data member and member functions are given bellow:



Class name	Data members	Member functions
Student	Rollno, name	Void getdata() Void putdata()
Test	Sub1, sub2	void getmarks(float, float), void putmarks()
Result	Total	Void display()

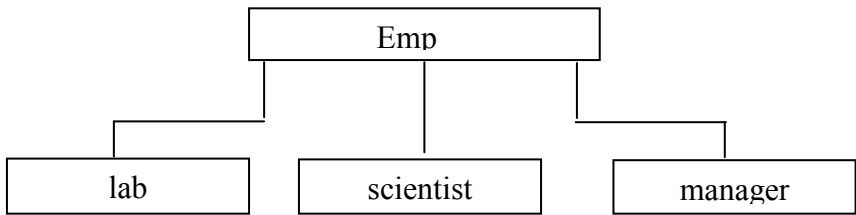
- 3. Define class NO that can store one number(INT n) add a method great(No n) which can accept one object as argument and return object also two more method getdata() and showdata() and constructor in main. Compare two NO object and assign great object to third.
- 4. Write a program for hierchical_inheritance by considering the following figure.



The data member and member functions are given bellow:

Class name	Data members	Member functions
Education	Name,degree,class,lang(eng,hindi,gujrati or all)	-----
Medical	Age, Experience	getmedical(), putmedical()
Sales	Age	getsales(), putsales()
Worker	-----	getworker(), putworker()

5. Write a program for hierchical_inheritance by considering the following figure.



The data member and member functions are given bellow:

Class name	Data members	Member functions
Emp	Ecode, name, salary	-----
Lab	-----	Getdata(), putdata()
Scientist	Res_dept	getscientist(), putscientist()
Manager	Prj_name	getmanager(), putmanager()

Exercises on Polymorphism

1. Write a program to create a class **shape** that contains two member functions **void read()** and **void show()**. Derive three classes **circle**, **rectangle** and **triangle** from class shape. Add the data member **radius** into class **circle** and **length, breadth** into class **rectangle** and **base, height** into class **triangle**. Read the values from **read()** and calculate **area of circle, area of rectangle and area of triangle** into show function by using given formulas. [Design menu driven program]

Area of circle=3.14*r*r;
Area of rectangle=l*b;
Area of triangle=b*h*0.5

2. Write a program to create a class **vehicle** which stores the **vehiclenu** and **chassisno** as a member. Define another class for **scooter** which inherits the data member of the class **vehicle** and has a data member for storing **wheels** and **company**. Define another class **car** which inherits the data member of the class **vehicle** and has data member for storing **price** and **company**. Display the data from the **derived class**.

3. Create a base class called **shape**. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called triangle and rectangle from the base class shape. Add to the base class a member function getData() to initialize base class data members and another function toString() to compute and display the area of figures.

Using these three classes, design a program that will accept dimensions of triangle or rectangle respectively and display the area. Remember that the two values given as input should be accepted at runtime by command line argument. Use the following formula to find out the area of rectangle and triangle.

- Area of rectangle = $x * y$
- Area of triangle = $\frac{1}{2} * x * y$

4. Write a program to create a class called fruit. Declare three classes named as strawberry, mango and grapes. Declare one data member color in super class fruit. Override toString method and display the string as like following way.

```
The color of fruit strawberry is "    "  
The color of fruit mango is      "    "  
The color of fruit grapes is     "    "
```

5. Write a program to create a class called country. Declare three classes named as India, Russia and France. Declare one data member capital in super class country. Override toString method and display the string as like following way.

```
The capital of India is "    "  
The capital of Russia "    "  
The capital of France "    "
```

Journal Assignment

Inheritance: 2, 3, 5

Polymorphism: 1, 3, 4, 5