GANPAT UNIVERSITY
U. V. PATEL COLLEGE OF ENGINEERING
2CEIT302: OBJECT ORIENTED PROGRAMMING

Practical-5

Inheritance, Polymorphism and Abstraction

1. Create a class Room which has two instance variables length and breadth and a method called area() to find area of Room. Create another class BedRoom which inherit Room class and has an instance variable height and a method volume() to find volume in BedRoom. Use necessary constructors in both class. A main() method resides in another class.

2. A super class Worker has been defined to store the details of a worker. Define a sub class Wages to compute the monthly wages for the worker. The details of both the classes are given below:

   Class name : Worker

   Data members :

   Name : to store the name of the worker

   Basic : to store the basic pay in decimal

   Member Methods:

   Worker(….) : parameterized constructor to assign values to the instance variables

   void display() : display worker details

   class name : Wages

   Data members

   hrs : stores the hours worked

   rate : stores rate per hour

   wage : stores the overall wage of the worker

   Member Methods:

   Wages(….) : parameterized constructor to assign values to the instance variables of both classes

double overtime( ) : calculates and returns the overtime amount as (hours * rate)

void display() : calculates the wage using the formula wage=overtime amount +basic pay and displays it along with other details .

Specify the class Worker giving details of the constructor() and void display(). Using the concept of inheritance, specify the class Wages giving details of the constructor(), double overtime() and void display().

3. Create abstract class called Shape which has three sub classes say Triangle, Rectangle, and Circle. Define one method area() in abstract class and override this area() in these three subclasses to calculate area for specific object i.e. area() of Triangle subclass should calculate area of triangle. Same for rectangle, circle.

4. Write a program to implement Multiple inheritance using interface.

5. Write a program to create interface shape containing area() method. Now create Rectangle, Triangle, Sphere class that implements shape interface and override area() to calculate area of rectangle ,triangle and sphere.

6. Write a program to implement following scenario.