LAB-7

NOTE: Share screenshots of results as well.

Q.1
Create an abstract class Vehicle. Define two methods: brake() and controlMechanism() in the Vehicle class. Mark both the method as abstract.

Next, create two more abstract classes: Two-wheeler and Four-Wheeler. Both classes will extend the Vehicle class.

Now override the controlMechanism() method in both classes as follows:
For Two-Wheeler: controlMechanism() should print: "Handle based controlling."
For Four-Wheeler: controlMechanism() should print: "steering based controlling."
No need to override brake() in these classes.

Now, create two classes: Car and Bike, which will extend the required classes.

Finally, override the brake() method as follows:
For Car: brake() should print: "Drum type brake system."
For Bike: brake() should print: "Disk type brake system."

At last, create a Main class and test your class hierarchy.
Create objects for the Car and Bike class, and save them in a Vehicle type variable. call the controlMechanism() and brake() on each object.

Q.2
Create a base class Study and other classes like Btech,Mtech,Phd all these classes inherited from Study Class.Study Class has a member function Time_duration(). Use method overriding(Use Time_duration method for every class). Create another class which is Test Class, in this class create all the objects and call the overridden methods. When we call the method of the class it gives their time duration and gives the

prerequisite for that Study(Course).Order of calling the classes function will be Phd,Mtech,Btech,Study

Produce this Output:

Phd is a 5 year duration course and has a prerequisite which is a Master Degree.
Mtech is a 2 year duration course and has a prerequisite which is a Bachelor Degree.
Btech is a 4 year duration course and has a prerequisite which is Senior Secondary.
Study is a lifetime duration course and you will learn new things everyday.

Q. 3
WAP to create a class "Student" with data members as Student Name and Roll Number. The class should have following method
1. Read Student name and roll number
2. Display Student name and roll number
Create another class Exam which should inherit Student class and should have data members as physics, maths with the following methods
1. Read physics and maths marks
2. Display physics and maths marks
Create another class Result inheriting Exam class with method as display which should display students details, marks in physics and maths and their percentage.

Q.4
Create the class Student with Student number (snum),Student(sname) and degree (deg) as data members and the member functions as:

getstud(): gets snum, sname and deg.
showstud(): prints snum, sname and deg

Create the class Marks with marks in three subjects m1, m2, m3 as
data members and the member functions as:

getmark(): gets m1, m2 and m3
showmark(): prints m1, m2 and m3

Derive the class Marks from the class Student in public mode

Create the class Result with total marks (total), average (avg) and grade(gr) as data members and the member functions as:

Calresult(): Calculate the total marks and displays the average
CalGrade(): Calculates Grade and displays the Grade.

If Average (60-100) grade A
If Average (40-59) : grade B
If Average (0-39): grade C

Showresult():displays avg, total and gr

Derive the class Result from the class Mark in public mode.