**abstract**

**Exercise 1:***Create a class called Shape3D with the following method signatures alone, volume () and*

*surfaceArea (). Then create subclasses like Cylinder, Sphere, and Cube etc and implement*

*these methods.*

**Inheritance**

**Exercise 2:***Create a class called Vehicle. Create subclasses like Truck, Bus, Car etc. Add common methods in the base class and specific methods in the corresponding class. Create a class called Road*

*and create objects for the Truck, Car, Bus etc and display the appropriate message.*

**Exercise 3:***In the Lab Exercise above, in the Vehicle class constructor initialize few variables like color, no of wheels, model etc. Give appropriate values for these variables from the invoking subclass.*

**Exercise 4:***In the Lab Exercise above, create another class called City which creates an object for the Car, Truck and Bus class and displays the details through a display () method in the Vehicle class.*

*The other methods and data members should not be accessible by the City class.*

**Polymorphism**

**Exercise 5:***Create a class called Worker. Write classes DailyWorker and SalariedWorker that inherit from Worker.Every worker has a name and a salaryrate. Write method Pay (int hours) to compute*

*the week pay of every worker. A Daily worker is paid on the basis of the number of days*

*she/he works.The salaried worker gets paid the wage for 40 hours a week no matter what the*

*actual hours are. Test this program to calculate the pay of workers.*

**Interfaces**

**Exercise 6:***Createa package called bank with the following Interfaces.*

*<Interface> Account*

*<Interface>DepositAcc <Interface>LoanAcc*

*<Interface> Interest*

*<Interface>CreditInterest <Interface>DebitInterest*

1. *<Interface> Account*

*Data members: Four String variables to hold the account type “Savings, Fixed,PersonalLoan,*

*HousingLoan”*

*Methods: createAcc()*

1. *<Interface>DepositAcc*

*Methods: withdraw (), deposit(),getBalance()*

1. *<Interface>LoanAcc*

*Methods: repayPrincipal (),payInterest (),payPartialPrincipal ()*

1. *<Interface>Interest*

*Data members: Four double variables to hold the interest percentage of Savings account, Fixed*

*deposit account,PersonalLoan account and HousingLoan account.*

*Methods: calcInt()*

1. *<Interface>CreditInterest*

*Methods: addMonthlyInt(),addHalfYrlyInt(),addAnnualInt()*

1. *<Interface>DebitInterest*

*Methods: deductMonthlyInt(),deductHalfYrlyInt(),deductAnnualInt()*

*Create a package called BankImpl and create the following classes in it.*

1. *SavingsAcc which implements DepositAcc and CreditInterest*
2. *FDAcc which implements DepositAcc and CreditInterest*
3. *PersonalLoanAcc which implements LoanAcc and DebitInterest*
4. *HousingLoanAcc which implements LoanAcc and DebitInterest*

*Now create a class called MyAccount and create instances of all the accounts and generate appropriate output.*

**Static**

**Exercise 7:***Create a class called Sample. Write a program to display the no of objects created for that*

*class or the no of times that class is instantiated.*