**INHERITANCE**

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| **Course Code: PCS 307** | **Course Name: OOPS with C++** |
| **Sem:3** |  |
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1. Create two classes named Mammals and MarineAnimals. Create another class named BlueWhale which inherits both the above classes. Now, create a function in each of these classes which prints

"I am mammal", "I am a marine animal" and "I belong to both the categories: Mammals as well as Marine Animals" respectively. Now, create an object for each of the above class and try calling

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| 1 | - | function | of | Mammals | by | the | object | of | Mammal |
| 2 | - | function | of | MarineAnimal | by | the | object | of | MarineAnimal |
| 3 | - | function | of | BlueWhale | by | the | object | of | BlueWhale |

4 - function of each of its parent by the object of BlueWhale

1. Make a class named Fruit with a data member to calculate the number of fruits in a basket. Create two other class named Apples and Mangoes to calculate the number of apples and mangoes in the basket. Print the number of fruits of each type and the total number of fruits in the basket.
2. Write a program that defines a shape class with a constructor that gives value to width and height. The define two sub-classes triangle and rectangle, that calculate the area of the shape area (). In the main, define two variables a triangle and a rectangle and then call the area() function in this two varibles.
3. Write a program with a mother class and an inherited daugther class.Both of them should have a method void display ()that prints a message (different for mother and daugther).In the main define a daughter and call the display() method on it.
4. Write a probram with a mother class animal. Inside it define a name and an age variables, and set\_value() function.Then create two bases variables Zebra and Dolphin which write a message telling the age, the name and giving place of origin and color.
5. We want to store the information of different vehicles. Create a class named Vehicle with two data member named mileage and price. Create its two subclasses
6. Car with data members to store ownership cost, warranty (by years), seating capacity and fuel type (diesel or petrol).
7. Bike with data members to store the number of cylinders, number of gears, cooling type(air, liquid or oil), wheel type(alloys or spokes) and fuel tank size(in inches)
8. Make another two subclasses Audi and Ford of Car, each having a data member to store the model type. Next, make two subclasses Bajaj and TVS, each having a data member to store the make-type. Now, store and print the information of an Audi and a Ford car (i.e. model type, ownership cost, warranty, seating capacity, fuel type, mileage and price.) Do the same for a Bajaj and a TVS bike.
9. All the banks operating in India are controlled by RBI. RBI has set a well defined guideline (e.g. minimum interest rate, minimum balance allowed, maximum withdrawal limit etc) which all banks must follow. For example, suppose RBI has set minimum interest rate applicable to a saving bank account to be 4% annually; however, banks are free to use 4% interest rate or to set any rates above it. Write a program to implement bank functionality in the above scenario. Note: Create few classes

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namely Customer, Account, RBI (Base Class) and few derived classes (SBI, ICICI, PNB etc).

Assume and implement required member variables and functions in each class.

1. Write a C++ program to add two numbers using single inheritance. Accept these two numbers from the user in base class and display the sum of these two numbers in derived class.
2. Write a C++ program to design a base class Person (name, address, phone\_no). Derive a class Employee (eno, ename) from Person. Derive a class Manager (designation, department name, basic-salary) from Employee. Write a menu driven program to:
   1. Accept all details of 'n' managers.
   2. Display manager having highest salary
3. Write a C++ program to define a base class Item (item-no, name, price). Derive a class Discounted-Item (discount-percent). A customer purchases 'n' items. Display the item-wise bill and total amount using appropriate format.
4. Write a C++ program to calculate the percentage of a student using multi-level inheritance. Accept the marks of three subjects in base class. A class will derived from the above mentioned class which includes a function to find the total marks obtained and another class derived from this class which

calculates and displays the percentage of student.