**Week 6 lab tasks**

**Task 1: Single inheritance**

open a project named **InheritanceDemoProject**. create a package named week6.exercises. create **three** classes named **Person**, **Student** and **Test**. Inside Test class define **main method**. inside Person class declare two variables named **name**, **age**. Again inside **Person** class define two methods named **describePerson() with two arguments string name and int age** and **displayDailyActivity().** Now create an object of person class inside main method and invoke two methods. You should get the following output.

my name is Sumaiya I am 18 years old.

My activities as a person: woking up, taking breakfast, doing exercise, sleeping and so on.

Now inside Student class, create two variables named studentId and cgpa. Extends Person class inside Student class. create two methods named displayDailyActivity() and describeStudent() with two parameters named studentid and cgpa. displayDailyActivity() method should override the parent class displayDailyActivity() method. Now create an object of Student class inside main method and invoke displayDailyActivity() and describeStudent(). You should get the following output.

my name is Sumaiya I am 18 years old.

My Id is 111 my cgpa is 3.75

My activities as a person: woking up, taking breakfast, doing exercise, sleeping and so on.

My activities as a student:I attend classes, do assignment,sit for exams and so on

**Task 2: Multilevel inheritance**

now create a class called **ComputerScienceStudent and inherit Student class then** declare a variable named major. override describeStudent() method inside ComputerScienceStudent. once you override your outut should be as followed upon invoking inside main method by creating object.

\*\*\*\*\*\*\*ComputerScienceStudent class outputs: \*\*\*\*\*\*\*\*\*\*\*\*

my name is Sumaiya I am 18 years old.

My Id is 112 my cgpa is 4.0

My department is Computer Science

My activities as a person: woking up, taking breakfast, doing exercise, sleeping and so on.

My activities as a student:I attend classes, do assignment,sit for exams and so on

**Task 3: hierarchical inheritance**

create a class named **Animal**. define a **constructor** and a method named **animalSound**().

create an object of Animal class inside main method. invoke animalSound() method. you should get the following output.

Animal Constructor

The animal makes a sound

Now create a Class named **Dog** and extend Animal in Dog class. override **animalSound**(). create an object of Dog class inside main method. invoke **animalSound**() method

observe the output and explain why the output is like this.

Similarly create two more class named Cat and Cow and override the animalSound() according to their sound. and show the output**.**

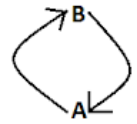
**Task 4: cyclic inheritance and multiple inheritance (invalid inheritance)**

public class A extends B{

}

public class B extends A{

}



implement the above inheritance and observe the error.

public class A{

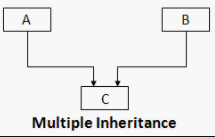
}

public class B{

}

public class C extends A,B{

}



**implement the above inheritance and observe the error**