**Exercise 1**

```
public class Employee {
    private int empID;
    private String empName;
    private String empDesignation;

    public int getEmpID() {
        return empID;
    }

    public void setEmpID(int empID) {
        this.empID = empID;
    }

    public String getEmpName() {
        return empName;
    }

    public void setEmpName(String empName) {
        this.empName = empName;
    }

    public String getEmpDesignation() {
        return empDesignation;
    }

    public void setEmpDesignation(String empDesignation) {
        this.empDesignation = empDesignation;
    }
```

```
}
```

**Exercise 2**

```
class SuperB {
   int x;

   void setIt(int n) {
      x = n;
   }

   void increase() {
      x = x + 1;
   }

   void triple() {
      x = x * 3;
   }

   int returnIt() {
      return x;
   }
}
class SubC extends SuperB {
   void triple() {
      x = x + 3;
   }

   void quadruple() {
      x = x * 4;
   }
```

```
}
public class TestInheritance {
   public static void main(String[] args) {
      SuperB b = new SuperB();
      b.setIt(2);
      b.increase();
      b.triple();
      System.out.println(b.returnIt());

      SubC c = new SubC();
      c.setIt(2);
      c.increase();
      c.triple();
      System.out.println(c.returnIt());
   }
}
```

**Output**

x= 2.

x = 3.

x = 9.

9.

**Exercise 3**

```
class Person {
   private String name;
   private int id;
   public Person(String name, int id) {
      this.name = name;
      this.id = id;
   }
```

```
    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public int getID() {
        return id;
    }

    public void setID(int id) {
        this.id = id;
    }
}
class Student extends Person {
    private String course;
    public Student(String name, int id, String course) {
        super(name, id);
        this.course = course;
    }
    public String getCourse() {
        return course;
    }

    public void setCourse(String course) {
        this.course = course;
    }
```

```
}
class Lecturer extends Person {
    private String programme;
    public Lecturer(String name, int id, String programme) {
        super(name, id);
        this.programme = programme;
    }
    public String getProgramme() {
        return programme;
    }

    public void setProgramme(String programme) {
        this.programme = programme;
    }
}
public class PersonObj {
    public static void main(String[] args) {
        Student s1 = new Student("John", 101, "Computer Science");

        System.out.println("Student Name: " + s1.getName());
        System.out.println("Student ID: " + s1.getID());
        System.out.println("Student Course: " + s1.getCourse());
        Lecturer l1 = new Lecturer("Dr. Smith", 201, "Computer Engineering");
        System.out.println("\nLecturer Name: " + l1.getName());
        System.out.println("Lecturer ID: " + l1.getID());
        System.out.println("Lecturer Programme: " + l1.getProgramme());
    }
}
```

**Exercise 4**

```
public class Animal {
}
public class Mammal extends Animal {
}
public class Reptile extends Animal {
}
public class Dog extends Mammal {
   public static void main(String args[]) {
      Animal a = new Animal();
      Mammal m = new Mammal();
      Dog d = new Dog();
      System.out.println(m instanceof Animal);
      System.out.println(d instanceof Mammal);
      System.out.println(d instanceof Animal);
   }
}
```

**Output**

```
Yes
Yes
Yes
```