Exercise 1:

Create a class called Employee that includes three pieces of information as instance variables:

1. First name (type String)
2. Last name (type String)

Your class should have the following methods:

- Constructor that initializes the three instance variables.
- Provide a set and a get method for each instance variable. If the monthly salary is not positive, set it to 0.0.

Write a test application named EmployeeTest that demonstrates class Employee’s capabilities. Create two Employee objects and display each object’s yearly salary. Then give each Employee a 10% raise and display each Employee’s yearly salary again.

Solution:

Class Employee:

```java
public class Employee {
    private String firstName;
    private String lastName;
    private double monthlySalary;

    public Employee(String f, String l, double m) {
        firstName = f;
        lastName = l;
        if (m < 0) {// you can also use setMonthlySalary(m)
            monthlySalary = 0;
        } else monthlySalary = m;
    }

    public String getFirstName() {
        return firstName;
    }

    public void setFirstName(String fname) {
        firstName = fname;
    }
}
```
public String getLastName() {
    return lastName;
}

public void setLastName(String lname) {
    lastName = lname;
}

public double getMonthlySalary() {
    return monthlySalary;
}

public void setMonthlySalary(double m) {
    if (m < 0) {
        monthlySalary = 0;
    }
    else
        monthlySalary = m;
}

}

Class EmployeeTest:

import java.util.Scanner;

public class EmployeeTest {
    public static void main(String[] args) {
        Scanner S = new Scanner(System.in);
        System.out.println("Enter the first name: ");
        String fname = S.next();
        System.out.println("Enter the last name: ");
        String lname = S.next();
        System.out.println("Enter the Salary: ");
        double sal = S.nextDouble();
        Employee e = new Employee(fname, lname, sal);
        System.out.println("the yearly salary of " + e.getFirstName() + " "
                        + e.getLastName() + " : ");
        System.out.println(e.getMonthlySalary() * 12);
        double newsalary = e.getMonthlySalary() * 0.1 + e.getMonthlySalary();
        e.setMonthlySalary(newsalary);
        System.out.println("the new yearly salary of " +
                        " +e.getFirstName() +" "+e.getLastName()+" ");
        System.out.println(e.getMonthlySalary() * 12);
    }
}
Exercise 2:

Create a class called \textit{Date} that includes three pieces of information as instance variables
1. \textit{Month} (type int)
2. \textit{Day} (type int)
3. \textit{Year} (type int).

Your class should have the following methods:
- Constructor that initializes the three instance variables and assumes that the values provided are correct.
- Provide a \texttt{set} and a \texttt{get} method for each instance variable.
- Provide a method \texttt{display} \textit{Date} that displays the month, day and year separated by forward slashes (/).

Write a test application named \texttt{DateTest} that demonstrates class Date’s capabilities.

\textbf{Solution:}

Class Date:
\begin{verbatim}
public class Date {
  private int year;
  private int month;
  private int day;

  public Date(int y, int m, int d) {
    if(y>=0)
      year = y;
    else year = 2000;
    if(m>0 && m<=12)
      month = m;
    else month = 1;
    if(d>0 && d<=30)
      day = d;
    else day = 1;
  }

  public int getYear() {
    return year;
  }

  public void setYear(int y) {
    if(y>=0)
      year = y;
    else year = 2000;
  }

  public int getMonth() {
    return month;
  }

}
\end{verbatim}
public void setMonth(int m) {
    if (m > 0 && m <= 12)
        month = m;
    else
        month = 1;
}

public int getDay() {
    return day;
}

public void setDay(int d) {
    if (d > 0 && d <= 30)
        day = d;
    else
        day = 1;
}

public void display() {
    System.out.println(day + "/" + month + "/" + year);
}

public class testDate {
    public static void main(String[] args) {
        Scanner S = new Scanner(System.in);

        System.out.println("Enter year: ");
        int year = S.nextInt();

        System.out.println("Enter month: ");
        int month = S.nextInt();

        System.out.println("Enter day: ");
        int day = S.nextInt();

        Date date = new Date(year, month, day);

        System.out.println("You Entered :");
        date.display();
    }
}

Class testDate

import java.util.Scanner;

public class testDate {
    public static void main(String[] args) {
        Scanner S = new Scanner(System.in);

        System.out.println("Enter year: ");
        int year = S.nextInt();

        System.out.println("Enter month: ");
        int month = S.nextInt();

        System.out.println("Enter day: ");
        int day = S.nextInt();

        Date date = new Date(year, month, day);

        System.out.println("You Entered :");
        date.display();
    }
}