**CO24557: Object Oriented Programming**

**Assignment 2**

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**BE-II Year (CSE)**

//CO24557 Assignment 2 - problem 1

//creates object of two employees and shows their information; gives 10% raise and shows new information

import java.util.\*;

class Employee

{

private String firstName,lastName;

private double monthlySalary;

public Employee()

{

Scanner stdin = new Scanner(System.in);

System.out.print("Enter the following information about employee: \n");

System.out.println("First name: ");

firstName = stdin.nextLine();

System.out.println("Last name: ");

lastName = stdin.nextLine();

System.out.println("Monthly salary: ");

monthlySalary = stdin.nextDouble();

if(monthlySalary<0) this.monthlySalary = 0.0;

}

public void setFirstName(String firstName)

{

this.firstName = firstName;

}

public void setLastName(String lastName)

{

this.lastName = lastName;

}

public void setMonthlySalary(double monthlySalary)

{

if(monthlySalary<0) this.monthlySalary = 0.0;

else this.monthlySalary = monthlySalary ;

}

public String getFirstName() { return firstName; }

public String getLastName() { return lastName; }

public double getMonthlySalary() { return monthlySalary; }

}

public class EmployeeTester

{

public static void main(String[] args)

{

Employee e1 = new Employee();

Employee e2 = new Employee();

System.out.println("\nFor Employee 1: ");

System.out.println("Name : "+e1.getFirstName()+" "+e1.getLastName());

System.out.println("Salary per annum : "+12\*e1.getMonthlySalary());

System.out.println("\nFor Employee 2: ");

System.out.println("Name : "+e2.getFirstName()+" "+e2.getLastName());

System.out.println("Salary per annum : "+12\*e2.getMonthlySalary());

System.out.println("\n Now giving a 10% raise to each employee....");

e1.setMonthlySalary(e1.getMonthlySalary()+0.1\*e1.getMonthlySalary());

e2.setMonthlySalary(e2.getMonthlySalary()+0.1\*e2.getMonthlySalary());

System.out.println("\nFor Employee 1: ");

System.out.println("Name : "+e1.getFirstName()+" "+e1.getLastName());

System.out.println("Salary per annum : "+12\*e1.getMonthlySalary());

System.out.println("\nFor Employee 2: ");

System.out.println("Name : "+e2.getFirstName()+" "+e2.getLastName());

System.out.println("Salary per annum : "+12\*e2.getMonthlySalary());

}

}

//CO24557 Assignment 2 - problem 2

//creates a saving account and calculates monthly interest

class SavingsAccount

{

private double savingsBalance;

private static double annualInterestRate;

public SavingsAccount(double savingsBalance)

{

this.savingsBalance = savingsBalance;

}

public static void modifyInterestRate(double newInterestRate)

{

annualInterestRate = newInterestRate;

}

public double getSavingsBalance()

{ return savingsBalance; }

public double getAnnualInterestRate()

{ return annualInterestRate; }

public void calculateMonthlyInterest()

{

double monthlyInterest;

monthlyInterest = (annualInterestRate/1200)\*savingsBalance;

//div by 12\*100 to get monthly interest in decimal

savingsBalance += monthlyInterest;

}

}

public class SavingsAccountTester

{

public static void main(String[] args)

{

SavingsAccount saver1 = new SavingsAccount(2000.0);

SavingsAccount saver2 = new SavingsAccount(3000.0);

System.out.println("\n Saver 1 balance in account : "+saver1.getSavingsBalance());

System.out.println(" Saver 2 balance in account : "+saver2.getSavingsBalance());

System.out.println("\n Now applying 4% annual interest rate....");

SavingsAccount.modifyInterestRate(4.0);

saver1.calculateMonthlyInterest();

saver2.calculateMonthlyInterest();

System.out.println("\n Saver 1 balance in account next month : "+saver1.getSavingsBalance());

System.out.println(" Saver 2 balance in account next month : "+saver2.getSavingsBalance());

}

}

//CO24557 Assignment 2 - problem 3

//Book class used to display book information

class Book

{

private String bookName,ISBN,authorName,publisher;

public Book(String bookName, String authorName, String publisher, String ISBN)

{

this.bookName = bookName;

this.ISBN = ISBN;

this.authorName = authorName;

this.publisher = publisher;

}

public void setBookName(String bookName)

{

this.bookName = bookName;

}

public void setISBN(String ISBN)

{

this.ISBN = ISBN;

}

public void setPublisher(String publisher)

{

this.publisher = publisher;

}

public void setAuthorName(String authorName)

{

this.authorName = authorName;

}

public String getBookName() { return bookName; }

public String getAuthorName() { return authorName; }

public String getISBN() { return ISBN; }

public String getPublisher() { return publisher; }

public String getBookInfo()

{

String bookInfo = "\n Book Information: "+bookName+" by "+authorName+", "+publisher+"\n\t\t (ISBN: "+ISBN+")";

return bookInfo;

}

}

public class BookTester

{

public static void main(String[] args)

{

Book b1 = new Book("Software Enginnering","Roger S. Pressman","McGraw Hill publications","12-345-678-9");

Book b2 = new Book("Core Java: Volume 1, Fundamentals","Timothy Budd","Wesley publications","11-222-333-4");

Book b3 = new Book("Analog and Digital Communication Systems","Singh and Sapre","Oxford Press","98-765-432-1");

System.out.println(b1.getBookInfo());

System.out.println(b2.getBookInfo());

System.out.println(b3.getBookInfo());

System.out.println("\n Updating ISBN for book-2 and author name for book-3....\n");

b2.setISBN("12-765-678-1");

b3.setAuthorName("Singh R.P. and Sapre S.D.");

System.out.println("\n Updated! \n"+b1.getBookInfo());

System.out.println(b2.getBookInfo());

System.out.println(b3.getBookInfo());

}

}

//CO24557 Assignment 2 - problem 4

//Adds all the numbers given as command line arguments

public class Add

{

public static void main(String args[])

{

double sum = 0.0;

for(int i=0;i<args.length;i++)

{

sum = sum + Double.parseDouble(args[i]);

}

System.out.println("Sum = "+sum);

}

}

//CO24557 Assignment 2 - problem 5

//student class inherits from person class and displays their information

import java.util.\*;

class Person

{

private String name,address,phoneNumber;

public void setName(String name)

{

this.name = name;

}

public void setAddress(String address)

{

this.address = address;

}

public void setPhoneNumber(String phoneNumber)

{

this.phoneNumber = phoneNumber;

}

public String getName() { return name; }

public String getAddress() { return address; }

public String getPhoneNumber() { return phoneNumber; }

}

class Student extends Person

{

private String rollNumber,branch;

private float marks;

public void setRollNumber(String roll)

{

rollNumber = roll;

}

public void setBranch(String branch)

{

this.branch = branch;

}

public void setMarks(float marks)

{

this.marks = marks;

}

public String getRollNumber() { return rollNumber; }

public String getBranch() { return branch; }

public float getMarks() { return marks; }

}

public class Tester

{

public static void main(String[] args)

{

Student student = new Student();

String temp1;

float temp2;

Scanner stdin = new Scanner(System.in);

System.out.print("Enter the following information about student: \n");

System.out.println("Name: ");

temp1 = stdin.nextLine();

student.setName(temp1);

System.out.println("Address: ");

temp1 = stdin.nextLine();

student.setAddress(temp1);

System.out.println("Phone Number: ");

temp1 = stdin.nextLine();

student.setPhoneNumber(temp1);

System.out.println("Roll Number: ");

temp1 = stdin.nextLine();

student.setRollNumber(temp1);

System.out.println("Branch: ");

temp1 = stdin.nextLine();

student.setBranch(temp1);

System.out.println("Marks: ");

temp2 = stdin.nextFloat();

student.setMarks(temp2);

System.out.println("\nFollowing are details of the student: ");

System.out.println("Name: "+student.getName());

System.out.println("Address: "+student.getAddress());

System.out.println("Phone Number: "+student.getPhoneNumber());

System.out.println("Roll Number: "+student.getRollNumber());

System.out.println("Branch: "+student.getBranch());

System.out.println("Marks: "+student.getMarks());

stdin.close();

}

}

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