Lab Program - 3

Create a class Book which contains four members: name, author, price, num_pages. Include a constructor to set the values for the members. Include methods to set and get the details of the objects. Include a toString( ) method that could display the complete details of the book. Develop a Java program to create n book objects.

CODE:

```
import java.util.*;
class Book {
	String name;
	String author;
	int price;
	int num_pages;
	Book()
	{}
	Book(String name,String author,int price,int num_pages)
	{
		this.name=name;
		this.author=author;
		this.price=price;
		this.num_pages=num_pages;
	}
	void accept()
	{
		Scanner s=new Scanner(System.in);
		System.out.println("Enter the name of the book");
		name=s.next();
		System.out.println("Enter the author of the book");
		author=s.next();
		System.out.println("Enter the price of the book");
		price=s.nextInt();
		System.out.println("Enter the number of pages of the book");
		num_pages=s.nextInt();
	}
	public String toString()
	{
		return ("Name: "+name + "\n" + "Author: "+author + "\n" + "Price: "+price +
"\n" +"Number of pages: "+num_pages );
	}
}
class BookMain {
	public static void main(String ss[])
	{
```

```
        Scanner a=new Scanner(System.in);
        Book b1=new Book("Heights","Anne",299,345);
        System.out.println("Sample input:\n"+b1);
        System.out.println("Enter the number of books");
        int n=a.nextInt();
        Book b[]=new Book[n];
        for(int i=0;i<n;i++)
        {
            b[i]=new Book();
            System.out.println("Enter the details of "+(i+1)+" book");
            b[i].accept();
        }
        for(int i=0;i<n;i++)
        {
            System.out.println("Details of book "+(i+1));
            System.out.println(b[i]);
        }
    }
}
```

OUTPUT:

```
D:\Kusum\III SEMESTER\OOJ2020>java BookMain
Sample input:
Name: Heights
Author: Anne
Price: 299
Number of pages: 345
Enter the number of books
3
Enter the details of 1 book
Enter the name of the book
Rise
Enter the author of the book
William
Enter the price of the book
300
Enter the number of pages of the book
455
Enter the details of 2 book
Enter the name of the book
Star
Enter the author of the book
John
Enter the price of the book
299
Enter the number of pages of the book
588
Enter the details of 3 book
Enter the name of the book
Oceans
Enter the author of the book
Joe
Enter the price of the book
245
Enter the number of pages of the book
366
```

```
Details of book 1
Name: Rise
Author: William
Price: 300
Number of pages: 455
Details of book 2
Name: Star
Author: John
Price: 299
Number of pages: 588
Details of book 3
Name: Oceans
Author: Joe
Price: 245
Number of pages: 366
```

Extra Programs:

1. Write a Java program to create a class Employee with members empid, empname, empnohrs, empbasic, emphra(%), empda(%),empit(%), empgross. Include methods to do the following:

i. Accept all values from the user. Note HRA, DA and IT are given in %

ii. Calculate the gross salary based on the formula

empgross= empbasic + empbasic*emphra + empbasic*empda - empbasic*empit

iii. Consider the overtime amount to be Rs.100 per hour. If empnohrs >200, for everyhour the employee is to be given additional payment Calculate the additional payment and update the gross. If empnohrs<200, reduce Rs.100 per hour and update the gross.

CODE:

```
import java.util.*;
class Employee
{
        String empid;
        String empname;
        double empnohrs;
        double empbasic;
        double emphra;
        double empda;
        double empit;
        double empgross;

        void accept()
        {
                Scanner s=new Scanner(System.in);
                System.out.println("Enter employee details:");
                System.out.println("Enter employee id:");
                empid=s.next();
                System.out.println("Enter employee name:");
                empname=s.next();
                System.out.println("Enter number of hours:");
                empnohrs=s.nextDouble();
                System.out.println("Enter basic salary:");
                empbasic=s.nextDouble();
                System.out.println("Enter hra(%):");
                emphra=s.nextDouble();
                System.out.println("Enter da(%):");
                empda=s.nextDouble();
                System.out.println("Enter it(%):");
```

```
                empit=s.nextDouble();
        }
        double calculate()
        {
                empgross=empbasic+ empbasic*(emphra/100.0)+ empbasic*(empda/100.0)
- empbasic*(empit/100.0);
                if(empnohrs > 200)
                {
                        empgross = empgross + 100*(empnohrs-200);
                }
                else
                {
                        empgross = empgross - 100*(200-empnohrs);
                }
                return empgross;

        }
}
class EmpMain {
        public static void main(String ss[])
        {
                Employee e= new Employee();
                e.accept();
                System.out.println("Gross salary: "+e.calculate());
        }
}
```

OUTPUT:

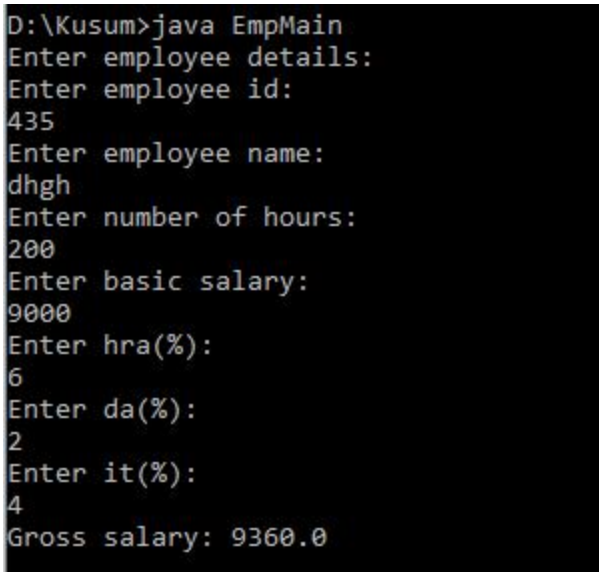
CASE 1:less than 200 hours

```
D:\Kusum>java EmpMain
Enter employee details:
Enter employee id:
1BM19
Enter employee name:
Suma
Enter number of hours:
158
Enter basic salary:
25000
Enter hra(%):
2
Enter da(%):
3
Enter it(%):
4
Gross salary: 21050.0
```

Case 2:more than 200

```
D:\Kusum>java EmpMain
Enter employee details:
Enter employee id:
1BM11
Enter employee name:
Sreya
Enter number of hours:
300
Enter basic salary:
5000
Enter hra(%):
2
Enter da(%):
1
Enter it(%):
3
Gross salary: 15000.0
```

Case 3:equal to 200 hours



2. Create a class Age which has the members – years and months. Collect the age of two people (Choose their names yourself) (create two age objects) and find who is the elder of the two people.

CODE:

```
import java.util.*;
class Age {
	int years;
	int months;
	Age()
	{}
	Age(int years,int months)
	{
		this.years=years;
		this.months=months;
	}
	void accept()
	{
		Scanner s=new Scanner(System.in);
		System.out.println("Enter years:");
		years=s.nextInt();
		System.out.println("Enter months:");
		months=s.nextInt();
	}
}
class AgeMain {
	public static void main(String ss[])
```

```
        {
                Age a=new Age(20,9);
                System.out.println("Sample input:"+a.years+" "+a.months);
                Age a1=new Age();
                System.out.println("Enter age of Ram:");
                a1.accept();
                Age a2=new Age();
                System.out.println("Enter age of Shyam:");
                a2.accept();
                int t1=a1.years*12 + a1.months;
                int t2=a2.years*12 + a2.months;
                if(t1>t2)
                {
                        System.out.println("Ram is elder to Shyam");
                }
                else if (t2>t1)
                {
                        System.out.println("Shyam is elder to Ram");
                }
                else
                {
                        System.out.println("Ram and Shyam are of same age");
                }
        }
}
```

OUTPUT:

Case 1:

```
D:\Kusum\III SEMESTER\OOJ2020>java AgeMain
Sample input:20 9
Enter age of Ram:
Enter years:
23
Enter months:
8
Enter age of Shyam:
Enter years:
23
Enter months:
11
Shyam is elder to Ram
```

Case 2:

```
D:\Kusum\III SEMESTER\OOJ2020>java AgeMain
Sample input:20 9
Enter age of Ram:
Enter years:
22
Enter months:
4
Enter age of Shyam:
Enter years:
21
Enter months:
4
Ram is elder to Shyam
```

Case 3:

```
D:\Kusum\III SEMESTER\OOJ2020>java AgeMain
Sample input:20 9
Enter age of Ram:
Enter years:
20
Enter months:
1
Enter age of Shyam:
Enter years:
20
Enter months:
1
Ram and Shyam are of same age
```