# Day2 Task

**1)**

**1.1**

package Day2;

import java.util.Scanner;

public class EvenNumberUptoN {

    private int n;

    void input(){

        Scanner sc=new Scanner(System.in);

        System.out.println("Enter upto where you want to print Even numbers: ");

        n=sc.nextInt();

    }

    void output(){

        int i;

        System.out.print("The Even Numbers upto "+n+ " are: ");

        for(i=2;i<=n;i+=2){

            System.out.print(i+ " ");

        }

    }

    public static void main(String args[]){

       EvenNumberUptoN even=new EvenNumberUptoN();

       even.input();

       even.output();

    }

}

Enter upto where you want to print Even numbers:

22

The Even Numbers upto 22 are: 2 4 6 8 10 12 14 16 18 20 22

**1.2)**

package Day2;

class Rectangle{

    public double length;

    public double breadth;

    void Rectangle(double length, double breadth){

        this.length=length;

        this.breadth= breadth;

    }

    public double getLength() {

        return length;

    }

    public void setLength(double length) {

        this.length = length;

    }

    public double getBreadth() {

        return breadth;

    }

    public void setBreadth(double breadth) {

        this.breadth = breadth;

    }

    public double RectangleArea(){

        return length\* breadth;

    }

}

public class TestRectangle {

    public static void main(String [] args){

        Rectangle rect=new Rectangle();

        rect.setLength(12.4);

        rect.setBreadth(6.2);

        double area= rect.RectangleArea();

        System.out.println("The Rectangle area is: "+area);

    }

}

The Rectangle area is: 76.88000000000001

**1.3)**

package Day2;

import java.util.Scanner;

class Book{

    public String book\_title;

    public double book\_price;

    public Book(){

        String book\_title="";

        double book\_price=0;

    }

    public Book(String book\_title, double book\_price){

        this.book\_title=book\_title;

        this.book\_price=book\_price;

    }

    public String getBook\_title() {

        return book\_title;

    }

    public void setBook\_title(String book\_title) {

        this.book\_title = book\_title;

    }

    public double getBook\_price() {

        return book\_price;

    }

    public void setBook\_price(double book\_price) {

        this.book\_price = book\_price;

    }

    void display(){

        System.out.println("The Result is :"+book\_title+"\nThe price is: "+book\_price);

    }

}

public class BookShop{

    public static Book[] createBooks(int n){

        Scanner sc=new Scanner(System.in);

        Book[] books=new Book[n];

        for(int i=0;i<n;i++){

            System.out.println(" Enter Details of :" +i+" book:");

            Book book=new Book();

            System.out.println("Enter Book Details: ");

            String title=sc.nextLine();

            book.setBook\_title(title);

            System.out.println("Enter Book Price: ");

            double price=sc.nextDouble();

            sc.nextLine();

            book.setBook\_price(price);

            books[i]=book;

        }

        return books;

    }

    public static void showBooks(Book[] books){

        System.out.println("Book Title                 Price");

        System.out.println("--------------------------------------");

        for(Book book: books){

            System.out.printf("%-25s Rs %.2f\n",book.getBook\_title(),book.getBook\_price());

        }

    }

    public static void main(String[] args){

        Scanner sc=new Scanner(System.in);

        System.out.println("Enter the number of books to create: ");

        int n=sc.nextInt();

        sc.nextLine();

        Book[] books=createBooks(n);

        showBooks(books);

        sc.close();

    }

}

Enter the number of books to create: 2

Enter details for book 1:

Enter Book Title: Effective Java

Enter Book Price: 450.00

Enter details for book 2:

Enter Book Title: Clean Code

Enter Book Price: 550.75

Book Title Price

--------------------------------------

Effective Java Rs 450.00

Clean Code Rs 550.75

**1.4)**

package Day2;

class Rectangle1{

    private float length;

    private float width;

    public Rectangle1(){

        this.length=1;

        this.width=1;

    }

    public Rectangle1(float length, float width){

        this.length=length;

        this.width=width;

    }

    public float getLength() {

        return length;

    }

    public void setLength(float length) {

        this.length = length;

    }

    public float getWidth() {

        return width;

    }

    public void setWidth(float width) {

        this.width = width;

    }

    public float calculateArea(){

        return length\*width;

    }

    public float calculatePerimeter(){

        return 2\*(length+width);

    }

}

public class Rectangle123 {

    public static void main(String[] args){

        Rectangle1 rect1=new Rectangle1();

        System.out.println("Rectangle  with default Dimensions: ");

        System.out.println("Length: " + rect1.getLength());

        System.out.println("Width: " + rect1.getWidth());

        System.out.println("Area: " + rect1.calculateArea());

        System.out.println("Perimeter: " + rect1.calculatePerimeter());

        System.out.println("\n");

        Rectangle1 rect2 = new Rectangle1(5, 10);

        System.out.println("Rectangle with custom dimensions:");

        System.out.println("Length: " + rect2.getLength());

        System.out.println("Width: " + rect2.getWidth());

        System.out.println("Area: " + rect2.calculateArea());

        System.out.println("Perimeter: " + rect2.calculatePerimeter());

    }

}

Rectangle with default Dimensions:

Length: 1.0

Width: 1.0

Area: 1.0

Perimeter: 4.0

Rectangle with custom dimensions:

Length: 5.0

Width: 10.0

Area: 50.0

Perimeter: 30.0

**1.5)**

**class** Date1 {

**private** **int** day;

**private** **int** month;

**private** **int** year;

**public** Date1() {

**this**.day = 1;

**this**.month = 1;

**this**.year = 2000;

}

**public** Date1(**int** day, **int** month, **int** year) {

**if** (isValidDate(day, month, year)) {

**this**.day = day;

**this**.month = month;

**this**.year = year;

} **else** {

System.***out***.println("Invalid date. Setting to default values.");

**this**.day = 1;

**this**.month = 1;

**this**.year = 2000;

}

}

**private** **boolean** isValidDate(**int** day, **int** month, **int** year) {

**if** (month < 1 || month > 12) **return** **false**;

**if** (day < 1 || day > daysInMonth(month, year)) **return** **false**;

**return** **true**;

}

**private** **int** daysInMonth(**int** month, **int** year) {

**switch** (month) {

**case** 1: **case** 3: **case** 5: **case** 7: **case** 8: **case** 10: **case** 12: **return** 31;

**case** 4: **case** 6: **case** 9: **case** 11: **return** 30;

**case** 2: **return** (isLeapYear(year)) ? 29 : 28;

**default**: **return** 0;

}

}

**private** **boolean** isLeapYear(**int** year) {

**return** (year % 4 == 0 && (year % 100 != 0 || year % 400 == 0));

}

**public** **void** addDays(**int** daysToAdd) {

**while** (daysToAdd > 0) {

**if** (day + daysToAdd <= daysInMonth(month, year)) {

day += daysToAdd;

**break**;

} **else** {

daysToAdd -= (daysInMonth(month, year) - day + 1);

day = 1;

**if** (month == 12) {

month = 1;

year++;

} **else** {

month++;

}

}

}

}

**public** **void** display() {

System.***out***.println(day + "/" + month + "/" + year);

}

}

**class** Employee1 {

**private** **int** employeeNumber;

String employeeName;

Date1 joiningDate;

// Constructor to initialize Employee1

**public** Employee1(**int** employeeNumber, String employeeName, Date1 joiningDate) {

**this**.employeeNumber = employeeNumber;

**this**.employeeName = employeeName;

**this**.joiningDate = joiningDate;

}

// Method to display employee information

**public** **void** displayEmployeeInfo() {

System.***out***.println("Employee Number: " + employeeNumber);

System.***out***.println("Employee Name: " + employeeName);

System.***out***.print("Joining Date: ");

joiningDate.display();

System.***out***.println();

}

}

**package** org.day2assignment;

**public** **class** Main3 {

**public** **static** **void** main(String[] args) {

Employee1 emp1 = **new** Employee1(101, "John Doe", **new** Date1(8,12,2002));

Employee1 emp2 = **new** Employee1(102, "Jane Smith", **new** Date1(6,5,2008));

Employee1 emp3 = **new** Employee1(103, "Robert Brown", **new** Date1(18,9,2001));

Employee1 emp4 = **new** Employee1(104, "Emily Davis", **new** Date1(25,2,2010));

Employee1 emp5 = **new** Employee1(105, "David Wilson", **new** Date1(30, 10, 2021));

emp1.displayEmployeeInfo();

emp2.displayEmployeeInfo();

emp3.displayEmployeeInfo();

emp4.displayEmployeeInfo();

emp5.displayEmployeeInfo();

emp1.joiningDate.addDays(50);

System.***out***.println("Updated Joining Date for " + emp1.employeeName + ": ");

emp1.joiningDate.display();

}

}

**Output:**

Employee Number: 101

Employee Name: John Doe

Joining Date: 8/12/2002

Employee Number: 102

Employee Name: Jane Smith

Joining Date: 6/5/2008

Employee Number: 103

Employee Name: Robert Brown

Joining Date: 18/9/2001

Employee Number: 104

Employee Name: Emily Davis

Joining Date: 25/2/2010

Employee Number: 105

Employee Name: David Wilson

Joining Date: 30/10/2021

Updated Joining Date for John Doe:

27/1/2003

**2)**

package Day2;

class Vehicle{

    private String manufacturer;

    private String name;

    private int year;

    public String getManufacturer() {

        return manufacturer;

    }

    public void setManufacturer(String manufacturer) {

        this.manufacturer = manufacturer;

    }

    public String getName() {

        return name;

    }

    public void setName(String name) {

        this.name = name;

    }

    public int getYear() {

        return year;

    }

    public void setYear(int year) {

        this.year = year;

    }

    public void displayDetails(){

        System.out.println("Manufacturer : "+getManufacturer()+ "\nName: "+getName()+ "\nYear: "+year);

    }

}

class Car extends Vehicle{

    private int seatingCapacity;

    public int getSeatingCapacity() {

        return seatingCapacity;

    }

    public void setSeatingCapacity(int seatingCapacity) {

        this.seatingCapacity = seatingCapacity;

    }

    public void displayDetails(){

        super.displayDetails();

        System.out.println("The Seating Capacity is: "+seatingCapacity);

    }

    public void accelerate(){

        System.out.println("The Car Started....!!!!!");

    }

    public void brake(){

        System.out.println("The Car Stopped....!!!!!");

    }

}

class Motorcycle extends Vehicle{

    private double engineCapacity;

    public double getEngineCapacity() {

        return engineCapacity;

    }

    public void setEngineCapacity(double engineCapacity) {

        this.engineCapacity = engineCapacity;

    }

    public void displayDetails(){

        super.displayDetails();

        System.out.println("The Engine Capacity is: "+engineCapacity);

    }

    public void startEngine(){

        System.out.println("The Bike is Starting....!!!");

    }

    public void stopEngine(){

        System.out.println("The Engine has Stopped");

    }

}

class Truck extends Vehicle{

    private double cargoCapacity;

    public double getCargoCapacity() {

        return cargoCapacity;

    }

    public void setCargoCapacity(double cargoCapacity) {

        this.cargoCapacity = cargoCapacity;

    }

    public void displayDetails(){

        super.displayDetails();

        System.out.println("The Cargo Capacity is: "+ cargoCapacity);

    }

    public void loadCargo(){

        System.out.println("The Truck is Loading....!!!!");

    }

    public void unloadCargo(){

      System.out.println("The Truck Unloaded.....!!!!");

    }

}

public class VehicleInfo{

    public static void main(String[] args){

        Car car= new Car();

        Motorcycle mc=new Motorcycle();

        Truck truck=new Truck();

        car.setManufacturer("TATA Motors");

        car.setName("Indica");

        car.setYear(1998);

        car.setSeatingCapacity(4);

        car.displayDetails();

        car.accelerate();

        car.brake();

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

        mc.setManufacturer("Honda");

        mc.setName("Shine");

        mc.setYear(2006);

        mc.setEngineCapacity(125);

        mc.displayDetails();

        mc.startEngine();

        mc.stopEngine();

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

        truck.setManufacturer("Ashok Leyland");

        truck.setName("Eicher");

        truck.setYear(2000);

        truck.setCargoCapacity(106450);

        truck.displayDetails();

        truck.loadCargo();

        truck.unloadCargo();

    }

}

Manufacturer : TATA Motors

Name: Indica

Year: 1998

The Seating Capacity is: 4

The Car Started....!!!!!

The Car Stopped....!!!!!

................

Manufacturer : Honda

Name: Shine

Year: 2006

The Engine Capacity is: 125.0

The Bike is Starting....!!!

The Engine has Stopped

.................

Manufacturer : Ashok Leyland

Name: Eicher

Year: 2000

The Cargo Capacity is: 106450.0

The Truck is Loading....!!!!

The Truck Unloaded.....!!!!

**3)**

package Day2;

abstract class Shape{

    abstract double calculateArea();

}

class Circle extends Shape{

    public double radius;

    public final double PI=3.14;

    public Circle(double radius){

        this.radius=radius;

    }

    double calculateArea(){

        return PI\*radius\*radius;

    }

}

class Rectangle extends Shape{

    public double length;

    public double breadth;

    public Rectangle(double length, double breadth){

        this.length=length;

        this.breadth=breadth;

    }

    double calculateArea(){

        return length\*breadth;

    }

}

class Triangle extends Shape{

    public double base;

    public double height;

    public Triangle(double base, double height){

        this.base=base;

        this.height=height;

    }

    double calculateArea(){

        return (0.5)\*base\*height;

    }

}

public class AreaofShapes {

    public static void main (String args[]){

        Circle c= new Circle(12);

        Rectangle r=new Rectangle(11.2, 10.5);

        Triangle t=new Triangle(6.82, 13.3);

        System.out.println("The Area of circle is: "+ c.calculateArea());

        System.out.println("The Area of Rectangle is: "+ r.calculateArea());

        System.out.println("The Area of Triangle is: "+ t.calculateArea());

    }

}

The Area of circle is: 452.15999999999997

The Area of Rectangle is: 117.6

The Area of Triangle is: 45.353

**4)** package Day2;

class Employee{

    private String name;

    private int points;

    public Employee(String name, int points){

        this.name=name;

        this.points=points;

    }

    public String getName() {

        return name;

    }

    public  void setName(String name) {

        this.name = name;

    }

    public int getPoints() {

        return points;

    }

    public  void setPoints(int points) {

        this.points = points;

    }

    public  void displayDetails(){

        System.out.println(name + " has performed with a Rating "+ points);

    }

}

class PerformanceRating{

    final static int OUTSTANDING=5;

    final static int GOOD=4;

    final static int AVERAGE=3;

    final static int POOR=2;

    public static int CalculatePerformance(Employee e){

       int points=e.getPoints();

        if(points>=80 && points<=100)

            return OUTSTANDING;

        if(points>=60    && points<=79)

            return AVERAGE;

        if(points>=50 && points<=59)

            return GOOD;

        else

                return POOR;

       }

    }

public class PerfomanceCalculator {

    private static int employeesCount=0;

   public static void main(String args[]){

        Employee[] emp=new Employee[]{

            new Employee("Suhail", 80),

            new Employee("Pavan", 76),

            new Employee("Farooq", 32)

        };

        employeesCount=emp.length;

        System.out.println("Total Number of Employees :" +employeesCount + " and Their ratings are: ");

        for(Employee e:emp){

            System.out.println(e.getName()+ " has performed with a rating "+ PerformanceRating.CalculatePerformance(e));

            System.out.println("=============================================================================");

        }

   }

}

Total Number of Employees :3 and Their ratings are:

Suhail has performed with a rating 5

=============================================================================

Pavan has performed with a rating 3

=============================================================================

Farooq has performed with a rating 2

=============================================================================