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FA24-BSE-143

SUBMITTED TO:

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```java
import java.util.Scanner;

public class Book {

    private int bookId;
    private int pages;
    private double price;


    public void get() {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter Book ID: ");
        bookId = input.nextInt();

        System.out.print("Enter number of pages: ");
        pages = input.nextInt();

        System.out.print("Enter price: ");
        price = input.nextDouble();
    }


    public void show() {
        System.out.println("Book ID: " + bookId);
        System.out.println("Pages: " + pages);
        System.out.println("Price: $" + price);
    }

    public void set(int id, int pageCount, double cost) {
        bookId = id;
        pages = pageCount;
        price = cost;
    }


    public double getPrice() {
        return price;
    }


    public static void main(String[] args) {
        Book myBook = new Book();


        myBook.get();


        myBook.show();


        myBook.set(2025, 350, 29.99);


        System.out.println("\nAfter using set() method:");
        myBook.show();


        System.out.println("\nPrice of the book is: $" + myBook.getPrice());
    }
}
```

```
Enter Book ID: 101
Enter number of pages: 431
Enter price: 499.99
Book ID: 101
Pages: 431
Price: $499.99

After using set() method:
Book ID: 2025
Pages: 350
Price: $29.99

Price of the book is: $29.99
```

```java
public class Building {


    public int floors;
    public double area;
    public int occupants;


    public void areaPerPerson() {
        if (occupants != 0) {
            double areaPerPerson = area / occupants;
            System.out.println("Area per person: " + areaPerPerson + " sq.
units");} else {
            System.out.println("No occupants in the building.");
        }
    }


    public static void main(String[] args) {

        Building house = new Building();
        house.floors = 2;
        house.area = 120.0;
        house.occupants = 4;

        System.out.println("House:");
        house.areaPerPerson();


        Building office = new Building();
        office.floors = 5;
        office.area = 1000.0;
        office.occupants = 50;

        System.out.println("\nOffice:");
        office.areaPerPerson();
    }
}
```

```
House:
Area per person: 30.0 sq. units

Office:
Area per person: 20.0 sq. units
```

```java
import java.util.Scanner;

public class Result {


    private int rollNo;
    private String name;
    private int[] marks = new int[3];


    public void input() {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter Roll Number: ");
        rollNo = input.nextInt();
        input.nextLine();

        System.out.print("Enter Name: ");
        name = input.nextLine();


        for (int i = 0; i < 3; i++) {
            System.out.print("Enter marks for subject " + (i + 1) + ": ");
            marks[i] = input.nextInt();
        }
    }


    public void show() {
        System.out.println("\n--- Student Details ---");
        System.out.println("Roll No: " + rollNo);
        System.out.println("Name: " + name);

        for (int i = 0; i < 3; i++) {
            System.out.println("Marks in subject " + (i + 1) + ": " + marks[i]);
        }

        System.out.println("Total Marks: " + total());
        System.out.println("Average Marks: " + avg());
    }


    public int total() {
        int sum = 0;
        for (int mark : marks) {
            sum += mark;
        }
        return sum;
    }


    public double avg() {
        return total() / 3.0;
    }


    public static void main(String[] args) {
        Result student = new Result();
        student.input();
        student.show();
    }
}
```

```
Enter Roll Number: 101
Enter Name: ahmed
Enter marks for subject 1: 87
Enter marks for subject 2: 77
Enter marks for subject 3: 69

--- Student Details ---
Roll No: 101
Name: ahmed
Marks in subject 1: 87
Marks in subject 2: 77
Marks in subject 3: 69
Total Marks: 233
Average Marks: 77.66666666666667
```

```java
public class Rectangle {


    private double length = 1.0;
    private double width = 1.0;


    public void setLength(double len) {
        if (len > 0.0 && len < 20.0) {
            length = len;
        } else {
            System.out.println("Invalid length. Must be > 0.0 and < 20.0");
        }
    }

    public void setWidth(double wid) {
        if (wid > 0.0 && wid < 20.0) {
            width = wid;
        } else {
            System.out.println("Invalid width. Must be > 0.0 and < 20.0");
        }
    }


    public double getLength() {
        return length;
    }

    public double getWidth() {
        return width;
    }


    public double area() {
        return length * width;
    }


    public double perimeter() {
        return 2 * (length + width);
    }


    public static void main(String[] args) {
        Rectangle rect = new Rectangle();


        rect.setLength(10.5);
        rect.setWidth(5.2);

        System.out.println("Length: " + rect.getLength());
        System.out.println("Width: " + rect.getWidth());
        System.out.println("Area: " + rect.area());
        System.out.println("Perimeter: " + rect.perimeter());


        rect.setLength(25.0);
        rect.setWidth(-3.0);
    }
}
```

```
Length: 10.5
Width: 5.2
Area: 54.6
Perimeter: 31.4
Invalid length. Must be > 0.0 and < 20.0
Invalid width. Must be > 0.0 and < 20.0
```