**CLASS AND OBJECT**

**Exercise:**

package SDP;

class Student {

int id;

public String name;

int marks;

char residential;

int year;

void setStudentID(int ID) {

id = ID;

}

public int getStudentID() {

return id;

}

public void setStudentName(String Name) {

name = Name;

}

public String getStudentName() {

return name;

}

public void setStudentMarks(int Marks) {

marks = Marks;

}

public int getStudentMarks() {

return marks;

}

public void setStudentResidential(char Residential) {

residential = Residential;

}

public char getStudentResidential() {

return residential;

}

public void setStudentYear(int Year) {

year = Year;

}

public int getStudentYear() {

return year;

}

}

public class StudentTester{

public static void main(String[] args){

Student s1 = new Student();

s1.setStudentID(1001);

s1.setStudentMarks(80);

s1.setStudentName("Jacob");

s1.setStudentResidential('H');

s1.setStudentYear(3);

System.***out***.println("Student Id: "+s1.getStudentID());

System.***out***.println("Student Marks: "+s1.getStudentMarks());

System.***out***.println("Student Name: "+s1.getStudentName());

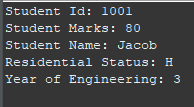
System.***out***.println("Residential Status: "+s1.getStudentResidential());

System.***out***.println("Year of Engineering: "+s1.getStudentYear());

}

}

Output:



**DATA TYPES**

**Exercise 1:**

**public class Rectangle {**

**int length;**

**int breadth;**

**// Setter methods**

**public void setLength(int len) {**

**this.length = len;**

**}**

**public void setBreadth(int bread) {**

**this.breadth = bread;**

**}**

**public int getLength() {**

**return length;**

**}**

**public int getBreadth() {**

**return breadth;**

**}**

**// Additional methods for the Rectangle class can be added as needed**

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

**// Create an instance of the Rectangle class**

**Rectangle myRectangle = new Rectangle();**

**// Set the length and breadth using the setter methods**

**myRectangle.setLength(10);**

**myRectangle.setBreadth(5);**

**// Display the rectangle's dimensions**

**System.*out*.println("Rectangle Dimensions:");**

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

**System.*out*.println("Breadth: " + myRectangle.getBreadth());**

**}**

Output:



**Exercise 2:**

public class Rectangle {

private int length;

private int breadth;

// Constructors

public Rectangle(int length, int breadth) {

this.length = length;

this.breadth = breadth;

}

// Getter and Setter methods (same as before)

// Method to calculate perimeter

public void calculatePerimeter() {

int perimeter = 2 \* (length + breadth);

System.***out***.println("Perimeter of the rectangle: " + perimeter);

}

//public class PerimeterCalculator {

public static void main(String[] args) {

// Create an instance of the Rectangle class

Rectangle myRectangle = new Rectangle(5, 8);

// Invoke the calculatePerimeter method

myRectangle.calculatePerimeter();

}

}

Output:



**OPERATORS**

**Exercise:**

**TYPE CASTING**

**Exercise:**

**class RetailStore {**

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

**// Input values**

**int billId = 1001;**

**int customerId = 101;**

**int discount = 5; // Percentage**

**double billAmount = 150.0;**

**// Calculate discounted bill amount**

**double discountedBillAmount = *calculateDiscountedBillAmount*(billAmount, discount);**

**// Print the results**

**System.*out*.println("Bill ID: " + billId);**

**System.*out*.println("Customer ID: " + customerId);**

**System.*out*.println("Discounted Bill Amount: $" + *formatDecimal*(discountedBillAmount));**

**}**

**// Method to calculate discounted bill amount**

**private static double calculateDiscountedBillAmount(double billAmount, int discount) {**

**return billAmount - (billAmount \* (discount / 100.0));**

**}**

**// Method to format decimal values for display**

**private static String formatDecimal(double value) {**

**return String.*format*("%.2f", value);**

**}**

**}**

Output:

