Java Homework 7

1. On the source folder create 2 packages (package1 and package2)

* In package1 create two classes Access1 and Access2.
* In package2 create one class Access3.
* In class Access1 create:

1. Variable that can have access only in classes of package1 but not in class of package2.
2. Variable that can have access in all classes.
3. Create a variable that can have access only in class Access1.

* In class Access2 create an object of Access1 and print the variable value.
* In class Access3 create an object of Access1 and print the variable value.
  + Right-click on your source folder (usually named src or src/main) and select “New” > “Package.”
  + Name the first package as package1 and the second one as package2.
* **Create Classes**:
  + Inside package1, create two classes: Access1 and Access2.
  + Inside package2, create a class named Access3.
* **Access1 Class**:
  + In Access1, let’s define the requested variables:
    - A variable that can have access only within classes of package1 (let’s call it restrictedVar).
    - A variable that can have access in all classes (let’s call it publicVar).
    - A variable that can have access only within Access1 (let’s call it privateVar).

// Access1.java (inside package1)

package package1;

public class Access1 {

private int restrictedVar; // Only accessible within package1

public int publicVar; // Accessible in all classes

private int privateVar; // Only accessible within Access1

// Constructor to initialize variables

public Access1(int restrictedVar, int publicVar, int privateVar) {

this.restrictedVar = restrictedVar;

this.publicVar = publicVar;

this.privateVar = privateVar;

}

// Getter for restrictedVar

public int getRestrictedVar() {

return restrictedVar;

}

// Getter for privateVar

private int getPrivateVar() {

return privateVar;

}

}

AI-generated code. Review and use carefully. [More info on FAQ](https://www.bing.com/new#faq).

1. **Access2 Class**:
   * In Access2, create an object of Access1 and print the values of restrictedVar and publicVar.

**Java**

// Access2.java (inside package1)

package package1;

public class Access2 {

public static void main(String[] args) {

Access1 access1Obj = new Access1(42, 100, 77);

System.out.println("restrictedVar in Access2: " + access1Obj.getRestrictedVar());

System.out.println("publicVar in Access2: " + access1Obj.publicVar);

}

}

1. Create a class called Calculator.

* Inside the class create 4 methods to perform certain actions:

addMethod (summation of two numbers)

subMethod (subtraction of two numbers)

mulMethod (multiplication of two numbers)

divMethod (division of two numbers)

* Firts two methods, addMethod and subMethod, should be created to not have access by an object of the class.
* Other methods, should be created to have access by an object of the class. (control access level by using correct access modifier)
* Create other class called MainCalculator and create main method.

Under the main method invoke 4 methods created in class calculator.

Print result of each method.

1. **Create the**Calculator**class**:

**Java**

package com.example; // Replace with your package name

public class Calculator {

// Private methods (addMethod and subMethod)

private static int addMethod(int a, int b) {

return a + b;

}

private static int subMethod(int a, int b) {

return a - b;

}

// Public methods (mulMethod and divMethod)

public int mulMethod(int a, int b) {

return a \* b;

}

public double divMethod(double a, double b) {

if (b != 0) {

return a / b;

} else {

throw new ArithmeticException("Cannot divide by zero!");

}

}

}

AI-generated code. Review and use carefully. [More info on FAQ](https://www.bing.com/new#faq).

1. **Create the**MainCalculator**class**:

**Java**

package com.example; // Replace with your package name

public class MainCalculator {

public static void main(String[] args) {

// Create an instance of Calculator

Calculator calculator = new Calculator();

// Invoke methods and print results

int num1 = 10;

int num2 = 5;

System.out.println("Sum: " + calculator.addMethod(num1, num2));

System.out.println("Difference: " + calculator.subMethod(num1, num2));

System.out.println("Product: " + calculator.mulMethod(num1, num2));

try {

System.out.println("Quotient: " + calculator.divMethod(num1, num2));

} catch (ArithmeticException e) {

System.out.println("Error: " + e.getMessage());

}

}

}

AI-generated code. Review and use carefully. [More info on FAQ](https://www.bing.com/new#faq).

1. **Compile and run**:
   * Save the above code in separate files (Calculator.java and MainCalculator.java).
   * Compile both files using javac Calculator.java MainCalculator.java.
   * Run the MainCalculator class using java MainCalculator.
2. Create a class call Shirt.

* Create 2 attributes in the class Shirt:

Create String variable with a name color.

Create another char variable with a name size.

* Create a constructor that will have all 2 attributes as a parameter.
* Create other main class. In the main class, under the main method initialize an object of class Shirt (use created constructor).

Print out, color “Black” and size ‘M’ of shirt.

Certainly! Let’s create the Shirt class in Java. Here’s an example of how you can implement it:

**Java**

// Shirt class

public class Shirt {

private String color;

private char size;

// Constructor with parameters for color and size

public Shirt(String color, char size) {

this.color = color;

this.size = size;

}

// Getters (optional, but good practice)

public String getColor() {

return color;

}

public char getSize() {

return size;

}

}

// Main class

public class Main {

public static void main(String[] args) {

// Initialize a Shirt object with color "Black" and size 'M'

Shirt myShirt = new Shirt("Black", 'M');

// Print out the color and size of the shirt

System.out.println("Shirt color: " + myShirt.getColor());

System.out.println("Shirt size: " + myShirt.getSize());

}

}