Variables

1. Swap two numbers using a temporary variable

public class SwapWithTemp {

public static void main(String[] args) {

int a = 10, b = 20;

int temp = a;

a = b;

b = temp;

System.out.println("a = " + a + ", b = " + b);

}

}

2. Swap two numbers without using a temporary variable

public class SwapWithoutTemp {

public static void main(String[] args) {

int a = 5, b = 7;

a = a + b;

b = a - b;

a = a - b;

System.out.println("a = " + a + ", b = " + b);

}

}

3. Demonstrate variable shadowing within a class and method

public class VariableShadowing {

int number = 100;

public void display() {

int number = 50;

System.out.println("Local: " + number);

System.out.println("Instance: " + this.number);

}

public static void main(String[] args) {

new VariableShadowing().display();

}

}

4. Declare a constant and use it in calculations

public class ConstantUsage {

public static final double PI = 3.14159;

public static void main(String[] args) {

}

double radius = 5.0;

double area = PI \* radius \* radius;

System.out.println("Area = " + area);

}

5. Create a class with instance, static, and local variables and demonstrate

scope

public class ScopeDemo {

int instanceVar = 10;

static int staticVar = 20;

public void show() {

int localVar = 30;

System.out.println("Instance: " + instanceVar);

System.out.println("Static: " + staticVar);

System.out.println("Local: " + localVar);

}

public static void main(String[] args) {

ScopeDemo obj1 = new ScopeDemo();

obj1.instanceVar = 100;

ScopeDemo obj2 = new ScopeDemo();

obj2.instanceVar = 200;

ScopeDemo.staticVar = 300;

obj1.show();

obj2.show();

}

}