***Java Assignment Solutions***

1. **Write a program that accepts the marks of 5 subjects and finds the sum and percentage marks obtained by the student.**

Program:

// 1. Write a program that accepts the marks of 5 subjects and finds the sum and percentage marks obtained by the student.

import java.util.Scanner;

public class SumAndPercent {

    public static void main(String[] args) {

        // Initialize Scanner to take input from the user

        Scanner scanner = new Scanner(System.in);

        int sum = 0;

        // Input marks for 5 subjects

        System.out.println("Enter marks for 5 subjects:");

        for (int i = 1; i <= 5; i++) {

            System.out.print("Subject " + i + ": ");

            sum += scanner.nextInt(); //Calculating Sum

        }

        // Calculating percentage

        double percentage = (sum / 500.0) \* 100;

        // Printing results

        System.out.println("Total Marks: " + sum);

        System.out.println("Percentage: " + percentage + "%");

        scanner.close(); // To avoid resource leaks

    }

}

1. **Write a program that calculates the Simple Interest and Compound Interest. The Principal, Amount, Rate of Interest and Time are entered through the keyboard.**

Program:

//2. Write a program that calculates the Simple Interest and Compound Interest.

// The Principal, Amount, Rate of Interest and Time are entered through the keyboard.

import java.util.Scanner;

public class InterestCalculator {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Input principal, rate, and time

        System.out.println("Enter Principal amount: ");

        double principal = scanner.nextDouble();

        System.out.println("Enter Rate of Interest: ");

        double rate = scanner.nextDouble();

        System.out.println("Enter Time (in years): ");

        double time = scanner.nextDouble();

        // Calculating Simple Interest

        double simpleInterest = (principal \* rate \* time) / 100;

        // Calculating Compound Interest

        double compoundInterest = principal \* Math.pow((1 + rate / 100), time) - principal;

        // Printing results

        System.out.printf("Simple Interest: %.2f%n", simpleInterest);

        System.out.printf("Compound Interest: %.2f%n", compoundInterest);

        scanner.close(); // To avoid resource leaks

    }

}

1. **Write a program to calculate the area and circumference of a circle.**

Program:

//3. Write a program to calculate the area and circumference of a circle.

import java.util.Scanner;

public class Circle {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Input radius

        System.out.println("Enter radius of the circle: ");

        double radius = scanner.nextDouble();

        // Calculate area and circumference

        double area = Math.PI \* radius \* radius;

        double circumference = 2 \* Math.PI \* radius;

        // Print results

        System.out.printf("Area: %.2f%n", area);

        System.out.printf("Circumference: %.2f%n", circumference);

        scanner.close();

    }

}

1. **Write a program that accepts the temperature in Centigrade and converts into Fahrenheit using the formula C/5= (F- 32)/9.**

Program:

//4. Write a program that accepts the temperature in Centigrade and converts into Fahrenheit

// using the formula C/5= (F- 32)/9.

import java.util.Scanner;

public class TemperatureConversion {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Input temperature in Centigrade

        System.out.println("Enter temperature in Centigrade: ");

        double centigrade = scanner.nextDouble();

        // Convert to Fahrenheit

        double fahrenheit = (centigrade \* 9 / 5) + 32;

        // Printing result

        System.out.printf("Temperature in Fahrenheit: %.2f%n", fahrenheit);

        scanner.close();

    }

}

1. **Write a program that swaps a programs value of two variables using a third variable.**

Program:

// Source code is decompiled from a .class file using FernFlower decompiler.

import java.util.Scanner;

public class SwapVariables {

   public SwapVariables() {

   }

   public static void main(String[] var0) {

      Scanner var1 = new Scanner(System.in);

      System.out.println("Enter first variable: ");

      int var2 = var1.nextInt();

      System.out.println("Enter second variable: ");

      int var3 = var1.nextInt();

      System.out.println("After swapping: ");

      System.out.println("First variable: " + var3);

      System.out.println("Second variable: " + var2);

      var1.close();

   }

}

1. **Write a program that checks whether the two numbers entered by the user are equal or not.**

Program:

//6. Write a program that checks whether the two numbers entered by the user are equal or not.

import java.util.Scanner;

public class EqualityCheck {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Input two numbers

        System.out.println("Enter first number: ");

        int num1 = scanner.nextInt();

        System.out.println("Enter second number: ");

        int num2 = scanner.nextInt();

        // Checking equality

        if (num1 == num2) {

            System.out.println("Numbers are equal.");

        } else {

            System.out.println("Numbers are not equal.");

        }

        scanner.close();

    }

}

1. **Write a program to find the greatest of three numbers.**

Program:

//7. Write a program to find the greatest of three numbers.

import java.util.Scanner;

public class LargestNumber {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Input three numbers

        System.out.println("Enter first number: ");

        int num1 = scanner.nextInt();

        System.out.println("Enter second number: ");

        int num2 = scanner.nextInt();

        System.out.println("Enter third number: ");

        int num3 = scanner.nextInt();

        // Find the greatest number

        int greatest = Math.max(num1, Math.max(num2, num3));

        // Print result

        System.out.println("The greatest number is: " + greatest);

        scanner.close();

    }

}

1. **Write a program that finds whether a given number is even or odd.**

Program:

//8. Write a program that finds whether a given number is even or odd.

import java.util.Scanner;

public class OddOrEven {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Input a number

        System.out.println("Enter a number: ");

        int num = scanner.nextInt();

        // Check even or odd

        if (num % 2 == 0) {

            System.out.println("The number is even."); //if the number is divisible by 2 with no remainder

        } else {

            System.out.println("The number is odd.");

        }

        scanner.close();

    }

}

1. **Write a program that tells whether a given year is a leap year or not.**

Program:

//9. Write a program that tells whether a given year is a leap year or not.

import java.util.Scanner;

public class LeapYear {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Input a year

        System.out.println("Enter a year: ");

        int year = scanner.nextInt();

        // Check leap year

        // A year is a leap year if:

        // It is divisible by 4, but not divisible by 100 unless it is also divisible by 400.

        if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {

            System.out.println("The year is a leap year.");

        } else {

            System.out.println("The year is not a leap year."); //If conditions fail, not a leap year

        }

        scanner.close();

    }

}

1. **Write a program that accepts marks of five subjects and finds percentage and prints grades according to the following criteria:** 
   * **Between 90-100% ------ Print ‘A’**
   * **Shape80-90% ------ Print ‘B’**
   * **Shape60-80% ------ Print ‘C’**
   * **Below 60% ------ Print ‘D’**

Program:

//10. Write a program that accepts marks of five subjects and finds percentage and prints grades according to the following criteria:

//Between 90-100%   ------ Print ‘A’

//Between 80-90%    ------ Print ‘B’

//Between 60-80%    ------ Print ‘C’

//Below   60%       ------ Print ‘D’

import java.util.Scanner;

public class GradeCalculator {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        // Input marks for 5 subjects

        System.out.println("Enter marks for 5 subjects:");

        int total\_marks = 0;

        for (int i = 1; i <= 5; i++) {

            System.out.print("Subject " + i + ": ");

            total\_marks += scanner.nextInt(); //Calculating Total Marks

        }

        // Calculate percentage

        double percentage = (total\_marks / 500.0) \* 100;

        // Determining grade

        char grade;

        if (percentage >= 90) {

            grade = 'A';

        } else if (percentage >= 80) {

            grade = 'B';

        } else if (percentage >= 60) {

            grade = 'C';

        } else {

            grade = 'D';

        }

        // Printing results

        System.out.println("Total Marks: " + total\_marks);

        System.out.println("Percentage: " + percentage + "%");

        System.out.println("Grade: " + grade);

        scanner.close();

    }

}