BÁO CÁO THỰC HÀNH LAB 1

LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG

Họ và tên: Dương Văn Nhất

Mã số sinh viên: 20215106

Lớp: 732871

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# 2.2.1 Write, compile the first Java application:

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# 2.2.2 Write, compile the first dialog Java program:

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# 2.2.3 Write, compile the first input dialog Java application:

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# 2.2.4 Write, compile, and run the following example:

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# 2.2.5 Write a program to calculate sum, difference, product, and quotient of 2 double numbers which are entered by users.

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# 2.2.6 Write a program to solve:

package lab1;

import java.util.Scanner;

public class Bai2\_6 {

    public static void main(String[] args) {

        try (*Scanner* scanner = new Scanner(System.in)) {

            int option;

            do {

                System.out.print("1. Giai phuong trinh bac 1\n2. Giai he phuong trinh\n3. Giai phuong trinh bac 2\n4. Exit\n");

                option = scanner.nextInt();

                switch (option) {

                    case 1 -> {

                        System.out.print("a: ");

                        int a = scanner.nextInt();

                        System.out.print("b: ");

                        int b = scanner.nextInt();

                        linearEquation(a, b);

                        break;

                    }

                    case 2 -> {

                        SystemEquations(scanner);

                        break;

                    }

                    case 3 -> {

                        TwoDegreeEquation(scanner);

                        break;

                    }

                    case 4 -> {

                        System.out.println("Goodbye!");

                        break;

                    }

                    default -> {

                        System.out.println("Please re-enter");

                        break;

                    }

                }

            } while (option != 4);

        }

    }

    public static void linearEquation(int a, int b) {

        System.out.print("Result: ");

        System.out.println((a == 0 && b == 0) ? "Infinite solutions" : ((a == 0) ? "No solution" : (double) (-b) / a));

    }

    public static void SystemEquations(*Scanner* scanner) {

        System.out.print("a11: ");

        int a11 = scanner.nextInt();

        System.out.print("a12: ");

        int a12 = scanner.nextInt();

        System.out.print("b1: ");

        int b1 = scanner.nextInt();

        System.out.print("a21: ");

        int a21 = scanner.nextInt();

        System.out.print("a22: ");

        int a22 = scanner.nextInt();

        System.out.print("b2: ");

        int b2 = scanner.nextInt();

        int D = a11 \* a22 - a21 \* a12;

        int D1 = b1 \* a22 - b2 \* a12;

        int D2 = b2 \* a11 - b1 \* a21;

        System.out.println("x1: " + (double) D1 / D);

        System.out.println("x2: " + (double) D2 / D);

    }

    public static void TwoDegreeEquation(*Scanner* scanner) {

        System.out.print("a b c: ");

        int a = scanner.nextInt();

        int b = scanner.nextInt();

        int c = scanner.nextInt();

        if (a == 0) {

            linearEquation(b, c);

        } else {

            int delta = b \* b - 4 \* a \* c;

            if (delta < 0) {

                System.out.println("No solution");

            } else if (delta == 0) {

                System.out.println("x: " + (double) -b / (2 \* a));

            } else {

                System.out.println("x1: " + (double) ((-b + Math.sqrt(delta)) / (2 \* a)) + " x2: "

                        + (double) ((-b - Math.sqrt(delta)) / (2 \* a)));

            }

        }

    }

}

Kết quả:

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# 6.1 Write, compile and run the ChoosingOption program:

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Cập nhật code:

package lab1;

import javax.swing.JOptionPane;

public class ChoosingOption {

    public static void main(String[] args) {

        int option = JOptionPane.showConfirmDialog(null, "Do you want to change to the first class ticket?");

        if (option == JOptionPane.YES\_OPTION) {

            JOptionPane.showMessageDialog(null, "You've chosen: YES");

        } else if (option == JOptionPane.NO\_OPTION) {

            JOptionPane.showMessageDialog(null, "You've chosen: NO");

        } else if (option == JOptionPane.CANCEL\_OPTION) {

            JOptionPane.showMessageDialog(null, "You've chosen: CANCEL");

        } else if (option == JOptionPane.CLOSED\_OPTION) {

            JOptionPane.showMessageDialog(null, "You've closed the dialog");

        }

        System.exit(0);

    }

}

# 6.2 Write a program for input/output from keyboard

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# 6.3 Write a program to display a triangle with a height of n stars (\*), n is entered by users.

// 6.3 Write a program to display a triangle with a height of n stars (\*), n is entered by users.

package lab1;

import java.util.Scanner;

public class Bai6\_3 {

    public static void main(String[] args) {

*Scanner* scanner = new Scanner(System.in);

        // Get the height of the triangle from the user

        System.out.print("Enter the height of the triangle: ");

        int n = scanner.nextInt();

        // Display the triangle

        displayTriangle(n);

        // Close the scanner

        scanner.close();

    }

    // Function to display the triangle

    private static void displayTriangle(int height) {

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

            // Print spaces before the stars

            for (int j = 1; j <= height - i; j++) {

                System.out.print(" ");

            }

            // Print stars

            for (int k = 1; k <= 2 \* i - 1; k++) {

                System.out.print("\*");

            }

            // Move to the next line after each row

            System.out.println();

        }

    }

}

Kết quả:

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# 6.4 Write a program to display the number of days of a month, which is entered by users (both month and year). If it is an invalid month/year, ask the user to enter again.

// 6.4 Write a program to display the number of days of a month, which is entered by users (both month and year). If it is an invalid month/year, ask the user to enter again.

package lab1;

import java.util.Scanner;

public class Bai6\_4 {

    public static void main(String[] args) {

*Scanner* scanner = new Scanner(System.in);

        // Get the month from the user

        int month;

        do {

            System.out.print("Enter the month (1-12): ");

            month = scanner.nextInt();

        } while (month < 1 || month > 12);

        // Get the year from the user

        int year;

        do {

            System.out.print("Enter the year: ");

            year = scanner.nextInt();

        } while (year < 0);

        // Display the number of days

        int daysInMonth = getDaysInMonth(month, year);

        if (daysInMonth != -1) {

            System.out.println("Number of days in month " + month + ", year " + year + ": " + daysInMonth);

        } else {

            System.out.println("Invalid month or year.");

        }

        // Close the scanner

        scanner.close();

    }

    // Function to get the number of days in a month

    private static int getDaysInMonth(int month, int year) {

        if (month < 1 || month > 12 || year < 0) {

            return -1; // Invalid input

        }

        switch (month) {

            case 1: case 3: case 5: case 7: case 8: case 10: case 12:

                return 31;

            case 4: case 6: case 9: case 11:

                return 30;

            case 2:

                if (isLeapYear(year)) {

                    return 29;

                } else {

                    return 28;

                }

            default:

                return -1; // Invalid month

        }

    }

    // Function to check if a year is a leap year

    private static boolean isLeapYear(int year) {

        return (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0);

    }

}

Kết quả:

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# 6.5 Write a Java program to sort a numeric array, and calculate the sum and average value of array elements

package lab1;

import java.util.Arrays;

import java.util.Scanner;

public class Bai6\_5 {

    public static void main(String[] args) {

*Scanner* scanner = new Scanner(System.in);

        // Get the size of the array

        System.out.print("Enter the size of the array: ");

        int size = scanner.nextInt();

        // Create an array of the specified size

        int[] numericArray = new int[size];

        // Input array elements from the user

        for (int i = 0; i < size; i++) {

            System.out.print("Enter element " + (i + 1) + ": ");

            numericArray[i] = scanner.nextInt();

        }

        // Sort the array

        Arrays.sort(numericArray);

        // Display the sorted array

        System.out.println("Sorted array: " + Arrays.toString(numericArray));

        // Calculate the sum of array elements

        int sum = 0;

        for (int num : numericArray) {

            sum += num;

        }

        // Calculate the average value

        double average = (double) sum / size;

        // Display the sum and average

        System.out.println("Sum of array elements: " + sum);

        System.out.println("Average value of array elements: " + average);

        // Close the scanner

        scanner.close();

    }

}

Kết quả:

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# 6.6 Write a Java program to add two matrices of the same size.

Note: You must create a new Java project for this exercise.

- The matrices can be entered by the user or constants.

package lab1;

import java.util.Scanner;

import java.util.Random;

public class Bai6\_6 {

    public static void main(String[] args) {

*Scanner* scanner = new Scanner(System.in);

        System.out.print("Nhap so hang cua ma tran: ");

        int hang = scanner.nextInt();

        System.out.print("Nhap so cot cua ma tran: ");

        int cot = scanner.nextInt();

        int[][] maTran1 = nhapMaTran(scanner, hang, cot, "đầu tiên");

        int[][] maTran2 = nhapMaTran(scanner, hang, cot, "thứ hai");

        System.out.println("\nMa Tran 1:");

        hienThiMaTran(maTran1);

        System.out.println("\nMa Tran 2:");

        hienThiMaTran(maTran2);

        int[][] ketQua = congHaiMaTran(maTran1, maTran2);

        System.out.println("\nMa Tran Ket Qua:");

        hienThiMaTran(ketQua);

        scanner.close();

    }

    private static int[][] nhapMaTran(*Scanner* scanner, int hang, int cot, *String* tenMaTran) {

        System.out.println("Chon cach nhap ma tran " + tenMaTran + ":");

        System.out.println("1. Nhap tu nguoi dung");

        System.out.println("2. Sinh ngau nhien");

        int luaChon = scanner.nextInt();

        int[][] maTran = new int[hang][cot];

        switch (luaChon) {

            case 1:

                System.out.println("Nhap cac phan tu cho ma tran " + tenMaTran + ":");

                for (int i = 0; i < hang; i++) {

                    for (int j = 0; j < cot; j++) {

                        System.out.print("Nhap phan tu tai vi tri [" + (i + 1) + "][" + (j + 1) + "]: ");

                        maTran[i][j] = scanner.nextInt();

                    }

                }

                break;

            case 2:

                System.out.println("Ma tran " + tenMaTran + " duoc sinh ngau nhien:");

*Random* random = new Random();

                for (int i = 0; i < hang; i++) {

                    for (int j = 0; j < cot; j++) {

                        maTran[i][j] = random.nextInt(100); // Giả sử giá trị ngẫu nhiên từ 0 đến 99

                    }

                }

                break;

            default:

                System.out.println("Lua chon khong hop le. Su dung mac dinh la nhap tu nguoi dung.");

                return nhapMaTran(scanner, hang, cot, tenMaTran);

        }

        return maTran;

    }

    private static int[][] congHaiMaTran(int[][] maTran1, int[][] maTran2) {

        int hang = maTran1.length;

        int cot = maTran1[0].length;

        int[][] ketQua = new int[hang][cot];

        for (int i = 0; i < hang; i++) {

            for (int j = 0; j < cot; j++) {

                ketQua[i][j] = maTran1[i][j] + maTran2[i][j];

            }

        }

        return ketQua;

    }

    private static void hienThiMaTran(int[][] maTran) {

        for (int[] hang : maTran) {

            for (int phanTu : hang) {

                System.out.print(phanTu + " ");

            }

            System.out.println();

        }

    }

}

Kết quả:

