***2. SCOPE, VARIABLES, ARRAY AND SELECTION STATEMENTS***

**1.Write a program to demonstrate variable scope in a Bank Account System with static variable totalAccounts = 0, instance variables accountNumber and balance, and a method deposit(int amount) using local variable depositAmount. Expected output should show deposit details for each account and total accounts created.**

public class Bank

{

    private static int totalaccounts = 0;

    private int AccountNumber;

    private int Balance;

    //Constructor

    public Bank(int AccountNumber, int initialBalance) {

        this.AccountNumber = AccountNumber;

        this.Balance = initialBalance;

        totalaccounts++;

 }

    public void deposit(int amount)

{

        int depositAmount = amount;//local variable

        Balance = +depositAmount;

System.out.println("Deposit of"+depositAmount+"success to Account Number" + AccountNumber);

        System.out.println("Current Balance:" + Balance);

  }

    public static void DisplayTotalaccounts()

{

  System.out.println("Total accounts created:" + totalaccounts);

    }

}

public class BankAccount

{

    public static void main(String[]args)

    {

        System.out.println("Monisha//2024503043");

        Bank account1=new Bank(101,1000);

        account1.deposit(500);

        Bank account2=new Bank(102,2000);

        account2.deposit(1000);

        Bank account3=new Bank(103,3000);

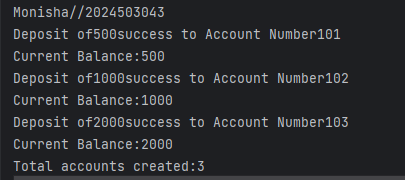
        account3.deposit(2000);

        Bank.DisplayTotalaccounts();

    }

}

**OUTPUT:**

****

**2. Write a program to track student attendance for 5 days (Monday Friday) with 8 hours per day using a 2D array. Input: Enter 1 for present or 0 for absent for each hour of each day. Output: Display daily attendance percentage for each day and overall weekly attendance percentage.**

import java.util.Scanner;

public class Student

{

    public static void main(String[] args)

{

        System.out.println("Monisha//2024503043");

        Scanner sc = new Scanner(System.in);

        int days = 5;

        int hours = 8;

        int[][] attendance = new int[days][hours];

        for (int i = 0; i < days; i++)

{

            System.out.println("Enter attendance for day " + (i + 1) + "8 hours 1 for present,0 for absent");

            for (int j = 0; j < hours; j++)

{

              System.out.println("Hour" + (j + 1) + ":");

              attendance[i][j] = sc.nextInt();

               if (attendance[i][j] != 0 && attendance[i][j] != 1)

{

               System.out.println("Invalid input! Enter 1 for present 0 for absent");

                    j--;

 }

}

}

        int TotalPresent = 0;

        int TotalHours = days \* hours;

        System.out.println("\nDaily attendance percentage");

        for (int i = 0; i < days; i++)

{

            int dailypresent = 0;

            for (int j = 0; j < hours; j++)

{

                dailypresent += attendance[i][j]

  }

          double dailyPercentage = dailypresent \* (double) hours / 100;

            System.out.printf("Day %d:%.2f%%\n", (i + 1), dailyPercentage);

            TotalPresent = +dailypresent;

            double OverallPercentage = (TotalPresent / (double) TotalHours) \* 100;

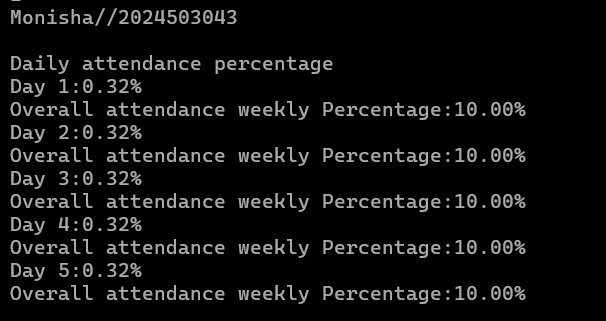
      System.out.printf("Overall attendance weekly Percentage:%.2f%%\n", OverallPercentage);

        }

    }

}

**OUTPUT:**

**  
  
3. Write a Java program that counts login failures only when the user is NOT "admin" and the password is wrong. Use the && operator to check conditions so the fail count increases only if needed. Print the fail count each time a non-admin login fails.**

import java.util.Scanner;

public class LoginFailureCounter

{

public static void main(String[]args)

{

System.out.println("Monisha//2024503043");

Scanner sc=new Scanner(System.in);

String Username="Admin";

String CorrectPassword="Moni@123";

int FailCount=0;

char Choice;

do

{

System.out.println("Enter Username:");

Username = sc.next();

System.out.println("Enter Password:");

String Password = sc.next();

if (!Username.equals("Admin") && !Password.equals(CorrectPassword))

{

FailCount++;

System.out.println("Login failed.fail Count" + FailCount);

}

Else

{

System.out.println("Login successful for admin with correct credentials");

}

System.out.println("Do you want to continue next login(Yes/No)?");

Choice = sc.next().charAt(0);

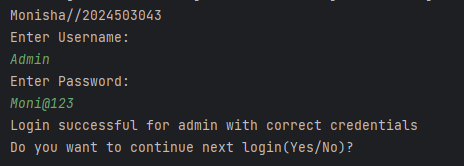
}

while(Choice=='Y'||Choice=='y');

}

}

**OUTPUT:**

****

**4. Write a Java program that checks if a patient’s age is between 18 and 65 (inclusive) to determine vaccine eligibility. If eligible, verify that their appointment number is a 3-digit number and check if it is even to assign a priority slot; otherwise, assign a regular slot. Then, print a gift based on the last digit of the appointment number using a switch statement: print "Gift: Pen" for last digit 1, "Gift: Mask" for 2, "Gift: Sanitizer" for 3, and "No special gift." for all other digits.**

import java.util.Scanner;

public class VaccineEligibility

{

public static void main(String[] args)

{

System.out.println("Monisha//2024503043");

Scanner sc = new Scanner(System.in);

System.out.print("Enter patient's age: ");

int age = sc.nextInt();

if (age >= 18 && age <= 65)

{

System.out.println("Eligible for vaccination.");

System.out.print("Enter 3-digit appointment number: ");

int appNum = sc.nextInt();

if (appNum >= 100 && appNum <= 999)

{

if (appNum % 2 == 0)

{

System.out.println("Assigned: Priority Slot.");

}

else

{

System.out.println("Assigned: Regular Slot.");

}

int lastDigit = appNum % 10;

switch (lastDigit)

{

case 1:

System.out.println("Gift: Pen");

break;

case 2:

System.out.println("Gift: Mask");

break;

case 3:

System.out.println("Gift: Sanitizer");

break;

default:

System.out.println("No special gift.");

}

}

else

{

System.out.println("Invalid appointment number. It should be a 3-digit number.");

}

}

else

{

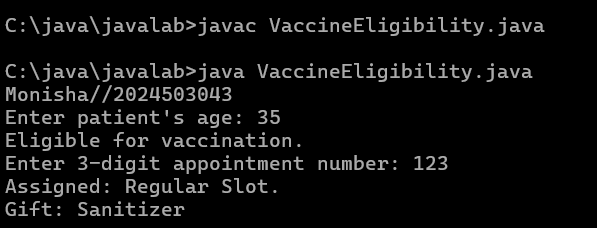
System.out.println("Not eligible for vaccination.");

}

}

}

**OUTPUT:**



**5. Write a Java program that reads a string from the user and convert the input to lowercase to handle uppercase letters. Use a character array to check each character and keep track of the counts. Finally, print the frequency of each vowel. Hint: Use the toCharArray() String method to convert the string into characters. Use to LowerCase() String method to convert the input to lowercase.**

import java.util.Scanner;

public class VowelFrequency

{

public static void main(String[] args)

{

System.out.println("Monisha//2024503043");

Scanner sc = new Scanner(System.in);

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

String input = sc.nextLine().toLowerCase();

char[] chars = input.toCharArray();

int aCount = 0, eCount = 0, iCount = 0, oCount = 0, uCount = 0;

for (char c : chars)

{

switch (c)

{

case 'a': aCount++; break;

case 'e': eCount++; break;

case 'i': iCount++; break;

case 'o': oCount++; break;

case 'u': uCount++; break;

}

}

System.out.println("Vowel Frequencies:");

System.out.println("a: " + aCount);

System.out.println("e: " + eCount);

System.out.println("i: " + iCount);

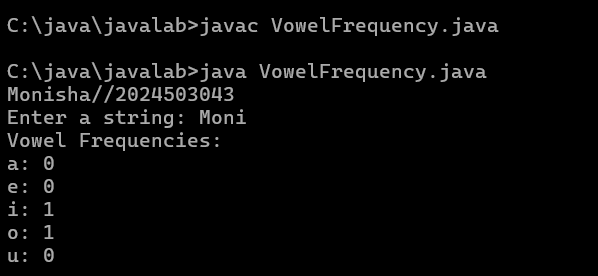
System.out.println("o: " + oCount);

System.out.println("u: " + uCount);

}

}

**OUTPUT:**



**6.Write a Java program that takes input for a 3x3 matrix of numbers. Calculate and print the sum of each row. Display the row number with the highest sum.**

import java.util.Scanner;

public class MatrixRowSum

{

public static void main(String[] args)

{

System.out.println("Monisha//2024503043");

Scanner sc = new Scanner(System.in);

int[][] matrix = new int[3][3];

int[] rowSum = new int[3];

System.out.println("Enter 3x3 matrix elements:");

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 3; j++)

{

System.out.print("Element [" + i + "][" + j + "]: ");

matrix[i][j] = sc.nextInt();

rowSum[i] += matrix[i][j];

}

}

int maxSum = rowSum[0];

int maxRow = 0;

for (int i = 0; i < 3; i++)

{

System.out.println("Sum of row " + i + " = " + rowSum[i]);

if (rowSum[i] > maxSum)

{

maxSum = rowSum[i];

maxRow = i;

}

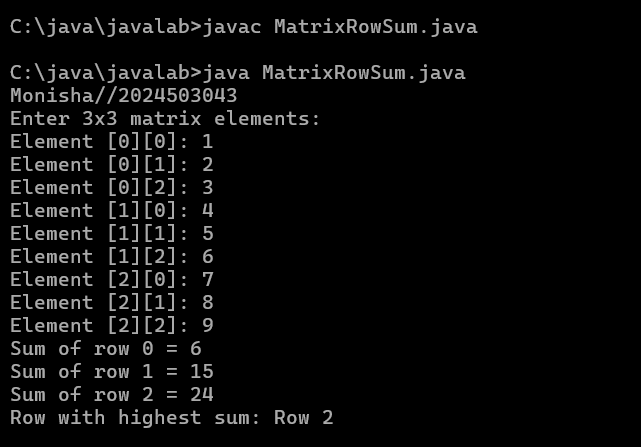
}

System.out.println("Row with highest sum: Row " + maxRow);

}

}

**OUTPUT:**



**7. Write a Java program that asks the user to enter the color of a traffic light (either "red", "yellow", or "green") . Use a proper selection statement to check the input and print "Stop" if the color is red, "Ready to move" if yellow, and "Go" if green. If the input is anything else, print "Invalid color". Hint: convert the input to lowercase before the switch.**

import java.util.Scanner;

public class TrafficLight

{

public static void main(String[] args)

{

System.out.println("Monisha//2024503043");

Scanner sc = new Scanner(System.in);

System.out.print("Enter traffic light color (red, yellow, green): ");

String color = sc.nextLine().toLowerCase();

switch (color)

{

case "red":

System.out.println("Stop");

break;

case "yellow":

System.out.println("Ready to move");

break;

case "green":

System.out.println("Go");

break;

default:

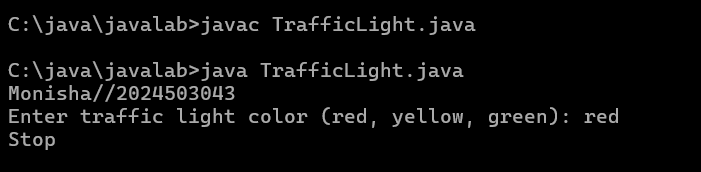
System.out.println("Invalid color");

}

}

}

**OUTPUT:**

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