1a.

public class NigeriaFlagSingleLoop {

public static void main(String[] args) {

int width = 15;

int height = 9;

String green = "G";

String white = " ";

for (int i = 0; i < height \* width; i++) {

if ((i % width) < width / 3 || (i % width) >= 2 \* width / 3) {

System.out.print(green);

} else {

System.out.print(white);

}

if ((i + 1) % width == 0) {

System.out.println();

}

}

}

}

1b.

public class NigeriaFlagNestedLoop {

public static void main(String[] args) {

int width = 15;

int height = 9;

String green = "G";

String white = " ";

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

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

if (j < width / 3 || j >= 2 \* width / 3) {

System.out.print(green);

} else {

System.out.print(white);

}

}

System.out.println();

}

}

}

2)

Using a single loop

import java.util.Scanner

public class Main {

public static void main(String[] args) {

int rows = 6;

int columns = 9; // Total characters per row (including spaces)

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

StringBuilder row = new StringBuilder();

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

if (i < 3 && j < 3) {

row.append("\*"); // Top three rows, first three stars

} else {

row.append("="); // All equals in other parts

}

}

System.out.println(row);

}

}

}

Using a nested loop

import java.util.Scanner

public class Main {

public static void main(String[] args) {

int rows = 6;

int columns = 9; // Total characters per row (including spaces)

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

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

if (i < 3 && j < 3) {

System.out.print("\*"); // Top three rows, first three stars

} else {

System.out.print("="); // All equals in other parts

}

}

System.out.println(); // Move to the next row

}

}

}

3

import java.util.Arrays;

public class ArrayStatistics {

public static void main(String[] args) {

int[] array = {2, 5, 5, 9, 4, 7, 0, 9, 6, 11, 12};

double mean = calculateMean(array);

double median = calculateMedian(array);

double standardDeviation = calculateStandardDeviation(array, mean);

System.out.println("Mean: " + mean);

System.out.println("Median: " + median);

System.out.println("Standard Deviation: " + standardDeviation);

}

public static double calculateMean(int[] array) {

double sum = 0;

for (int num : array) {

sum += num;

}

return sum / array.length;

}

public static double calculateMedian(int[] array) {

Arrays.sort(array);

if (array.length % 2 == 0) {

return (array[array.length / 2 - 1] + array[array.length / 2]) / 2.0;

} else {

return array[array.length / 2];

}

}

public static double calculateStandardDeviation(int[] array, double mean) {

double sum = 0;

for (int num : array) {

sum += Math.pow(num - mean, 2);

}

return Math.sqrt(sum / array.length);

}

}

4

import java.util.Scanner;

public class TwoDArrayInput {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

int[][] array = new int[10][10];

// Loop to accept input and assign to the array

for (int i = 0; i < 10; i++) {

for (int j = 0; j < 10; j++) {

System.out.print("Enter value for index [" + i + "][" + j + "]: ");

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

}

}

System.out.println("\nThe values entered are:");

// For-each loop to print out the input entered by the user

for (int[] row : array) {

for (int value : row) {

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

}

System.out.println();

}

scanner.close();

}

}

5

import java.util.Scanner;

public class TwoDArrayInput {

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Scanner scanner = new Scanner(System.in);

int[][] array = new int[10][10];

// Loop to accept input and assign to the array

for (int i = 0; i < 10; i++) {

for (int j = 0; j < 10; j++) {

System.out.print("Enter value for index [" + i + "][" + j + "]: ");

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

}

}

System.out.println("\nThe values entered are:");

// For-each loop to print out the input entered by the user

for (int[] row : array) {

for (int value : row) {

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

}

System.out.println();

}

scanner.close();

}

}