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1. WRITE A JAVA PROGRAM TO PRINT OUT THE FLAG OF NIGERIA (\* represents green and = represents white). TO DO THIS,

1. USE A SINGLE LOOP

public class NigeriaFlagSingleLoop

{

public static void main(String[] args)

{

for (int i = 1; i <= 12; i++)

{

if ( i <= 4) { System.out.println(“\*\* \*\*”) ; }

else if ( i <= 5) { System.out.println(“ ============ ”) ; }

else { System.out.println(“\*\* \*\*”) ; }

}

}

}

1. USE A NESTED LOOP

public class NigeriaFlagNestedLoop

{

public static void main(String[] args)

{

for (int i = 1; i <= 12; i++)

{

if (i <= 4 || i >8)

{

for (int j = 1; j <= 12; j++)

{

if (j <= 2|| j >10) { System.out.print(“\*”); }

else { System.out.print(“ ”); }

}

}

else

{

for (int j = 1; j <= 12; j++) { System.out.print(“=”); }

}

System.out.println();

}

}

}

2. WRITE A JAVA PROGRAM TO PRINT OUT THE FLAG OF NIGERIA AS SHOWN IN THIS SLIDE (IGNORE THE WHITE BACKGROUND). TO DO THIS,

USE A SINGLE LOOP

public class FlagSingleLoop

{

public static void main(String[] args)

{

String [] lines = { “\*\*\*\*========”, “\*\*\*\*========”, “\*\*\*\*========”,

“============”, “============”, } ;

for ( int i = 0; i < lines.length; i++ )

{ System.out.println( lines [ i ] ) ; }

}

}

USE A NESTED LOOP

public class FlagNestedLoop

{

public static void main(String[] args)

{

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

{

for (int j = 1; j <= 12; j++)

{

if (j <= 4) { System.out.print( “\*” ) ; }

else if (j <= 6) { System.out.print( “ ” ) ; }

else { System.out.print( “=” ) ; }

}

System.out.println() ;

}

}

}

3. Consider an array that has the data shown below.

{2,5,5,9,4,7,0,9,6,11,12} Write a java program to do the following:

1. The mean. mean = sum of all element/number of element.

public class MeanCalculator

{

public static void main(String[] args)

{

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

int sum = 0;

for (int num : data) {sum += num; }

double mean = (double) sum / data.length;

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

}

}

1. Print out the median. median = element at the middle

import java.util.Arrays;

public class MedianCalculator

{

public static void main(String[] args)

{

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

Arrays.sort(data);

int middleIndex = data.length / 2;

double median;

if (data.length % 2 == 0)

{

median = (data[middleIndex - 1] + data[middleIndex]) / 2.0;

}

else { median = data[middleIndex]; }

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

}

}

1. The standard deviation = √∑▒(x\_i−μ)^2/N

where N is size of population, μ is the population mean

x\_i is each value from the population

public class StandardDeviationCalculator

{

public static void main(String[] args)

{

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

double sum = 0;

for (int num : data) {sum += num; }

double mean = sum / data.length;

double sumOfSquaredDifferences = 0;

for (int num : data)

{

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

}

double variance = sumOfSquaredDifferences / data.length;

double standardDeviation = Math.sqrt(variance);

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

}

}

4. Declare an array of length 10.

1. Write a program using a loop to assign elements to the array by accepting input from the user. Make sure to state the index that the user’s input will be to the user before accepting the input.
2. Using a for each loop, print out the input entered by the user.

import java.util.Scanner;

public class ArrayInput

{

public static void main(String[] args)

{

Scanner scanner = new Scanner(System.in);

int[] numbers = new int[10];

for (int i = 0; i < numbers.length; i++)

{

System.out.print("Enter number for index " + i + ": ");

numbers[i] = scanner.nextInt();

}

System.out.println("Entered numbers:");

for (int number : numbers)

{

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

}

}

}

5. Declare a 2D array of size 10 by 10.

1. Write a program using a loop to assign elements to the array by accepting input from the user. Make sure to state the index that the user’s input will be to the user before accepting the input.
2. Using a for each loop, print out the input entered by the user.

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];

for (int i = 0; i < array.length; i++)

{

for (int j = 0; j < array[i].length; j++)

{

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

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

}

}

System.out.println("\nEntered numbers:");

for (int[] row : array)

{

for (int number : row)

{

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

}

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

}

}

}