**CS1073  
FR03B**

**Lab#6**

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**Question 1:**

/\*\*

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\*/

public class NestLoop {

public static void main(String[] args) {

int[][] numbers = new int[3][7];

int count = 1;

int increment = 0;

//assigning values to the array

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

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

numbers[i][j] = count + increment;

increment += 3;

}

increment = 0;

count++;

}

//printing the array

//(do not make any changes to this code)

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

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

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

}

System.out.println();

}

}

}

**Output:**  
  
A computer screen shot of a program

Description automatically generated

**Question 2:**

/\*\*

This class performs operations on integer arrays.

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\*/

public class IntArrayUtil{

/\*\*

This method returns the maximum value in the array

@param arr array of integer values

@return the maximum value of the array

\*/

public static int max(int[] arr){

int larger = arr[0];;

for(int i = 0; i < arr.length - 1; i++ ) {

if (larger < arr[i+1]) {

larger = arr[i+1];

}

}

return larger;

}

/\*\*

This method combines one integer array after another

and returns that as a new array.

(The parameters themselves are not altered.)

@param arrA array of integer values

@param arrB array of integer values

@return a new array containing values from both parameters

\*/

public static int[] join(int[] arrA, int[] arrB){

int totalLength = arrA.length + arrB.length;

int[] arr = new int[totalLength];

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

arr[i] = arrA[i];

}

for(int i = arrA.length, j = 0; i < arr.length; i++, j++) {

arr[i] = arrB[j];

}

return arr;

}

/\*\*

This method reverses the sequence of elements in an integer

array and returns that in a new array.

(The parameter itself is not altered.)

@param arr array of integer values

@return a new array with values reversed

\*/

public static int[] reverse(int[] arr){

int[] reverseArr = new int[arr.length];

for(int i = arr.length - 1, j = 0; i >= 0; i--, j++) {

reverseArr[j] = arr[i];

}

return reverseArr;

}

/\*\*

This method computes and returns the alternating sum

of all elements in the integer array that is

passed in via its parameter

@param arr array of integer values

@return the alternating sum

\*/

public static int alternatingSum(int[] arr){

int altSum = 0;

for(int i = 0; i < arr.length - 1; i=i+2) { //incrementing with 2 everytime

altSum += arr[i] + (int) Math.pow(-1, i+1) \* arr[i+1]; // adding the one value of array with the other value with negative pattern

}

if (arr.length % 2 == 1) { // if the length is odd

altSum += arr[arr.length - 1]; // adding the last value that was missed because of incrementing by 2 in the loop

}

return altSum;

}

}

**Driver:**  
  
  
import java.util.Arrays;

/\*\*

This class is a test driver for IntArrayUtil class

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\*/

public class Driver{

public static void main(String[] args){

System.out.println("Examples for max value:");

int[] arr1 = {13, 10, 21, 20, 18, 11, 16};

System.out.println("Array: " + Arrays.toString(arr1));

System.out.println("Max Value: " + IntArrayUtil.max(arr1));

int[] arr12 = {1001, 200, 1003, 101, 1200, 1400};

System.out.println("Array: " + Arrays.toString(arr12));

System.out.println("Max Value: " + IntArrayUtil.max(arr12));

System.out.println();

System.out.println("Examples for merged array:");

int[] arr21 = {3, -4, 6, 9};

int[] arr22 = {16, 11, 18, 20 ,21, 10, 13};

System.out.println("Array1: " + Arrays.toString(arr21));

System.out.println("Array2: " + Arrays.toString(arr22));

System.out.println("Merged Array: " + Arrays.toString(IntArrayUtil.join(arr21, arr22)));

int[] arr28 = {3, 2};

int[] arr29 = {12, -1, 4, 6};

System.out.println("Array1: " + Arrays.toString(arr28));

System.out.println("Array2: " + Arrays.toString(arr29));

System.out.println("Merged Array: " + Arrays.toString(IntArrayUtil.join(arr28, arr29)));

System.out.println();

System.out.println("Examples for reversing array:");

int[] arr41 = {16, 11, 18, 20 ,21, 10, 13};

System.out.println("Array: " + Arrays.toString(arr41));

System.out.println("Reversed Array: " + Arrays.toString(IntArrayUtil.reverse(arr41)));

int[] arr42 = {2, 41, 12, 42};

System.out.println("Array: " + Arrays.toString(arr42));

System.out.println("Reversed Array: " + Arrays.toString(IntArrayUtil.reverse(arr42)));

System.out.println();

System.out.println("Examples for alternating sum:");

int[] arr51 = {13, 10, 21, 20, 18, 11, 16};

System.out.println("Array: " + Arrays.toString(arr51));

System.out.println("Alternating sum: " + IntArrayUtil.alternatingSum(arr51));

int[] arr52 = {10, 11, 12, 14};

System.out.println("Array: " + Arrays.toString(arr52));

System.out.println("Alternating sum: " + IntArrayUtil.alternatingSum(arr52));

System.out.println();

}

}

**Output:**  
A screenshot of a computer program

Description automatically generated