**Example:** declare an int array, initialize it with integers and print the elements of the array using [for loop](https://beginnersbook.com/2015/03/for-loop-in-java-with-example/).

public class JavaExample{

public static void main(String args[]){

//array declaration, instantiation and initialization

int number[] = {11, 22, 33, 44, 55};

//print array elements

//length property return the size of the array

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

System.out.println("number["+i+"]: "+number[i]);

}

}

Example 2: Java Array with String Elements

public class JavaExample{

public static void main(String args[]){

//array declaration

String names[] = new String[5];

//array initialization

names[0]="Chaitanya";

names[1]="Ajeet";

names[2]="Rahul";

names[3]="Shivam";

names[4]="Rohit";

//print array elements

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

System.out.println("names["+i+"]: "+names[i]);

}

}

Example 3: Java Multidimensional Arrays

public class JavaExample{

public static void main(String args[]){

//two rows and three columns

int arr[][]={{11,22,33},{44,55,66}};

//outer loop 0 till number of rows

for(int i=0;i<2;i++){

//inner loop from 0 till number of columns

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

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

}

//new line after each row

System.out.println();

}

}

}

**Example 4:** Print an Array elements using for-each loop

public class JavaExample{

public static void main(String args[]){

//String array

String names[]={"Chaitanya", "Ajeet", "Rahul", "Hari"};

//print array elements using for-each loop

for(String str:names)

System.out.println(str);

//int array

int numbers[]={1, 2, 3, 4, 5};

//print array elements using for-each loop

for(int num:numbers)

System.out.println(num);

}

}

**Example 5:**

public class JavaExample{

public static void main(String args[]){

int number[]={1, 5, 7, 9, 11};

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

System.out.println(number[i]);

}

}

}

Solutions:

Sorting Array Elements

import java.util.Scanner;

public class JavaExample

{

public static void main(String[] args)

{

int count, temp;

//User inputs the array size

Scanner scan = new Scanner(System.in);

System.out.print("Enter number of elements you want in the array: ");

count = scan.nextInt();

int num[] = new int[count];

System.out.println("Enter array elements:");

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

{

num[i] = scan.nextInt();

}

scan.close();

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

{

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

if (num[i] > num[j])

{

temp = num[i];

num[i] = num[j];

num[j] = temp;

}

}

}

System.out.print("Array Elements in Ascending Order: ");

for (int i = 0; i < count - 1; i++)

{

System.out.print(num[i] + ", ");

}

System.out.print(num[count - 1]);

}

}

Adding two 2D matrices using arrays

public class JavaExample {

public static void main(String[] args) {

int rows = 2, columns = 4;

// Declaring the two matrices as multi-dimensional arrays

int[][] MatrixA = { {1, 1, 1, 1}, {2, 3, 5, 2} };

int[][] MatrixB = { {2, 3, 4, 5}, {2, 2, 4, -4} };

/\* Declaring a matrix sum, that will be the sum of MatrixA

\* and MatrixB, the sum matrix will have the same rows and

\* columns as the given matrices.

\*/

int[][] sum = new int[rows][columns];

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

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

sum[i][j] = MatrixA[i][j] + MatrixB[i][j];

}

}

// Displaying the sum matrix

System.out.println("Sum of the given matrices is: ");

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

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

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

}

System.out.println();

}

}

}

Java Program to count the frequency of each element in array **(MODE)**

public class JavaExample {

public static void main(String[] args) {

//Initializing an array

int [] numbers = new int [] {2, 2, 3, 4, 5, 5, 5, 3, 2, 4};

//This array will store the frequency of each element

int [] frequency = new int [numbers.length];

int counted = -1;

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

int count = 1;

for(int j = i+1; j < numbers.length; j++){

if(numbers[i] == numbers[j]){

count++;

//To avoid counting the frequency of same element again

frequency[j] = counted;

}

}

if(frequency[i] != counted)

frequency[i] = count;

}

//Printing the frequency of each element

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

if(frequency[i] != counted)

System.out.println("Element: "+numbers[i] + " Frequency: " + frequency[i]);

}

}}

**Sorting Char Array:**

import java.util.Arrays;

class SortCharArray {

public static void main(String[] args) {

// Creating a Char Array

char[] charArray = new char[] { 'A', 'Q', 'S', 'Z', 'P' };

// Displaying Array before Sorting

System.out.println("\*\*Char Array Before Sorting\*\*");

for (char ch: charArray){

System.out.println(ch);

}

// Sorting the Array

Arrays.sort(charArray);

System.out.println("\*\*Char Array After Sorting\*\*");

for (char ch: charArray){

System.out.println(ch);

}

// Another Char Array

char[] charArray2 =

new char[] { 'D', 'F', 'V', 'J', 'U', 'M', 'C' };

// Selective Sorting

/\* public static void sort(char[] a, int fromIndex,

\* int toIndex): Sorts the specified range of the

\* array into ascending order. The range to be sorted

\* extends from the index fromIndex, inclusive, to the

\* index toIndex, exclusive. If fromIndex == toIndex,

\* the range to be sorted is empty.

\*/

Arrays.sort(charArray2, 2, 5);

// Displaying array after selective sorting

System.out.println("\*\*Selective Sorting\*\*");

for (char ch: charArray2){

System.out.println(ch);

}

}

}

[Java program to check whether two matrices are equal](https://beginnersbook.com/2022/02/java-program-to-check-whether-two-matrices-are-equal/)

??

Program to print duplicate elements of the String array

public class JavaExample {

public static void main(String[] args) {

//Initializing an int array

String [] names = new String [] {"Tom", "Steve", "Rick", "Steve", "Rick"};

System.out.println("Duplicate elements in the given array: ");

//Comparing each element of the array with all other elements

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

for(int j = i + 1; j < names.length; j++) {

if(names[i].equals(names[j])){

//printing duplicate elements

System.out.println(names[j]);

}

}

}

}

}

Program to print duplicate elements of the int array

public class JavaExample {

public static void main(String[] args) {

//Initializing an int array

int [] numbers = new int [] {2, 4, 6, 8, 4, 6, 10, 10};

System.out.println("Duplicate elements in given array are: ");

//Comparing each element of the array with all other elements

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

for(int j = i + 1; j < numbers.length; j++) {

if(numbers[i] == numbers[j]) {

//printing duplicate elements

System.out.println(numbers[j]);

}

}

}

}

}

Program to remove duplicate elements from a **sorted** array

ublic class JavaExample{

public static int removeDuplicates(int arr[], int count){

if (count==0 || count==1){

return count;

}

// creating a temporary array to hold non-duplicate elements

int[] temp = new int[count];

int j = 0;

for (int i=0; i<count-1; i++){

if (arr[i] != arr[i+1]){

temp[j++] = arr[i];

}

}

temp[j++] = arr[count-1];

// copying the temp array to the original array

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

arr[i] = temp[i];

}

return j;

}

public static void main (String[] args) {

int arr[] = {1, 2, 2, 3, 4, 5, 5, 5};

System.out.print("Original Array: ");

int length = arr.length;

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

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

//getting the new array size after removing duplicates

length = removeDuplicates(arr, length);

//for new line

System.out.println("");

//Displaying array with non-duplicate elements

System.out.print("Array after removing duplicate elements: ");

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

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

}

}

Program to remove duplicate elements from an **unsorted** array

import java.util.Arrays;

public class JavaExample{

public static int removeDuplicates(int arr[], int count){

if (count==0 || count==1){

return count;

}

// creating a temporary array to hold non-duplicate elements

int[] temp = new int[count];

int j = 0;

for (int i=0; i<count-1; i++){

if (arr[i] != arr[i+1]){

temp[j++] = arr[i];

}

}

temp[j++] = arr[count-1];

// copying the temp array to the original array

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

arr[i] = temp[i];

}

return j;

}

public static void main (String[] args) {

int arr[] = {3, 2, 1, 2, 9, 10, 4, 10, 9};

System.out.print("Original Array: ");

//Sorting the given unsorted array

Arrays.sort(arr);

int length = arr.length;

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

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

//getting the new array size after removing duplicates

length = removeDuplicates(arr, length);

//for new line

System.out.println("");

//Displaying array with non-duplicate elements

System.out.print("Array after removing duplicate elements: ");

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

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

}

}

2D array with variable row length

class MultiDimArrayDemo {

public static void main(String[] args) {

String[][] names = {

{"Mr. ", "Mrs. ", "Ms. "},

{"Smith", "Jones"}

};

// Mr. Smith

System.out.println(names[0][0] + names[1][0]);

// Ms. Jones

System.out.println(names[0][2] + names[1][1]);

}

}

//Java Program to demonstrate the way of passing an array  to method.

**class** Testarray2{

//creating a method which receives an array as a parameter

**static** **void** min(**int** arr[]){

**int** min=arr[0];

**for**(**int** i=1;i<arr.length;i++)

**if**(min>arr[i])

  min=arr[i];

System.out.println(min);

}

**public** **static** **void** main(String args[]){

**int** a[]={33,3,4,5};//declaring and initializing an array

min(a);//passing array to method

}}

//Java Program to demonstrate the way of passing an anonymous array

//to method.

**public** **class** TestAnonymousArray{

//creating a method which receives an array as a parameter

**static** **void** printArray(**int** arr[]){

**for**(**int** i=0;i<arr.length;i++)

System.out.println(arr[i]);

}

**public** **static** **void** main(String args[]){

printArray(**new** **int**[]{10,22,44,66});//passing anonymous array to method

}}

//Java Program to illustrate the jagged array

**class** TestJaggedArray{

**public** **static** **void** main(String[] args){

        //declaring a 2D array with odd columns

**int** arr[][] = **new** **int**[3][];

        arr[0] = **new** **int**[3];

        arr[1] = **new** **int**[4];

        arr[2] = **new** **int**[2];

        //initializing a jagged array

**int** count = 0;

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

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

                arr[i][j] = count++;

        //printing the data of a jagged array

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

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

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

            }

            System.out.println();//new line

        }

    }

}

Calculate sum and average through arrays

class Main {

public static void main(String[] args) {

int[] numbers = {2, -9, 0, 5, 12, -25, 22, 9, 8, 12};

int sum = 0;

Double average;

// access all elements using for each loop

// add each element in sum

for (int number: numbers) {

sum += number;

}

// get the total number of elements

int arrayLength = numbers.length;

// calculate the average

// convert the average from int to double

average = ((double)sum / (double)arrayLength);

System.out.println("Sum = " + sum);

System.out.println("Average = " + average);

}

}