1. Declare a single-dimensional array of 5 integers inside the main method. Traverse the array to print the default values. Then accept records from the user and print the updated values of the array.

**package** Single\_Dimensional;

**import** java.util.Scanner;

**public** **class** Array{

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

{

Scanner sc = **new** Scanner(System.***in***);

**int** arr[] = **new** **int**[5];

**for**(**int** i=0;i<5;i++) {

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

}

**for**(**int** i=0;i<5;i++) {

arr[i]=sc.nextInt();

}

**for**(**int** i=0;i<5;i++) {

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

}

sc.close();

}

}

1. Declare a single-dimensional array of 5 integers inside the main method. Define a method named acceptRecord to get input from the terminal into the array and another method named printRecord to print the state of the array to the terminal.

**package** Single\_Dimensional;

//import java.util.Scanner;

**public** **class** Array5 {

**static** **int** *arr*[] = **new** **int**[5];

**public** **static** **int** acceptRecord(**int** x) {

**return** *printRecord*(x);

}

**public** **static** **int** printRecord(**int** x) {

System.***out***.print(x+" ");

**return** 0;

}

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

**for**(**int** i=0;i<5;i++)

{

Array5.*acceptRecord*(Integer.*parseInt*(args[i]));

}

}

}

1. Write a program to find the maximum and minimum values in a single-dimensional array of integers.

**package** Single\_Dimensional;

**import** java.util.Scanner;

**public** **class** Min\_Max {

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

// **TODO** Auto-generated method stub

Scanner sc = **new** Scanner(System.***in***);

System.***out***.print("Enter the length of array");

**int** n = sc.nextInt();

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

System.***out***.print("Enter elements of array");

**for**(**int** i=0;i<n;i++) {

arr[i] = sc.nextInt();

}

**int** max = arr[0];

**int** min = arr[0];

**for**(**int** i=1;i<n;i++) {

**if**(arr[i]>max) {

max = arr[i];

}

**if**(arr[i]<min) {

min = arr[i];

}

}

System.***out***.println("The largest number is: "+max);

System.***out***.println("The smallest number is: "+min);

sc.close();

}

}

1. Write a program to remove duplicate elements from a single-dimensional array of integers.

**package** Single\_Dimensional;

**import** java.util.Scanner;

**public** **class** Duplicates {

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

// **TODO** Auto-generated method stub

Scanner sc = **new** Scanner(System.***in***);

System.***out***.print("Enter the length of array");

**int** n = sc.nextInt();

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

System.***out***.print("Enter elements in array");

**for**(**int** i=0;i<n;i++) {

arr[i] = sc.nextInt();

}

**for**(**int** i=0;i<n;i++) {

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

**if**(arr[i]==arr[j]) {

arr[j]=0;

//System.out.println(arr[j]);

}

}

**if**(arr[i]!=0){

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

}

}sc.close();

}

}

1. Write a program to find the intersection of two single-dimensional arrays.

**package** Single\_Dimensional;

**import** java.util.Scanner;

**public** **class** Intersection {

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

// **TODO** Auto-generated method stub

Scanner sc = **new** Scanner(System.***in***);

System.***out***.println("Enter the length of first array");

**int** n = sc.nextInt();

**int** arr1[] = **new** **int**[n];

System.***out***.println("Enter the length of second array");

**int** m = sc.nextInt();

**int** arr2[] = **new** **int**[m];

System.***out***.println("Enter the elements in first array");

**for**(**int** i=0;i<n;i++)

{

arr1[i] = sc.nextInt();

}

System.***out***.println("Enter the elements in second array");

**for**(**int** i=0;i<m;i++)

{

arr2[i] = sc.nextInt();

}

**int** arr3[] = **new** **int**[n];

**for**(**int** i=0;i<n;i++){

**for**(**int** j=0;j<m;j++)

{

**if**(arr1[i]==arr2[j])

{

arr3[i] = arr2[j];

}

}

**if**(arr3[i]!=0){

System.***out***.print(arr3[i]+" ");

sc.close();

}

}

}

}

1. Write a program to find the missing number in an array of integers ranging from 1 to N.

package Single\_Dimensional;

import java.util.Scanner;

import java.util.Arrays;

public class MissingNumber {

public static void main(String[] args) {

// TODO Auto-generated method stub

Scanner sc = new Scanner(System.in);

System.out.print("Enter the length of array");

int n = sc.nextInt();

int arr[] = new int[n];

System.out.println("Enter the elements of array");

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

int m = sc.nextInt();

if(m<=n) {

arr[i]=m;

}

else

{

System.out.println("Please enter a number between 1 and "+n);

i--;

}

}

Arrays.sort(arr);

for(int i=1; i<=n; i++){

int flag = 0;

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

if(arr[j] == i){

flag = 1;

break;

}

}

if(flag == 0){

System.out.println(i);

}

}

sc.close();

}

}

1. Declare a single-dimensional array as a field inside a class and instantiate it inside the class constructor. Define methods named acceptRecord and printRecord within the class and test their functionality.

package Single\_Dimensional;

import java.util.Scanner;

public class Call1 {

int arr[];

Call1(int n){

arr = new int[n];

}

public void acceptRecord(Scanner sc) {

System.*out*.println("Enter the elements of array");

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

arr[i] = sc.nextInt();

}

}

public void printRecord() {

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

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

}

}

}

package Single\_Dimensional;

import java.util.Scanner;

public class ArrayField {

public static void main(String[] args) {

int n;

Scanner sc = new Scanner(System.*in*);

System.*out*.println("Enter the size of array");

n=sc.nextInt();

Call1 c = new Call1(n);

c.acceptRecord(sc);

c.printRecord();

sc.close();

}

}

1. Modify the previous assignment to use getter and setter methods instead of acceptRecord and printRecord.

**package** Single\_Dimensional;

**public** **class** ArrayFieldGetSet {

**int** arr[];

ArrayFieldGetSet(**int** n){

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

}

**public** **int**[] getArr() {

**return** arr;

}

**public** **void** setArr(**int**[] arr) {

**this**.arr = arr;

}

}

**package** Single\_Dimensional;

**import** java.util.Scanner;

**public** **class** ArrayUtil {

ArrayFieldGetSet a;

Scanner sc = **new** Scanner(System.***in***);

**public** **void** acceptRecord() {

System.***out***.println("Enter the size of array");

**int** n = sc.nextInt();

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

a = **new** ArrayFieldGetSet(n);

System.***out***.println("Enter the elements of array");

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

arr[i] = sc.nextInt();

}

a.setArr(arr);

}

**public** **void** printRecord() {

**int** arr[]=a.getArr();

//a.getArr();

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

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

}

}

**public** **int** choice() {

System.***out***.println("Enter 1 to accept records.");

System.***out***.println("Enter 2 to print records.");

System.***out***.println("Enter 0 to exit.");

**int** choice = sc.nextInt();

**return** choice;

}

}

**package** Single\_Dimensional;

**public** **class** ArrayFieldGetSet1 {

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

ArrayUtil a = **new** ArrayUtil();

**int** choice = 0;

**while**((choice = a.choice())!=0) {

**switch**(choice) {

**case** 1:

a.acceptRecord();

**break**;

**case** 2:

a.printRecord();

**break**;

**default**:

System.***out***.println("Invalid input");

**break**;

}

}

}

}

1. You need to implement a system to manage airplane seat assignments. The airplane has seats arranged in rows and columns. Implement functionalities to:

* Initialize the seating arrangement with a given number of rows and columns.
* Book a seat to mark it as occupied.
* Cancel a booking to mark a seat as available.
* Check seat availability to determine if a specific seat is available.
* Display the current seating chart.

**package** Multi\_Dimensional;

**import** java.util.Scanner;

**public** **class** Airplane {

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

Scanner sc=**new** Scanner (System.***in***);

**int** ch=5,x,y;

System.***out***.println("Enter the no of rows");

**int** r=sc.nextInt();

System.***out***.println("Enter the no of columns");

**int** c=sc.nextInt();

**int** arr[][]=**new** **int** [r][c];

System.***out***.println("Welcome To Vistara!!");

**for**(**int** i=1;i<=r;i++){

**for**(**int** j=1;j<=c;j++){

System.***out***.print("[ ]");

}System.***out***.println();

}**do** {

System.***out***.println("Enter Row And Column to book Seat");

x=sc.nextInt();

y=sc.nextInt();

**for**(**int** i=1;i<=r;i++){

**for**(**int** j=1;j<=c;j++){

**if**(i==x&&j==y)

{System.***out***.print("[O]");

}**else**

System.***out***.print("[ ]");}

System.***out***.println("");

}

System.***out***.println("Your Seat is Booked!!");

System.***out***.println("[O]: Occupied");

System.***out***.println("Are you sure you want to book this seat?\n1.Yes\n2.NO");

ch=sc.nextInt();

} **while** (ch!=2);

System.***out***.println("Do you want to Cancel selected Seat?\n1.Yes\n2.NO");

**int** w=sc.nextInt();

**if**(w==1) {

**for**(**int** i=1;i<=r;i++)

{**for**(**int** j=1;j<=c;j++)

{**if**(i==x&&j==y)

{System.***out***.print("[ ]");

}**else**

System.***out***.print("[ ]");}

System.***out***.println();

}

}**else**

{

System.***out***.println("Current Seat Status:");

**for**(**int** i=1;i<=r;i++)

{

**for**(**int** j=1;j<=c;j++)

{

**if**(i==x&&j==y)

{

System.***out***.print("[O]");

}**else**

System.***out***.print("[ ]");

}

System.***out***.println("");}

}

sc.close();

}

}