**// Write a for loop that prints the even numbers from 1 to 20.**

**class Main{**

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

**for(int i=0;i<=20;i++){**

**if(i%2==0){**

**System.out.println(i+"is even no!");**

**}**

**}**

**}**

**}**

**//Create a while loop that prompts the user for their flight choice until a valid number is entered**

**import java.util.Scanner;**

**class Main {**

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

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

**int flightChoice = -1;**

**while (flightChoice < 1 || flightChoice > 5) {**

**System.out.println("Please enter your flight choice (1-5): ");**

**if (scanner.hasNextInt()) {**

**flightChoice = scanner.nextInt();**

**if (flightChoice < 1 || flightChoice > 5) {**

**System.out.println("Invalid choice. Flight number must be between 1 and 5.");**

**}**

**} else {**

**System.out.println("That's not a valid number. Try again.");**

**scanner.next();**

**}**

**}**

**System.out.println("You selected flight number: " + flightChoice);**

**}**

**}**

**// Create a Java program using a while loop to calculate the sum of integers from 1 to 100**

**class Main{**

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

**int i=1;**

**int sum=0;**

**while(i<=100){**

**sum=i+sum;**

**i++;**

**}**

**System.out.println("Sum of Integer is:"+sum);**

**}**

**}**

**//Write a Java program that uses a for loop to print the first 10 numbers of the Fibonacci**

**sequence.**

**class Main {**

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

**int a=0,b=1,c=0;**

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

**c=a+b;**

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

**a=b;**

**b=c;**

**}**

**}**

**}**

**//Implement a while loop that prompts the user to enter a number until they enter a negative number.**

**import java.util.Scanner;**

**class Main {**

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

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

**int num = 0;**

**do{**

**System.out.println("Enter a number (negative to stop):");**

**if (sc.hasNextInt()) {**

**num = sc.nextInt();**

**if (num >= 0) {**

**System.out.println("Number is positive, try again.");**

**}**

**} else {**

**System.out.println("Invalid input. Please enter a valid number.");**

**sc.next();**

**}**

**}while (num >= 0);**

**System.out.println("Negative number entered: " + num);**

**}**

**}**

**//Write a Java program that demonstrates the use of the continue statement in a loop.**

**class Main {**

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

**int n=6;**

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

**if(n==i){**

**continue;**

**}**

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

**}**

**}**

**}**

**//Initialize and print a 2D array of integers in Java**

**import java.util.Arrays;**

**class Main {**

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

**int[][] arr = { {34, 45, 65}, {23, 63, 89} };**

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

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

**}**

**}**

**}**

**//Create a method that accepts an array and returns the maximum value using a for loop.**

**import java.util.Arrays;**

**import java.util.\*;**

**class Main {**

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

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

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

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

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

**arr[i]=sc.nextInt();**

**}**

**System.out.println("Array is:"+Arrays.toString(arr));**

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

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

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

**max=arr[j];**

**}**

**}**

**System.out.println("Max Value of Array is:"+max);**

**}**

**}**

**//Write a Java program that finds the average of numbers stored in an integer array.**

**import java.util.Arrays;**

**import java.util.\*;**

**class Main {**

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

**int[] arr={34,21,43,2,10};**

**//Sorting of array**

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

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

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

**int temp = arr[i];**

**arr[i] = arr[j];**

**arr[j] = temp;**

**}**

**}**

**}**

**System.out.println("Sorted Array is:"+Arrays.toString(arr));**

**//Average of Array**

**int sum=0;**

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

**sum=sum+arr[k];**

**}**

**System.out.println("Average of Array is:"+sum/arr.length);**

**}**

**}**

**//Write a Java program that sums the elements of a 2D array.**

**import java.util.Arrays;**

**import java.util.\*;**

**class Main {**

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

**int[][] arr = new int[][] { {2, 3, 4},{5, 6, 7} };**

**int sum=0;**

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

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

**sum=sum+arr[i][j];**

**}**

**}**

**System.out.println("Sum of 2D Array is:"+sum);**

**}**

**}**

**//Demonstrate how to find the minimum and maximum values in a given array.**

**class Main {**

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

**int[] arr={21,43,87,19,9,82};**

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

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

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

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

**min=arr[i];**

**}**

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

**max=arr[i];**

**}**

**}**

**System.out.println("Min Value is"+min);**

**System.out.println("Max Value is"+max);**

**}**

**}**

**//Design a Java program that merges two sorted arrays into a single sorted array.**

**import java.util.Arrays;**

**class Main {**

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

**int[] arr1 = {23, 45, 67};**

**int[] arr2 = {34, 54, 75};**

**// new array with size of both arrays**

**int[] arr3 = new int[arr1.length + arr2.length];**

**int k = 0;**

**for (int i = 0; i < arr1.length; i++) {**

**arr3[k++] = arr1[i];**

**}**

**for (int j = 0; j < arr2.length; j++) {**

**arr3[k++] = arr2[j];**

**}**

**System.out.println("Merged Array is: " + Arrays.toString(arr3));**

**}**

**}**

**//Write a Java program to reverse the array**

**import java.util.Arrays;**

**class Main {**

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

**int[] arr = {23, 45, 67, 98};**

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

**int temp = arr[i];**

**arr[i] = arr[j];**

**arr[j] = temp;**

**}**

**System.out.println("Reversed Array is: " + Arrays.toString(arr));**

**}**

**}**

**//Find the Second largest element in Java**

**import java.util.Arrays;**

**class Main {**

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

**int[] arr = {23, 65, 60, 98, 70};**

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

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

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

**max=arr[i];**

**}**

**}**

**System.out.println("Max Element is:"+max);**

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

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

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

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

**continue;**

**}**

**smax=arr[i];**

**}**

**}**

**System.out.println("Second Largest element is:"+smax);**

**}**

**}**

**//Find the first even number in a list and breaks the loop when it finds.**

**class Main {**

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

**int[] arr={23,75,13,56,33,23,90};**

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

**if(arr[i]%2==0){**

**System.out.println("First Even No is:"+arr[i]);**

**break;**

**}**

**}**

**}**

**}**

**// Prints all odd numbers from 1 to 20, using continue to skip even numbers.**

**class Main {**

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

**for(int i=0;i<=20;i++){**

**if(i%2==0){**

**continue;**

**}else{**

**System.out.println("Odd no is"+i);**

**}**

**}**

**}**

**}**

**// Prints a multiplication table but skips the multiplication by 5**

**class Main {**

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

**for(int i=2;i<=50;i=i+2){**

**if(i%5==0){**

**continue;**

**}else{**

**System.out.println("Multiplication Table is"+i);**

**}**

**}**

**}**

**}**

**//Print the Pattern as per given etc**

**1 1 1 1 1**

**1 1 1 1**

**1 1 1**

**1 1**

**1**

**class Main {**

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

**int n=5;**

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

**for(int j=5;j>i;j--){**

**System.out.print("1");**

**}**

**System.out.print("\n");**

**}**

**}**

**}**

**//Program counts from 1 to 10 but breaks when it reaches 6.**

**class Main {**

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

**for(int i=1;i<=10;i++){**

**if(i==6){**

**break;**

**}else{**

**System.out.println("Elements are:"+i);**

**} } }**

**}**

**//Program prints numbers from 1 to 10 but skips the number 5.**

**class Main {**

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

**for(int i=1;i<=10;i++){**

**if(i==5){**

**continue;**

**}else{**

**System.out.println("Elements are:"+i);**

**}**

**}**

**}**

**}**

**//Create a program that reverses the digits of a given integer. Use a while loop to extract each digit and build the reversed number.**

**class Main {**

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

**int num=9876;**

**int dig=0,rev=0;**

**while(num>0){**

**dig=num%10;**

**rev=(rev\*10)+dig;**

**num=num/10;**

**}**

**System.out.println("Reverse digits are:"+rev);**

**}**

**}**

**//Develop a program that checks whether a given number is prime or not**

**import java.util.Scanner;**

**class Main {**

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

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

**System.out.print("Enter a number to check if it's prime: ");**

**int num = scanner.nextInt();**

**boolean isPrime = true;**

**if (num <= 1) {**

**isPrime = false;**

**} else {**

**for (int i = 2; i <= num/2; i++) {**

**if (num % i == 0) {**

**isPrime = false;**

**break;**

**}**

**}**

**}**

**if (isPrime) {**

**System.out.println(num + " is a prime number.");**

**} else {**

**System.out.println(num + " is not a prime number.");**

**}**

**}**

**}**

**//Prompts the user to enter numbers until they enter a negative number.**

**import java.util.Scanner;**

**class Main {**

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

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

**while (true) {**

**System.out.println("Enter numbers (enter a negative number to stop):");**

**int num = scanner.nextInt();**

**if (num < 0) {**

**break;**

**}**

**System.out.println("You entered: " + num);**

**}**

**System.out.println("Negative number entered. Program terminated.");**

**}**

**}**

**//Write a program that prints the multiplication table for a given number. The user should input the number and the range (e.g., up to 10 or 20). Use a for loop to generate the table.**

**import java.util.Scanner;**

**class Main {**

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

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

**System.out.println("Enter No:");**

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

**System.out.println("Enter Range:");**

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

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

**System.out.println(a+"X"+i+"="+(a\*i));**

**}**

**}**

**}**

**String Program**

**//Write a program that counts the number of vowels and consonants in a given string.**

**//Use a for loop to iterate through the string and keep track of the counts.**

**class Main {**

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

**String str = "icecream";**

**int v = 0;**

**int c = 0;**

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

**char ch = str.charAt(i);**

**if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {**

**v++;**

**} else if (ch != 'a' || ch != 'e' || ch != 'i' || ch != 'o' || ch != 'u') {**

**c++;**

**}**

**}**

**System.out.println("Number of vowels in " + str + " are: " + v);**

**System.out.println("Number of consonants in " + str + " are: " + c);**

**}**

**}**

**//Write a Java program to reverse a String.**

**class Main {**

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

**String str = "Hello World";**

**String rev = "";**

**for (int i = str.length() - 1; i >= 0; i--) {**

**rev = rev + str.charAt(i);**

**}**

**System.out.println("Reversed String is: " + rev);**

**}**

**}**

**//How would you check if a String is a palindrome in Java?**

**class Main {**

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

**String str = "madam";**

**String rev="";**

**for (int i = str.length() - 1; i >= 0; i--) {**

**rev = rev + str.charAt(i);**

**}**

**if(str.equals(rev)){**

**System.out.println(str+" String is Palindrome");**

**}else{**

**System.out.println(str+" String is not Palindrome");**

**}**

**}**

**}**

**//Implement a method that capitalizes the first letter of each word in a given String.**

class Main {

public static void main(String[] args) {

String str = "hello world";

String result = "";

String[] w = str.split(" ");

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

String c = w[i].substring(0,1).toUpperCase() + w[i].substring(1);

result += c;

}

System.out.println("Output: " + result);

}

**}**

**//How would you identify and count the occurrences of each character in a String?**

import java.util.Arrays;

class Main {

public static void main(String[] args) {

String str="icecream";

char[] ch = str.toCharArray();

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

int c=1;

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

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

c++;

System.out.println("Occurrences of "+ch[i]+" is:"+c);

} }

//System.out.println("Occurrences of "+ch[i]+" is:1");

} } }

**//Create a method that takes two StringBuffer objects and merges them into one, separating them with a space. Print the resulting StringBuffer.**

**//Input: StringBuffer1: "Hello", StringBuffer2: "World" Output: "Hello World"**

class Main {

public static void main(String[] args) {

StringBuffer s1=new StringBuffer("Hello");

StringBuffer s2=new StringBuffer("World");

s1.append(" "+s2);

System.out.println("Merged String is:"+s1);

}

}

**//Write a Java program that initializes a StringBuffer with extra spaces (e.g., " Hello World ") and trims the whitespace from both ends.**

**//Input: " Hello World " Output: "Hello World"**

class Main {

public static void main(String[] args) {

StringBuffer s1=new StringBuffer(" Hello World ");

System.out.println("Before Trim String is:"+s1);

String res=s1.toString().trim();

StringBuffer s2=new StringBuffer(res);

System.out.println("After Trim String is:"+s2);

}

}

**//Create a method that deletes the substring "World" from a StringBuffer initialized with "Hello World". Print the modified StringBuffer.**

**//Input: "Hello World" Output: "Hello "**

public class Main {

public static void main(String[] args) {

StringBuilder sb = new StringBuilder("Hello World");

System.out.println("Before delete: " + sb);

sb.delete(5, 11);

System.out.println("After delete: " + sb);

}

}

**//Create a method that inserts the string "Beautiful " at index 6 in the StringBuffer containing "Hello World".**

**//Input: "Hello World" Output: "Hello Beautiful World"**

public class Main {

public static void main(String[] args) {

StringBuilder sb = new StringBuilder("Hello World");

sb.insert(6, "Beautiful ");

System.out.println("After Insertion: " + sb);

}

}

**//Implement a method that checks if two Strings are anagrams of each other (contain the same characters in a different order).**

**//Input: "listen", "silent" Output: true**

import java.util.Arrays;

public class Main {

public static void main(String[] args) {

String s1="listen";

String s2="silent";

char[] c1=s1.toCharArray();

char[] c2=s2.toCharArray();

Arrays.sort(c1);

Arrays.sort(c2);

if (Arrays.equals(c1,c2)) {

System.out.println("true");

} else {

System.out.println("false");

}

}

}