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Subject:CSA0978-Programming in Java for Web Applications Development

1.

import java.util.\*;

class trianglepyramid

{

public static void main(String args[])

{

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

System.*out*.println("Enter the number of rows=");

int a=sc.nextInt();

int i, j, row = a;

for (i=0; i<row; i++)

{

for (j=row-i; j>1; j--)

{

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

}

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

{

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

}

System.*out*.println();

}

}

}

2.

import java.util.\*;

class pascalpyramid{

public static void main(String[] args) {

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

System.*out*.println("Enter the number of rows=");

int a=sc.nextInt();

int rows = a, coef = 1;

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

for(int space = 1; space < rows - i; ++space) {

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

}

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

if (j == 0 || i == 0)

coef = 1;

else

coef = coef \* (i - j + 1) / j;

System.*out*.printf("%4d", coef);

}

System.*out*.println();

}

}

3.

import java.util.\*;

class rectanglepat{

public static void main(String[] args) {

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

System.*out*.print("Enter the symbol you want to use for the pattern: ");

char symbol = input.next().charAt(0);

System.*out*.print("Enter the number of rows in the rectangle: ");

int numRows = input.nextInt();

System.*out*.print("Enter the number of columns in the rectangle: ");

int numCols = input.nextInt();

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

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

System.*out*.print(symbol);

}

System.*out*.println();

}

}

}

4.

import java.util.\*;

class numpattern {

public static void main(String[] args) {

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

System.*out*.print("Enter the number to be printed: ");

int num = input.nextInt();

System.*out*.print("Max Number of time printed: ");

int maxTimes = input.nextInt();

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

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

System.*out*.print(num);

}

System.*out*.println();

if (i == maxTimes) {

break;

}

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

System.*out*.print(num);

}

System.*out*.println();

}

for (int i = maxTimes-1; i >= 1; i--)

{

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

System.*out*.print(num);

}

System.*out*.println();

}

}

}

5.

import java.util.\*;

class invertedpyramid {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the number of rows: ");

int rows = scanner.nextInt();

for (int i = rows; i >= 1; i--) {

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

System.out.print(" ");

}

for (int k = 1; k <= 2 \* i - 1; k++) {

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

}

System.out.println();

}

}

}

6.

import java.util.\*;

class lefttriangle {

public static void main(String[] args) {

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

System.*out*.print("Enter the character to be printed: ");

char ch = scanner.next().charAt(0);

System.*out*.print("Enter the max number of times to be printed: ");

int max = scanner.nextInt();

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

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

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

}

System.*out*.println();

}

}

}

7.

import java.util.\*;

class squarepat {

public static void main(String[] args) {

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

System.*out*.print("Enter the size of the square: ");

int size = scanner.nextInt();

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

for (int j = 1; j <= size; j++) {

if (i == 1 || i == size || j == 1 || j == size) {

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

} else {

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

}

}

System.*out*.println();

}

}

}

8.

import java.util.\*;

class numlefttriangle {

public static void main(String[] args) {

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

System.*out*.print("Enter the number of rows: ");

int rows = scanner.nextInt();

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

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

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

}

System.*out*.println();

}

}

}

9.

import java.util.\*;

class numberpat {

public static void main(String[] args) {

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

System.*out*.print("Enter the number of rows: ");

int rows = scanner.nextInt();

int number = 1;

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

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

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

number++;

}

System.*out*.println();

}

}

}

10.

import java.util.\*;

class numberpat1 {

public static void main(String[] args) {

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

System.*out*.print("Enter the number of rows: ");

int rows = scanner.nextInt();

for (int i = 1; i <= rows / 2 + 1; i++) {

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

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

}

System.*out*.println();

}

for (int i = rows / 2; i >= 1; i--) {

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

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

}

System.*out*.println();

}

}

}

11.

import java.util.\*;

class squarepat1 {

public static void main(String[] args) {

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

System.*out*.print("Enter the number of rows: ");

int rows = scanner.nextInt();

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

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

}

System.*out*.println();

for (int i = 2; i <= rows - 1; i++) {

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

for (int j = 2; j <= rows - 1; j++) {

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

}

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

}

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

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

}

}

}

12.

import java.util.\*;

class invertedpyramid {

public static void main(String[] args) {

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

System.*out*.print("Enter the number of rows: ");

int rows = scanner.nextInt();

for (int i = rows; i >= 1; i--) {

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

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

}

for (int k = 1; k <= 2 \* i - 1; k++) {

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

}

System.*out*.println();

}

}

}

13.

import java.util.\*;

class matrixmul {

public static void main(String[] args) {

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

System.*out*.println("Enter elements of matrix 1:");

System.*out*.print("Number of rows: ");

int rows1 = scanner.nextInt();

System.*out*.print("Number of columns: ");

int columns1 = scanner.nextInt();

int[][] matrix1 = new int[rows1][columns1];

for (int i = 0; i < rows1; i++) {

for (int j = 0; j < columns1; j++) {

System.*out*.print("Enter element [" + (i+1) + "][" + (j+1) + "]: ");

matrix1[i][j] = scanner.nextInt();

}

}

System.*out*.println("Enter elements of matrix 2:");

System.*out*.print("Number of rows: ");

int rows2 = scanner.nextInt();

System.*out*.print("Number of columns: ");

int columns2 = scanner.nextInt();

int[][] matrix2 = new int[rows2][columns2];

for (int i = 0; i < rows2; i++) {

for (int j = 0; j < columns2; j++) {

System.*out*.print("Enter element [" + (i+1) + "][" + (j+1) + "]: ");

matrix2[i][j] = scanner.nextInt();

}

}

if (columns1 != rows2) {

System.*out*.println("Matrix multiplication not possible");

return;

}

int[][] result = new int[rows1][columns2];

for (int i = 0; i < rows1; i++) {

for (int j = 0; j < columns2; j++) {

for (int k = 0; k < columns1; k++) {

result[i][j] += matrix1[i][k] \* matrix2[k][j];

}

}

}

System.*out*.println("Matrix multiplication result:");

for (int i = 0; i < rows1; i++) {

for (int j = 0; j < columns2; j++) {

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

}

System.*out*.println();

}

}

}

14.

import java.util.\*;

class matrixadd {

public static void main(String[] args) {

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

System.*out*.print("Enter the number of rows and columns for the matrices: ");

int rows = input.nextInt();

int cols = input.nextInt();

int[][] mat1 = new int[rows][cols];

System.*out*.println("Enter the elements of the first matrix:");

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

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

mat1[i][j] = input.nextInt();

}

}

int[][] mat2 = new int[rows][cols];

System.*out*.println("Enter the elements of the second matrix:");

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

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

mat2[i][j] = input.nextInt();

}

}

int[][] matSum = new int[rows][cols];

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

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

matSum[i][j] = mat1[i][j] + mat2[i][j];

}

}

System.*out*.println("Mat Sum = ");

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

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

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

}

System.*out*.println();

}

input.close();

}

}

15.

import java.util.\*;

class meanmedianmode {

public static void main(String[] args) {

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

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

int n = input.nextInt();

int[] arr = new int[n];

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

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

arr[i] = input.nextInt();

}

Arrays.*sort*(arr);

double sum = 0;

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

sum += arr[i];

}

double mean = sum / n;

System.*out*.println("Mean = " + mean);

double median;

if (n % 2 == 0) {

median = (arr[n / 2] + arr[n / 2 - 1]) / 2.0;

} else {

median = arr[n / 2];

}

System.*out*.println("Median = " + median);

int mode = arr[0];

int count = 1;

int maxCount = 1;

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

if (arr[i] == arr[i - 1]) {

count++;

} else {

if (count > maxCount) {

maxCount = count;

mode = arr[i - 1];

}

count = 1;

}

}

if (count > maxCount) {

maxCount = count;

mode = arr[n - 1];

}

System.*out*.println("Mode = " + mode);

}

}