**Adani Digital Lab - Coding Assessment Round**

**Shashank Bhushan Jha**

**19103324**

**Code :**

import java.io.\*;

import java.lang.\*;

import java.util.\*;

public class Main{

public static int[][] create2DArrayWithRandomValue(int noOfRows, int noOfColumns)

{

Random random = new Random();

int matrix[][] = new int[noOfRows][noOfColumns];

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

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

matrix[i][j] = random.nextInt(100-0)+0;

}

return matrix;

}

public static int[][] sortColWise(int[][] matrix, int col){

int[][] mat = matrix;

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

if(j==col){

int[] colArr = new int[mat.length];

for(int i=0;i<mat.length;i++) colArr[i] = mat[i][j];

int[] sortedCol = sortTheCol(colArr);

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

mat[i][j] = sortedCol[i];

}

}

}

return mat;

}

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

Arrays.sort(arr); // Arrays.sort() uses Quick sort so complexity will be O(nlogn)

// sort(arr);

return arr;

}

// Implemented the sorting

public static void sort(int[] arr){

int n = arr.length;

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

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

if (arr[j] > arr[j + 1]) {

// swapping arr[j+1] and arr[j]

int temp = arr[j];

arr[j] = arr[j + 1];

arr[j + 1] = temp;

}

//this sorts in O(n^2)

}

public static void display(int[][] mat){

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

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

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

}

System.out.println();

}

}

public static void main (String[] args) {

int row = 5;

int col = 4;

int[][] mat = create2DArrayWithRandomValue(row,col);

display(mat);

int[][] ans = sortColWise(mat,3);

display(ans);

}

}

**Output :**

**Random array created : row = 5 , col = 4**

**6 94 49 56**

**59 31 52 36**

**76 51 83 10**

**32 97 77 73**

**30 31 12 53**

**Sorted array by index 3 column :**

**6 94 49 10**

**59 31 52 36**

**76 51 83 53**

**32 97 77 56**

**30 31 12 73**