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C Language

Project - 5

Assortment

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Project Definition: Assortment

Overview:

This project aims to develop a program in C language that demonstrates the use of nested for loops and operations on 1D and 2D arrays. The program will perform different operations based on user input and loop conditions.

Time Allocation:

- Total Duration: 1 Hour
- Total Marks: 10

Instructions:

1. Attempt all assigned tasks.
2. Make suitable assumptions wherever necessary.
3. Upload your exam task by uploading the project to GitHub and submitting the GitHub repository link which must have screenshots of your output in a README.md file.
4. This project is individual-based; copying code from classmates is prohibited.

Remember to follow the instructions provided professionally, make suitable assumptions wherever necessary, and avoid copying code or content from any unauthorized sources. Good luck with your project work!

Problem Statements:

Q.1 Negative Elements in 1D Array

Develop a program that finds all the negative elements from a given 1D array.

Example:

Input:
Enter the array's size: 5

Enter array's elements:
a[0] = 2
a[1] = -4
a[2] = 1
a[3] = -3
a[4] = -5

Output:
Negative elements from an Array: -4, -3, -5

Marking Criteria: (Total 2 Marks)
Logic: 1 Mark
Output: 1 Mark

Q.2 Largest Element in 2D Array
Develop a Program to find the largest element from a given 2D array.

Example:
Input:
Enter the array's row size: 3
Enter the array's column size: 3

Enter array's elements:
a[0][0] = 2
a[0][1] = 7
a[0][2] = 1
a[1][0] = 3
a[1][1] = 5
a[1][2] = 4
a[2][0] = 8
a[2][1] = 9
a[2][2] = 6

Output:
The largest element is: 9

Marking Criteria: (Total 3 Marks)
Logic: 2 Mark
Output: 1 Mark

Q.3 Transpose of 2D Array
Develop a Program to find the transpose matrix of a given 2D array.

Example:
Input:
Enter the array's row & column size: 3

Enter array's elements:

a[0][0] = 2
a[0][1] = 4
a[0][2] = 1
a[1][0] = 3
a[1][1] = 5
a[1][2] = 4
a[2][0] = 8
a[2][1] = 2
a[2][2] = 6

Output:
The transpose matrix of an array:
2 3 8
4 5 2
1 4 6

Marking Criteria: (Total 2 Marks)
Logic: 1 Mark
Output: 1 Mark

Q.4 Sum of Elements in Row & Column of 2D Array
Develop a Program to print and find the sum of all elements of a given row & column from a 2D array.

Example:
Input:
Enter the array's row size: 3
Enter the array's column size: 3

Enter array's elements:
a[0][0] = 2
a[0][1] = 7
a[0][2] = 1
a[1][0] = 3
a[1][1] = 5
a[1][2] = 4
a[2][0] = 8
a[2][1] = 9
a[2][2] = 6

Output:
Enter row number: 0
Elements of row 0: 2, 7, 1
The sum of a row 0: 10

Enter column number: 2
Elements of column 2: 1, 4, 6
The sum of column 2: 11

Marking Criteria: (Total 3 Marks)
Logic: 2 Marks
Output: 1 Mark