

VIT - Vellore

Name: RONIT MEXSON .
Email: ronit.mexson2024@vitstudent.ac.in
Roll no: 24BAI0036
Phone: 9999999999
Branch: ARUMUGA ARUN R_OOPS
Department: admin
Batch: VL2024250502365
Degree: admin

Scan to verify results



BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502365

VIT V_BCSE102P_Lab 2_COD_Medium_2D Array

Attempt : 1
Total Mark : 20
Marks Obtained : 20

Section 1 : Coding

1. Problem Statement

Lakshith and Manav, best friends, enjoy summer vacation playing games. This time, they delve into matrix manipulation. They write a program to determine if a matrix is symmetric by comparing it with its transpose.

If the matrix is symmetric, they celebrate their victory; otherwise, they continue their quest for the perfect game.

Answer

```
// You are using GC
#include<stdio.h>

int main()
```

```

{
    int n;
    scanf("%d",&n);

    int arr[n][n];

    for (int i = 0; i < n; i++){
        for (int j = 0; j < n; j++){
            scanf("%d",&arr[i][j]);
        }
    }

    int new_arr[n][n];

    for (int i = 0; i < n; i++){
        for (int j = 0; j < n; j++){
            new_arr[j][i] = arr[i][j];
        }
    }

    printf("Original matrix:\n");

    for (int i = 0; i < n; i++){
        for (int j = 0; j < n; j++){
            printf("%d ",arr[i][j]);
        }
        printf("\n");
    }

    printf("Transpose matrix:\n");
    for (int i = 0; i < n; i++){
        for (int j = 0; j < n; j++){
            printf("%d ",new_arr[i][j]);
        }
        printf("\n");
    }

    int is_sym = 1;
    for (int i = 0; i < n; i++){
        for (int j = 0; j < n; j++){
            if(new_arr[i][j] != arr[i][j]){
                is_sym = 0;
                break;
            }
        }
    }
}

```

```

    }
    if (is_sym == 1){
        printf("Matrix is Symmetric!");
    }
    else{
        printf("Matrix is not Symmetric!");
    }
}

```

Status : Correct

Marks : 10/10

2. Problem Statement

Akar is working on a program that modifies a given matrix based on the presence of zeros in its rows and columns.

He needs your help to write a program that takes an input matrix and modifies it as follows: if a cell in the matrix contains a zero, then the entire row and column of that cell should be set to zero.

Assist him by writing the program.

Answer

```

#include <stdio.h>

```

```

int main(){
    int r, c;
    scanf("%d %d", &r, &c);

    int matrix[r][c];
    int first_row = 0, first_col = 0;

```

```

    for (int i = 0; i < r; i++){
        for (int j = 0; j < c; j++){
            scanf("%d", &matrix[i][j]);
            if (matrix[i][j] == 0){
                if (i == 0) first_row = 1;
                if (j == 0) first_col = 1;
                matrix[i][0] = 0;
                matrix[0][j] = 0;
            }
        }
    }

```

```

    }
    }
}

for (int i = 1; i < r; i++){
    for (int j = 1; j < c; j++){
        if (matrix[0][j] == 0 || matrix[i][0] == 0){
            matrix[i][j] = 0;
        }
    }
}

if (first_row){
    for (int j = 0; j < c; j++){
        matrix[0][j] = 0;
    }
}

if (first_col) {
    for (int i = 0; i < r; i++){
        matrix[i][0] = 0;
    }
}

for (int i = 0; i < r; i++){
    for (int j = 0; j < c; j++){
        printf("%d ", matrix[i][j]);
    }
    printf("\n");
}

return 0;

}

```

Status : Correct

Marks : 10/10