Basic Programming Lab

— — 0x08

2D-Array

// Program to declare and initialise 2D Array

```
#include <stdio.h>
int main()
{
    int row, col;
    int i, j, value;
    int mat[3][3];
    printf("\nInput the number of rows:");
    scanf("%d", &row);
    printf("\nInput number of cols: ");
    scanf("%d", &col);
    for (i = 0 ; i < row; i++)
    {
        for (j = 0 ; j < col; j++)
        {
            printf("\nInput Value for (%d,%d): ",i+1,j+1);
            scanf("%d", &value);
            mat[i][j] = value;
        }
    }
    printf("\nEntered Matrix is as follows:\n");
    for (i = 0; i < row; i++)
    {
        for (j = 0; j < col; j++)
        {
            printf("%d ", mat[i][j]);
        }
        printf("\n");
    }

return 0;
}
```

String Functions

Library File (string.h)

Function	Description
strcpy(s1,s2)	Copies s2 into s1
strcat(s1,s2)	Concatenates s2 to s1. That is, it appends the string contained by s2 to the end of the string pointed to by s1. The terminating null character of s1 is overwritten. Copying stops once the terminating null character of s2 is copied.
strncat(s1,s2,n)	Appends the string pointed to by s2 to the end of the string pointed to by s1 up to n characters long. The terminating null character of s1 is overwritten. Copying stops once n characters are copied or the terminating null character of s2 is copied. A terminating null character is always appended to s1.
strlen(s1)	Returns the length of s1. That is, it returns the number of characters in the string without the terminating null character.
strcmp(s1,s2)	Returns 0 if s1 and s2 are the same Returns less than 0 if s1<s2 Returns greater than 0 if s1>s2
strchr(s1,ch)	Returns pointer to first occurrence ch in s1
strstr(s1,s2)	Returns pointer to first occurrence s2 in s1

Assignment

//0x08

//Use scanf for input in Every Program
//Do not Use In-Built Functions

1. Write a program to find the **trace** of a m X m matrix.

2. Write a program to find the **transpose** of a m X n matrix.

3. Write a program to **multiply** two matrices and display the result.

Points to Remember

1. Filetype: .c

2. Naming Convention for Directory: Assignment_X
   where X = Lab No
   example: Assignment_1

3. Naming Convention for File: RollNo_Q_Y.c
   where Y = Question No in that Assignment
   example: 123XXX4567_Q_1.c

Commands:

	Command	Example
Create Directory	mkdir <directory_name>	mkdir test_directory
Create File	vi <filename>	vi test.c
Compile a C Program	gcc <filename>	gcc test.c
Run a C Program	./a.out	

4. Write your details in every program

```
/*
 ------------------------------------------------
|Author : Your_Name                              |
|Roll No: Your_Roll_No                           |
|Department: Your_Department                     |
 ------------------------------------------------
*/
```