

# LAB I

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## *Brushing up your C Skills...*

This part is aimed to refresh your C programming skills and enable you to switch from C programming language to C++ programming language.

Note:

- Use Code blocks editor to code the programs and C Style indentation for every program is a must.

1. See how you can handle matrices using functions:

```
#include<stdio.h>

void ScanMatrix(int r, int c, int a[ ][10]);
void DisplayMatrix(int r, int c, int a[ ][10]);

int main()
{
    int a[10][10];
    int i, j, r, c;
    printf("enter the number of rows and cols\n");
    scanf("%d%d", &r, &c);
    ScanMatrix(r, c, a);
    DisplayMatrix(r, c, a);
    return 0;
}

void ScanMatrix( int r, int c, int a[ ][10])
{
    int i, j;
    for(i=0; i<r; i++)
        for(j=0; j<c; j++)
            scanf("%d", &a[i][j]);
}
```

```

void DisplayMatrix(int r, int c, int a[ ][10])
{
    int i,j;
    for(i=0;i<r;i++)
    {
        printf("\n");
        for(j=0; j<c; j++)
        {
            printf("%d\t", a[i][j]);
        }
    }
}

```

2. Write a program to read and display an  $m \times n$  matrix. Also find the sum, transpose and product of two  $m \times n$  matrices. Write user defined functions for each operation
3. Accept an array of integers and using a function *findmax()*, find the maximum among the array of integers
4. Raising a number  $n$  to a power  $p$  is the same as multiplying  $n$  by itself  $p$  times. Write a function called *power ( )* that takes a *double* value for  $n$  and an *int* value for  $p$ , and returns the result as double value.
5. A phone number, such as (476) 280- 1280, can be thought of as having three parts: the area code (476), the exchange (280) and the number (1280). Write a program that uses a structure to store these three parts of a phone number separately. Create two structure variables of type phone. Initialize one, and have the user input a number for the other one. Then display both numbers. The interchange might look like this:

Enter your area code, exchange, and number: 476 280 1280

My number is (474) 272-1234

Your number is (476) 280-1280