LAB 7-FUNCTION

Practice 1

Write a C program to find factorial of a number.

Source code

```
#include<stdio.h>
int factorial(int n);
int main()
{
   int n;
   printf("Enter a positive integer: ");
   scanf("%d",&n);
   printf("Factorial of %d = %ld", n, factorial(n));
   return 0;
}
int factorial(int n)
{
   if(n!=1)
    return (n*factorial(n-1));
}
```

Sample Output

```
Enter a positive integer: 6
Factorial of 6 = 720
```

Practice 2

Write a C program to find the largest element of an array.

Source code

```
#include <stdio.h>
int main() {
  int c, array[100], size, location, maximum;
  int find_maximum(int array[], int size);
  printf("Input number of elements in array\n");
  scanf("%d", &size);
  printf("Enter %d integers\n", size);
  for (c = 0; c < size; c++)
  scanf("%d", &array[c]);
  maximum=  find_maximum(array, size);
  printf("Maximum element = %d", maximum);
  return 0;
}
```

```
int find_maximum(int a[], int n) {
  int c, max;
  max = a[0];
  for (c = 1; c < n; c++) {
    if (a[c] > max) {
       max = a[c];
    }
  }
 return (max);
}
```

Sample Output

```
Input number of elements in array
5
Enter 5 integers
4 12 32 23 1
Maximum element =32
```

Practice 3

Write a C program to sort elements of an array.

Source Code

```
void sort(int m, int x[ ]);
  main()
  {
     int i;
     int marks[5] = {40, 90, 73, 81, 35};

     printf("Marks before sorting\n");
     for(i = 0; i < 5; i++)
     printf("%d ", marks[i]);
     printf("\n\n");
     sort (5, marks);
     printf("Marks after sorting\n");
     for(i = 0; i < 5; i++)
     printf("%4d", marks[i]);
     printf("\n");
  }
  void sort(int m, int x[ ])
```

```
  {
     int i, j, t;

     for(i = 0; i <m; i++)
        for(j = i+1; j < m; j++)
           if(x[i] >= x[j])
           {
              t = x[i];
              x[i] = x[j];
              x[j] = t;
           }
  }
```

Sample Output

Marks before sorting
40, 90, 73, 81, 35
Marks after sorting
35, 40, 73, 81, 90

Practice 4

Write a C program to display Fibonacci series up to a specified range.

Source Code

```
#include<stdio.h>
void Fibonacci(int);
int main(){
int n;
printf("Enter the range of the Fibonacci series: ");
scanf("%d",&n);
printf("Fibonacci Series: ");
Fibonacci(n);
return 0;
}
Fibonacci(int n){
int t1=0,t2=1,display;
printf("Fibonacci Series: %d+%d+", t1, t2);
  display=t1+t2;
  while(display<n)
  {
     printf("%d+",display);
     t1=t2;
     t2=display;
```

```
    display=t1+t2;
  }
  return display;
}
```

Sample Output

```
Enter the range of the Fibonacci series: 10
Fibonacci Series: 0+1+1+2+3+5+8+13+21+34+55+89+
```

Practice 5

Write a C program to convert an uppercase string into lowercase and vice versa.

Sample Code

```
#include <stdio.h>
void upper_string(char []);
int main()
{
   char string[100];
   printf("Enter a string to convert it into upper case\n");
   gets(string);
   upper_string(string);
   printf("Entered string in upper case is \"%s\"\n", string);
   return 0;
}

void upper_string(char s[]) {
   int c = 0;
   while (s[c] != '\0') {
      if (s[c] >= 'a' && s[c] <= 'z') {
         s[c] = s[c] - 32;
      }
      c++;
   }
}
```

Sample Output

```
Enter a string to convert it into upper case
bangladesh
Entered string in upper case is
BANGLADESH
```

Exercises

- **Write a C program to transpose a matrix using function.**
- **Write a C program to perform matrix multiplication using function.**