

## Lab Exercise- Week 5

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1. Write a C program to calculate the factorial of any positive number given by the user.
2. Look at the following logic of C program and indicate what it is calculating. Write the correct c program for this calculation.

```
int n,a,max,counter
Input n
counter <-- 0
if( n==0 )
{
    output("No numbers to compare")
}
else
{
    Input a
    max <-- a
    counter <-- 1
    while( counter < n)
    {
        Input a
        if( a > max )
        {
            max <-- a
        }
        counter <--counter+1
    }/*end of while */

    output max

}/* end of else */

/* end of the program */
```

1. Fill up the necessary parts in the following program.

An year is called a leap year if it has 366 days. For an year to be a leap year, the year should be divisible by 4 and if the year is a multiple of 100, then it should be divisible by 400 also. An outline of a C program to take a number from the user and output whether the year with that number is a leap year or not.

```
#include<stdio.h>
int main()
{
    int year;
    printf("Give year \n");
    scanf("%d",&year);
    if(year % 100 == 0)
    {
        if (_____)
        {
            printf("The year is a leap year \n");
        }
        else
        {
            printf("The year is not a leap year \n");
        }
    }
    else if(_____)
    {
        printf("The year is a leap year \n");
    }
    else
    {
        printf("The year is not a leap year \n");
    }
    return 0;
}
```

4. A= [ 24 56 78 76 34 2 56 78]

- a) Show the elements of the array using a for loop.
- b) Show the elements of the array in the reverse order.

5. An outline of the C program for taking two non-negative numbers a, b from the users and giving the answers  $a^b$  is given below. Fill in the missing part and check.

```
#include<stdio.h>
int main()
{
    int a,b, pow,counter;
    printf("Give a \n");
    scanf("%d",&a);
    printf("Give b \n");
    scanf("%d",&b);
    pow = 1;
    counter = 0;
    while (counter < _____)
    {
        pow = pow * _____;
        counter = counter + 1;
    }
    printf("result = %d \n", _____);
    return 0;
}
```

## Homework

1. Write a C program that takes a number n, followed by a set of n numbers from the user and displays the value that is repeated most number of times in the set.
2. Write a C program that takes a number n, followed by a set of n numbers from the user and displays "Strictly Ascending" if the values entered are in strictly ascending order, "Strictly Descending" if the values entered are in strictly descending order and "neither" otherwise.