

# C PROGRAMMING ASSIGNMENT:

## 13

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SUBMITTED BY: -

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SECTION: B22

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1.WAP to find leader number by function definition.

## Code:

```
#include <stdio.h>

int find_max(int n)
{
    int nextnum, largest = 0;
    for (int i = 0; i < n; i++)
    {
        printf("Enter next number\n");
        scanf("%d", &nextnum);
        if (nextnum > largest)
        {
            largest = nextnum;
        }
    }
    return (largest);
}

int countleader(int n)
{
    int nextnum, largest = 0, c = 0;
    for (int i = 0; i < n; i++)
    {
        printf("Enter next number\n");
        scanf("%d", &nextnum);
        if (nextnum > largest)
        {
            largest = nextnum;
            c++;
        }
    }
    return (c);
    return (largest);
}

int main(int argc, char const *argv[])
{

```

```

int a;

printf("Enter the value of n\n");

scanf("%d", &a);

printf("The leader no out of all the entered numbers is %d\n", find_max(a));

printf("The count is %d\n", countleader(a));


return 0;
}

```

## Output:

```

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PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\tempCodeRunnerFile" ; if ($?) { .\tempCodeRunnerFile }
Enter the value of n
2
Enter next number
4
Enter next number
6
The leader no out of all the entered numbers is 6
Enter next number
7
Enter next number
5
The count is 1
PS C:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13> 

```

## 2.WAP to find factorial using recursion

### Code:

```
#include <stdio.h>

int factorial(int n)
{
    if (n == 0)
        return 1;
    else
        return (n * factorial(n - 1));
}

int main()
{
    int number, fact;
    printf("Enter a number: ");
    scanf("%d", &number);
    fact = factorial(number);
    printf("Factorial of %d is %d\n", number, fact);
    return 0;
}
```

### Output:

```
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PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13"
($?) { .\2 }
Enter a number: 5
Factorial of 5 is 120
PS C:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13> █
```

### 3.WAP to find fibonacci series using recursion

#### Code:

```
#include <stdio.h>

int Fibonacci(int n)
{
    if (n == 0)
        return 0;
    else if (n == 1)
        return 1;
    else
        return (Fibonacci(n - 1) + Fibonacci(n - 2));
}

int main()
{
    int n, i = 0, c;
    printf("Enter n");
    scanf("%d", &n);

    printf("Fibonacci series\n");
    for (c = 1; c <= n; c++)
    {
        printf("%d\n", Fibonacci(i));
        i++;
    }
    return 0;
}
```

## Output::

```
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PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13"
($?) { .\3 }
Enter n4
Fibonacci series
0
1
1
2
PS C:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13> 
```

### 3. WAP to find sum of digits using recursion

#### Code:

```
#include <stdio.h>

int sum(int num)
{
    if (num != 0)
    {
        return (num % 10 + sum(num / 10));
    }
    else
    {
        return 0;
    }
}

int main()
{
    int num, result;
    printf("Enter the number: ");
    scanf("%d", &num);
    result = sum(num);
    printf("Sum of digits in %d is %d\n", num, result);
    return 0;
}
```

## Output:

```
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PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\
($?) { .\4 }
Enter the number: 2345
Sum of digits in 2345 is 14
PS C:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13> █
```



## 5.WAP to find gcd using recursion

### Code:

```
#include <stdio.h>

//gcd

int hcf(int n1, int n2)
{
    if (n2 != 0)
        return hcf(n2, n1 % n2);
    else
        return n1;
}

int main()
{
    int n1, n2;

    printf("Enter two positive integers: ");

    scanf("%d %d", &n1, &n2);

    printf("G.C.D of %d and %d is %d.", n1, n2, hcf(n1, n2));

    return 0;
}
```

### Output:

```
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PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\le.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter two positive integers: 2 5
G.C.D of 2 and 5 is 1.
PS C:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13> █
```

## 6. WAP gcd of 3 nos by recursion

### Code:

```
#include <stdio.h>

//gcd of 3 nos by recursion

int gcd(int n1, int n2)
{
    int t;
    if (n1 % n2 == 0)
        return n2;
    else
        return (t = gcd(n2, n1 % n2));
}

int main()
{
    int g, hcf, a, b, c;
    printf("Enter 3 numbers: ");
    scanf("%d %d %d", &a, &b, &c);
    g = gcd(a, b);
    hcf = gcd(g, c);
    printf("GCD of %d,%d, %d is %d.", a, b, c, hcf);
    return 0;
}
```

## Output:

```
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PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\C pro
($?) { .\7 }
Enter 3 numbers: 2 4 8
GCD of 2,4, 8 is 2.
PS C:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13> 
```

## 7. WAP to find $x^y$

### Code:

```
#include <stdio.h>

//x^y

int power(int base, int a)
{
    if (a != 0)
        return (base * power(base, a - 1));
    else
        return 1;
}

int main()
{
    int base, a, result;
    printf("Enter base number: ");
    scanf("%d", &base);
    printf("Enter power number(positive integer): ");
    scanf("%d", &a);
    result = power(base, a);
    printf("%d^%d = %d", base, a, result);
    return 0;
}
```

## Output:

```
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PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\lab\09dec21_lab13" && g++ -o tempCodeRunnerFile le.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter base number: 4
Enter power number(positive integer): 2
4^2 = 16
PS C:\Users\KIIT\Desktop\C programming\lab\09dec21_lab13> 
```