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	Date: 20/05/2021	Week Number: 3

1	**Write a function to reverse a given number and check whether a given number is palindrome or not.** **Input:** Enter the number 121 **Output:** The Number 121 is Palindrome **Input:** Enter the number **Output:** 123 Number 123 is Not Palindrome
	Program: **#include<stdio.h>** **#include<conio.h>** **int reverse(int num);** **int isPalindrome(int num1, int num2);** **int main()** **{** **int num,temp,num1,rev=0;** **printf("Enter a number to check if its a palindrome ");** **scanf("%d",&num);** **num1 = num;** **rev = reverse(num);** **if(isPalindrome(num1, rev))** **printf("The number %d is a Palindrome ",num1);** **else** **printf("The number %d is not a Palindrome ",num1);** **return 0;**

```
}
int reverse(int num)
{
        int rev = 0;
        int temp;
        while(num)
        {
                temp = num%10;
                num = num/10;
                rev = rev*10 + temp;
        }
        return rev;

}

int isPalindrome(int num1, int num2)
{
        if(num1==num2)
                return 1;
        else
                return 0;
}
```

Output Screenshot:

```
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>gcc Program1.c

D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>A
Enter a number to check if its a palindrome 121
The number 121 is a Palindrome
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter a number to check if its a palindrome 1234
The number 1234 is not a Palindrome
```

2 **Write a C program to compute GCD of three numbers using functions.**

Input:

Enter the values of a,b and c

10 4 16

Output:

GCD(10,4,16)=2

Program:

```
#include<stdio.h>
#include<conio.h>

int gcd(int num1,int num2);

int main()
{
        int num1,num2,num3,result;
        printf("Enter three numbers to find GCD ");
        scanf("%d%d%d",&num1,&num2,&num3);
        result = gcd(num1,num2);
        result = gcd(num3,result);
        printf("The GCD of three numbers %d, %d and %d is %d
",num1,num2,num3,result);
        return 0;
}

int gcd(int num1,int num2)
{
    while(num1!=num2)
    {
        if(num1>num2)
            num1 = num1-num2;
        else
            num2 = num2-num1;
    }
    return num1;
}
```

Output Screenshot:

```
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>gcc Program2.c

D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter three numbers to find GCD 14 16 20
The GCD of three numbers 14, 16 and 20 is 2
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter three numbers to find GCD 20 40 65
The GCD of three numbers 20, 40 and 65 is 5
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>
```

3 Write a program in C to check Armstrong and perfect numbers using functions.

Input:

Input any number: 153

Output:

	The 153 is an Armstrong number. The 153 is not a Perfect number. **Input:** Input any number: 28 **Output:** The 28 is not an Armstrong number. The 28 is a Perfect number.
	Program: **#include<stdio.h>** **#include<conio.h>** **void armstrong(int num);** **void perfectNumber(int num);** **int main()** **{** **int num;** **printf("Enter a number ");** **scanf("%d",&num);** **armstrong(num);** **perfectNumber(num);** **return 0;** **}** **void armstrong(int num)** **{** **int r,temp,sum=0;** **temp = num;** **while(num>=1)** **{** **r = num%10;** **sum = sum + (r*r*r);** **num = num/10;** **}** **if(temp==sum)** **printf("The number %d is an Armstrong number \n",temp);** **else** **printf("The number %d is not an Armstrong number \n",temp);** **}** **void perfectNumber(int num)** **{**

```
        int sum=0,i,temp;
        temp = num;
        for(i=1;i<num;i++)
        {
                if(num%i==0)
                        sum = sum +i;
        }
        if(temp == sum)
                printf("The number %d is a perfect number ",temp);
        else
                printf("The number %d is not a perfect number ",temp);
}
```

Output Screenshot:

```
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>gcc Program3.c

D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter a number 153
The number 153 is an Armstrong number
The number 153 is not a perfect number
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter a number 28
The number 28 is not an Armstrong number
The number 28 is a perfect number
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>
```

4 Write a program in C to check whether a number is a prime number or not using function

Input:

Input a positive number : 12

Output:

The number 12 is not a prime number

Input:

Input a positive number : 13

Output:

The number 13 is a prime number

Program:

```
#include<stdio.h>
#include<conio.h>
```

```
int isPrime(int num);

int main()
{
        int num;
        printf("Enter a number to check prime or not ");
        scanf("%d",&num);
        if(isPrime(num))
                printf("The number %d is a prime ",num);
        else
                printf("The number %d is not a prime ",num);
}
int isPrime(int num)
{
        int i;
        for(i=2;i<num;i++)
        {
                if(num%i==0)
                        return 0;
        }
        return 1;
}
```

Output Screenshot:

```
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>gcc Program4.c

D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter a number to check prime or not 17
The number 17 is a prime
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter a number to check prime or not 20
The number 20 is not a prime
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>
```

5 Write a program in C to convert decimal number to octal number using function

Input:

Input any decimal number : 25

Output:

Equivalent Octal Number: 31

Input:

Input any decimal number : 15

Output:

Equivalent Octal Number: 17

Program:

```
#include<stdio.h>
#include<conio.h>

int decToOct(int num);

int main()
{
        int num,octal;
        printf("Enter a number ");
        scanf("%d",&num);
        octal = decToOct(num);
        printf("The decimal number %d in octal is %d",num,octal);
        return 0;
}

int decToOct(int dec)
{
        int rem,oct,k;
        k = 1;
        oct = 0;
        while(dec!=0)
        {
                rem = dec%8;
                oct = rem*k + oct;
                k = k*10;
                dec = dec/8;
        }
        return oct;
}
```

Output Screenshot:

```
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>gcc Program5.c

D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter a number 25
The decimal number 25 in octal is 31
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter a number 235
The decimal number 235 in octal is 353
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>
```

6	Write a program in C to find the sum of the series 1!/1+2!/2+3!/3+4!/4+5!/5 using function. **Output:** The sum of the series is : 34

Program:

```
#include<stdio.h>
#include<conio.h>

int series(int n);
int fact(int n);

int main()
{
        int n,s;
        printf("Enter the number of terms ");
        scanf("%d",&n);
        s = series(n);
        printf("The sum of series is %d",s);
        return 0;
}
int series(int n)
{
        int i,sum=0;
        for(i=1;i<=n;i++)
        {
                sum = sum + (fact(i))/i;
        }
        return sum;
}
int fact(int n)
{
        int i,factorial=1;
        for(i=n;i>0;i--)
        {
                factorial = factorial*i;
        }
        return factorial;
}
```

Output Screenshot:

```
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>gcc Program6.c

D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter the number of terms 5
The sum of series is 34
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter the number of terms 10
The sum of series is 409114
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>
```

Practice Programs

1

Write a program to display Fibonacci series in C within a range using a function

Input:

Enter range: 5

Output:

The fibonacci series is:

0 1 1 2 3 5

Program:

```
#include<stdio.h>
#include<conio.h>

void fibonacci(int n);

int main()
{
        int n;
        printf("Enter the number of terms ");
        scanf("%d",&n);
        fibonacci(n);
        return 0;
}

void fibonacci(int n)
```

```
{
        int i,fib1,fib2,fib;
        fib1 = 0;
        fib2 = 1;
        printf("%d %d ",fib1,fib2);
        for(i=2;i<=n;i++)
        {
                fib = fib1 + fib2;
                printf("%d ",fib);
                fib1 = fib2;
                fib2 = fib;
        }
}
```

Output Screenshot:

```
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>gcc PracticeProgram1.c

D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter the number of terms 10
0 1 1 2 3 5 8 13 21 34 55
```

2 Write a program to check triangle validity when angles are given using functions.

Input:

Enter three angles of triangle:

30

40

60

Output:

Triangle is not valid

Input:

Enter three angles of triangle:

30

60

90

Output:

Triangle is valid

Program:

```
#include<stdio.h>
#include<conio.h>

void triangle(int a,int b,int c);

int main()
{
        int a,b,c;
        printf("Enter the three angles of the triangle ");
        scanf("%d%d%d",&a,&b,&c);
        triangle(a,b,c);
        return 0;
}

void triangle(int a,int b,int c)
{
        if(a>0 && a<179 && b>0 && b<179 && c>0 && c<179)
        {
                if(a+b+c==180)
                        printf("The triangle is valid");
                else
                        printf("The triangle is invalid");
        }
        else
                printf("Input angle/angles are invalid");
}
```

Output Screenshot:

```
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>gcc PracticeProgram2.c

D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter the three angles of the triangle 30 60 90
The triangle is valid
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter the three angles of the triangle 30 40 70
The triangle is invalid
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>a
Enter the three angles of the triangle 20 190 1
Input angle/angles are invalid
D:\PES\Semester 2\Computer_Science- C Programming\C_Lab\Week_3>
```