Logic Building

Assignment Part 1

Problems on Numbers

While writing the program follow some instructions as:-

- First write algorithm for given problem statement.
- Write a function wherever required.
- Write appropriate function name using camel case. Ex. MaxTwoNumber( )
- Write proper name for variables. Ex. int iNumber= 0; float fValue= 0.0;
- Use proper indentations.
- Use proper comments for important statements.
- Remove all warnings after compilation.
- Reuse the variables if possible.
- Write header for every function which contains
  - Function name
  - Input parameters
  - Output value
  - Description of function
- After writing the program write input and expected output.

Demo Program :

```
////////////////////////////////////////////////////////////////////////////////
/
//
// Write a program which accepts range from user and print perfect numbers
// from given range.
//
////////////////////////////////////////////////////////////////////////////////
/
// Algoritham
//
// START
// Accept starting range
// Acept ending range
//
// while start_range < end_range
// count : =0
// sum : =0
//
// while count < (start_range / 2)
// if (count % start_ranger) == 0
// sum = sum + count
// increment count
// continue
//
// if sum == start_range
// PRINT start_range
//
// increment start_range
// continue
// STOP


#include<stdio.h>
// Function prototype

void PerfectNumRange(int,int);

int main()
{
	int iMaximum = 0, iMinimum = 0;
	printf("Enter the minimum range: ");
	scanf("%d",&iMinimum);
	printf("Enter the maximum range: ");
	scanf("%d",&iMaximum);
	PerfectNumRange(iMinimum,iMaximum);
	return 0;
}
```

Logic Building Assignment 1

```
////////////////////////////////////////////////////////////////////////////////
//
// Function Name : PerfectNumRange
//
// Input : integer , integer
//
// Returns : Void
//
// Description
// This function accepts minimum and maximum range from user and print all
// perfect numbers from that range.
//
////////////////////////////////////////////////////////////////////////////////
/
void PerfectNumRange (
                        int iStart, // Starting range
                        int iEnd // Ending range
                        )
{

        // Local variables
        int iNumber = 0, iCounter = 0, iSum = 0;

        // Input validation
        if(iStart >= iEnd)
        {
                printf("Please enter proper range\n");
                return;
        }
        printf("Perfect numbers in given range are: \n");

        // Loop to traverse all elements from given range
        for(iNumber = iStart; iNumber <= iEnd; iNumber++)
        {
                iCounter = 1;
                iSum = 0;

                // Loop to calulate factors of number
                while(iCounter < iNumber/2)
                {
                        if(iNumber % iCounter == 0)
                        {
                                iSum = iSum+iCounter;
                        }
                        iCounter++;
                }
```

```
                // Check whether sum of factors is equal to number
                if(iSum == iNumber)
                {
                        printf("%d \n",iNumber);
                }
        } // for loop ends
}
////////////////////////////////////////////////////////////////////////////////////
/
//
// Input : 1 100
// Output : 6 28
//
////////////////////////////////////////////////////////////////////////////////////
/
```

Write the following programs

1. Write a program which print sentence on console.

2. Write a program which prints multiple sentences on console.

3. Write a program which accept number from user and print that number.

4. Write a program which accept two numbers and print its addition.

Input : 10 20 Output : 30

5. Write a program which accept three numbers and print its multiplication.

Input : 5 4 7 Output : 140

6. Write a program which accept two numbers and print maximum number.

Input : 4 7 Output : 7

7. Write a program which accept two numbers and print minimum number.

Input : 4 7 Output : 4

8. Write a program which accepts N from user and print all even numbers up to N.

Input : 20 Output : 2 4 6 8 10 12 14 16 18 20

9. Write a program which accepts N from user and print all odd numbers up to N.

Input : 20 Output : 1 3 5 7 9 11 13 15 17 19

10.Write a program which accept N from user and print number-line for N.

Logic Building Assignment 1

Input : 4 Output : -4 -3 -2 -1 0 1 2 3 4

11.Write a program which accept N and print first 5 multiples of N.

Input : 4 Output : 4 8 12 16 20

12.Write a program which accept N numbers from user and print addition of that numbers.

Input : 4 7 2 1 5 3 8 Output : 30

13.Write a program which accept N numbers from user and print maximum number from that numbers.

Input : 4 7 2 1 5 3 8 Output : 8

14.Write a program which accept N numbers from user and print minimum number from that numbers.

Input : 4 7 2 1 5 3 8 Output : 1

15.Write a program which accept N numbers from user and print second last maximum number from that numbers.

Input : 4 7 2 1 5 3 8 Output : 7

16.Write a program which accept N numbers from user and print second last minimum number from that numbers.

Input : 4 7 2 1 5 3 8 Output : 2

17.Write a program to check given number is perfect number or not.

Input : 6 Output : 6 is perfect number

18.Write a program which accepts range from user and print perfect numbers from given range.

Input : 1 10 Output : Perfect numbers are : 6

19.Write a program which accepts range from user and print prime numbers from given range.

20.Write a program to check given number is prime number or not.

Input : 5 Output : 5 is prime number

21.Write a program to check whether given number is Armstrong Number or not.

Input : 153 Output : 153 is Armstrong number

Logic Building Assignment 1

22.Write a program to check whether a number is strong number or not.

Input : 145 Output : 145 is strong number

23.Write a program to find factorial of given number.

Input : 5 Output : 120

24.Write a program prime factor of a number.

Input : 15 Output : prime factors 3 5

25.Write a program to print Fibonacci series accept number of element in series from user.

Input : 6 Output : 0 1 1 2 3 5

26.Write a program to find power of a given number.

Input : 2 4 Output : 16

27.Write a program to find number of digits.

Input : 1535 Output : 4

28.Write a program to find out sum of digit of given number.

Input : 1535 Output : 14

29.Write a program to reverse the number.

Input : 1535 Output : 5351

30.Write a program which accept number from user and print all digits from that number which are at even position.

Input : 1537 5641 Output : 5761

31.Write a program which accept number from user and check whether number is palindrome number or not.

Input : 151 Output : 151 is palindrome number

32.Write a program which accept range from user and print all numbers from that range whose addition of digits of that number is prime number.

Input : 20 30 Output : 20 21 23 25 29 30

33.Write a program which accept number from user and print addition of digits which are divisible by 3.

Logic Building Assignment 1

Input : 295367542 Output : 18