DATE:9.11.14

**ASSIGNMENT NO.3**

->PROBLEM STATEMENT:

Write a program in C to find the H.C.F and L.C.M of two numbers.

**->ALGORITHM:**

**Step 1:-** Input the two numbers ,a,b

**Step 2:-** If(a>b) Then

1. *dividend=a*
2. *divisor=b*

**Step 3:-** Else

1. *dividend=b*
2. *divisor=a*

[End of if ….else structure]

**Step 4:-** Find the remainder,*rem=dividend%divisor*.

**Step 5:-** While(*rem!=0)*

1. *dividend=divisor*
2. *divisor=rem*
3. *rem=dividend%divisor*

[End of while loop]

**Step 6:-**Find *hcf=divisor*

**Step 7:-**Find *lcm=(a\*b)/hcf*

**Step 8:-**Print hcf,lcm

**Step 7:-** End

->CODE:

/\*==TO FIND THE H.C.F AND L.C.M. OF TWO NUMBERS===\*/

#include<stdio.h>

#include<conio.h>

void main()

{

/\*Declaration of variables\*/

int a,b,rem,divisor,dividend,hcf,lcm;

clrscr();

/\*Input the two numbers\*/

printf("\n enter the two numbers \n");

scanf("%d",&a);

scanf("%d",&b);

printf("\n the numbers are %d\tand\t%d",a,b);

/\*Initialise the dividends and divisor accordingly\*/

if(a>b)

{

dividend=a;

divisor=b;

}

else

{

dividend=b;

divisor=a;

}

/\*Find the remainder\*/

rem=dividend%divisor;

/\*Executes the statement inside the loop until the value of

remainder is 0\*/

while(rem!=0)

{

dividend=divisor;

divisor=rem;

rem=dividend%divisor;

}

/\*Find the value of hcf and lcm respectively\*/

hcf=divisor;

lcm=(a\*b)/hcf;

printf("\n H.C.F is\t\t\t%d",hcf);

printf("\n L.C.M is\t\t\t%d",lcm);

getch();

}

**->OUTPUT :**

/\*================OUTPUT===================

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*1ST RUN\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

enter the two numbers

56

60

the numbers are 56 and 60

H.C.F is 4

L.C.M is 840

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*2ND RUN\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

enter the two numbers

24

12

the numbers are 24 and 12

H.C.F is 12

L.C.M is 24

\*\*\*\*\*\*\*\*\*\*\*\*\*\*3RD RUN\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

enter the two numbers

31

29

the numbers are 31 and 29

H.C.F is 1

L.C.M is 899

\*/

**->DISCUSSION:**

1. **HEADER FILES** contain definitions of functions and variables which can be incorporated into any C program by using the pre-processor *#include* statement. Standard header files are provided with each compiler, and cover a range of areas, string handling, mathematical, data conversion, printing and reading of variables. This is done at the beginning of the C source file. Some header files are :-
   1. “stdio.h”- This is standard input output. It is used for the library functions printf and scanf.
   2. “conio.h”- This is console input output.
2. **DATATYPES :**

C language is rich in its data types. Storage representations and machine instructions to handle constants differs from machine to machine. The variety of data types available the programmer to select the type appropriate to the needs of the application as well as machine. Some data types are –int, float, char, etc

3.**WHILE LOOP:**

A while loop statement in C programming language repeatedly executes a target statement as

long as the condition is true. The syntax of a **while** loop in C programming language is:

while(condition)

{

statement(s);

}

Here, statement(s) may be a single statement or a block of statements. The condition may be

any expression, and true is any nonzero value. The loop iterates while the condition is true.