ASSIGNMENT-3

Name: Hemanshi Mahla

Roll number: A028

Admission number: U20CS028

Subject: CO

Question.) Take two decimal numbers and divide them after converting to unsigned binary numbers. (Use cumulative SUBTRACTION)

Answer:

C file:

```c
#include <stdio.h>
#include <stdlib.h>
#include "coa3.h"

int main()
{
    int decimal1, decimal2;
    printf("\n\n***********************************************\n\n\n");
    printf("ENTER FIRST THE NUMBER: ");
    scanf("%d", &decimal1);
    printf("\n");
    printf("ENTER SECOND THE NUMBER: ");
    scanf("%d", &decimal2);

    printf("\n\n\n***********************************************\n\n\n");

    division_unsigned_binary_numbers_U20CS028(decimal1,decimal2);

}
```

Header file:

```c
#include <stdio.h>
#include <math.h>

// decimal to binary
```

```
long long int dtob(long long int decimal)
{
       long long int binary=0,x=1;
       while((x*2)<=decimal)
            x*=2;

       while(x>0)
       {
            long long int a=decimal/x;
            decimal-=a*x;
            x/=2;
            binary=binary*10+a;
       }
    return binary;
}
// binary to decimal
long long int btod(long long int binary)
{
    long long int decimal=0,x=1;
    while(x>0)
    {
        long long int a=binary%10;
        decimal+=x*a;
        x*=2;
        binary/=10;
    }
    return decimal;
}

//ass3
long long int binary_subtraction(long long int x,long long int y)
{
    long long int binary1, binary2;
    binary1 = btod(x);
    binary2 = btod(y);
    return (dtob(binary1 - binary2));
}

long long int division_unsigned_binary_numbers_U20CS028(long long int decimal1
,long long int decimal2)
{
    long long int binary1 = dtob(decimal1);
    long long int binary2 = dtob(decimal2);
    long long int temp =binary_subtraction(binary1, binary2);
    int i;
    for (i = 1; i < decimal1; i++)
    {
        temp =binary_subtraction(temp, binary2);
```

```
        if (temp == 0)
        {
            i++;
            break;
        }
        else if (temp < 0)
        {
            break;
        }
    }
    printf("THE DIVISION IN BINARY IS %lld.\n",dtob(i));
    printf("\n*********************************************\n\n");
    printf("THE DIVISION IN DECIMAL IS %d.\n",i);
    printf("\n\n\n*********************************************\n\n\n");

    return 0;
}
```

Output:

```
PS F:\HEMANSHI M\C Program> gcc coa3.c
PS F:\HEMANSHI M\C Program> ./a.exe


*********************************************


ENTER FIRST THE NUMBER: 4

ENTER SECOND THE NUMBER: 2


*********************************************


THE DIVISION IN BINARY IS 10.

*********************************************

THE DIVISION IN DECIMAL IS 2.


*********************************************
```

```
PS F:\HEMANSHI M\C Program> ./a.exe

*********************************************

ENTER FIRST THE NUMBER: 100

ENTER SECOND THE NUMBER: 10


*********************************************

THE DIVISION IN BINARY IS 1010.

*********************************************

THE DIVISION IN DECIMAL IS 10.


*********************************************

PS F:\HEMANSHI M\C Program>
```