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Subject: CNS Lab
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Assignment 9

Aim: Find the GCD of two given number using Euclidean Algo

Theory:
The Euclidean Algorithm for finding GCD(A,B) is as follows:
● If A = 0 then GCD(A,B)=B, since the GCD(0,B)=B, and we can stop.
● If B = 0 then GCD(A,B)=A, since the GCD(A,0)=A, and we can stop.
● Write A in quotient remainder form (A = B · Q + R)
● Find GCD(B,R) using the Euclidean Algorithm since GCD(A,B) = GCD(B,R)

Code:

```
#include <bits/stdc++.h>
using namespace std;

void file()
{
#ifndef ONLINE_JUDGE
   freopen("input.txt", "r", stdin);
   freopen("output.txt", "w", stdout);
#endif
}

int findGCD(int num1, int num2)
{

   if (num2 == 0)
```

```
        return num1;
          cout<<num1/num2<<"\t"<<num1<<"\t"<<num2<<"\t"<<num1%num2<<endl;
    return findGCD(num2, num1%num2);
}

int main()
{
    file();

    int num1, num2;
    cin >> num1 >> num2;

    int gcd = findGCD(num1, num2);
    cout << "GCD is " << gcd << endl;

    return 0;
}
```

Output: