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Subject: CNS Lab

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**Aim: Find the GCD of two given number using Euclidean Algorithm :**

**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 canstop.
* 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 <iostream>

using namespace std;

int findGCD(int num1, int num2)

{

    cout << "Step\tNum1\tNum2\tQuotient\tRemainder" << endl;

    int step = 0;

    while (num2 != 0)

    {

        int quotient = num1 / num2;

        int remainder = num1 % num2;

        cout << step << "\t" << num1 << "\t" << num2 << "\t" << quotient << "\t" << remainder << endl;

        num1 = num2;

        num2 = remainder;

        step++;

    }

    return num1;

}

int main()

{

    int num1, num2;

    cout << "Enter two numbers: ";

    cin >> num1 >> num2;

    int gcd = findGCD(num1, num2);

    cout << "GCD is " << gcd << endl;

    return 0;

}

**Output:**

