Example #1: GCD Using for loop and if Statement

```
#include <stdio.h>
int main()
{
   int n1, n2, i, gcd;
   printf("Enter two integers: ");
   scanf("%d %d", &n1, &n2);
   for(i=1; i <= n1 && i <= n2; ++i)
   {
      // Checks if i is factor of both integers
      if(n1%i==0 && n2%i==0)
         gcd = i;
   }
   printf("G.C.D of %d and %d is %d", n1, n2, gcd);
   return 0;
}
```

Example #2: GCD Using while loop and if...else Statement

```
#include <stdio.h>
int main()
{
   int n1, n2;
   printf("Enter two positive integers: ");
   scanf("%d %d",&n1,&n2);
   while(n1!=n2)
   {
      if(n1 > n2)
         n1 -= n2;
      else
         n2 -= n1;
   }
   printf("GCD = %d",n1);
   return 0;
}
```

Example #3: GCD for both positive and negative numbers

```
#include <stdio.h>
int main()
{
   int n1, n2;
   printf("Enter two integers: ");
   scanf("%d %d",&n1,&n2);
   // if user enters negative number, sign of the number is changed to positive
   n1 = ( n1 > 0) ? n1 : -n1;
   n2 = ( n2 > 0) ? n2 : -n2;
   while(n1!=n2)
   {
      if(n1 > n2)
         n1 -= n2;
      else
         n2 -= n1;
   }
   printf("GCD = %d",n1);
   return 0;
}
```

Example #4: GCD using recursion

```
#include <stdio.h>
int gcd(int, int);
int main() {
        printf("Enter two numbers:\n");
        int a, b;
        scanf("%d%d", &a, &b);
        printf("The gcd of two numbers is %d", gcd(a, b));
        return 0;
}

int gcd(int x, int y) {
        if (x == 0) {
        return y;
        } else if (y == 0) {
        return x;
        } else {
        return gcd(y, x % y);
        }
}
```