Lab 03 Extra

November 22, 2023

Objective

Develop an assembly program to find the greatest common divisor (GCD) of two numbers using the Euclidean Algorithm.

Lab Work

1. **Input:**

   Define two variables, `num1` and `num2`, with initial values. Initialize variables to store the result (`gcd`) and the remainder (`remainder`).

2. **Euclidean Algorithm:**

   Implement the Euclidean Algorithm to find the GCD of `num1` and `num2`. Use a loop to repeatedly apply the algorithm until the remainder becomes zero. The algorithm involves performing a division (`num1 ÷ num2`), finding the remainder, and updating the variables.

3. **Output:**

   Display the GCD as the output.

4. **Evaluation:**

   Test your program with different pairs of numbers. Ensure that the GCD calculation is accurate.

Hints

- Use the `div` instruction for division and finding the remainder.
- Create a loop to iterate until the remainder becomes zero.

Example Code Template

```
org 100h

mov ax, num1
mov bx, num2

gcd_loop:
;your code here

mov gcd, ax            ; Store the GCD in the result variable

; Display the result or perform further operations

ret

num1 dw 36
num2 dw 48
gcd dw 0
```