Table of Contents Program in C Program in Java

Write a function that takes two integers as input and calculates their greatest common divisor.

Program In C

```
#include <stdio.h>

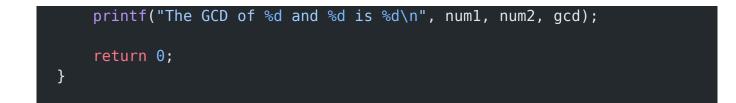
#include <stdio.h>

int calculateGCD(int a, int b) {
 while (b != 0) {
    int temp = b;
    b = a % b;
    a = temp;
    }

    return a;
}

int main() {
    int num1 = 24;
    int num2 = 36;
    int gcd = calculateGCD(num1, num2);
```

Write a function to find the greatest common divisor of two numbers



Explanation:

- 1. The function calculateGCD takes two integers a and b as input and returns their greatest common divisor.
- Inside the while loop, we continuously calculate the remainder by performing the modulo operation a % b. We update a with the value of b and b with the value of the remainder.
- 3. The loop continues until b becomes zero, indicating that we have found the GCD. At this point, the value of a will be the GCD.
- 4. Finally, in the main function, we define two integers num1 and num2 with values 24 and 36, respectively.
- 5. We call the calculateGCD function with num1 and num2 as arguments and store the result in the gcd variable.
- 6. We then print the GCD using the printf function.



Write a function to find the greatest common divisor of two numbers

Program In Java

```
Java
  public class GCDCalculator {
      public static int calculateGCD(int a, int b) {
          while (b != 0) {
              int temp = b;
              b = a % b;
              a = temp;
          }
          return a;
      }
      public static void main(String[] args) {
          int numl = 24;
          int num2 = 36;
          int gcd = calculateGCD(num1, num2);
          System.out.printf("The GCD of %d and %d is %d\n", num1, num2,
  gcd);
      }
  }
```

Explanation:

1. The GCDCalculator class contains two methods: calculateGCD and main.

- 2. The calculateGCD method takes two integers a and b as input and returns their greatest common divisor (GCD).
- 3. Inside the method, there is a while loop that continues as long as b is not zero. This loop uses the Euclidean algorithm to calculate the GCD.
- 4. In each iteration of the loop, the remainder of a divided by b is calculated using the modulo operator %. The value of a is updated to the value of b, and b is updated to the remainder.
- 5. Once the loop exits, the value of a will be the GCD of the original two numbers.
- 6. The main method is the entry point of the program. It initializes two integers num1 and num2 with values 24 and 36, respectively.
- 7. The calculateGCD method is called with num1 and num2 as arguments, and the result is stored in the gcd variable.
- 8. The System.out.printf statement prints the GCD using a formatted string.

Java Output The GCD of 24 and 36 is 12

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