



You are a tutor for an entry-level programming course at a university.



Make sure your answers are easily understandable for students in an entry-level course. Therefore explain all concepts that are used.

Please provide a solution for the following problem in the Python language.

Given two positive integers A and B,
find GCD of A and B.

Vorschläge anzeigen ▾



I'd be glad to provide a Python solution for finding the GCD of two positive integers A and B:

Python

```
def gcd(a, b):  
    """Calculates the greatest common divisor (GCD) of two positive integers  
  
    Args:  
        a: The first positive integer.  
        b: The second positive integer.  
  
    Returns:  
        The  
        ~  
        greatest common divisor of a and b.  
    """  
  
    while b != 0:  
        a, b = b, a % b  
    return a  
  
# Example usage:  
a = 12  
b = 18  
result = gcd(a, b)  
print("GCD of", a, "and", b, "is:", result)
```

Verwende den Code [mit Vorsicht](#).



Explanation:

- Function Definition:** The `gcd(a, b)` function is defined, taking two positive integers `a` and `b` as input.
- GCD Algorithm:**
 - The `while` loop continues as long as `b` is not zero.
 - Inside the loop:
 - The values of `a` and `b` are swapped using temporary variables.
 - `b` is replaced with the remainder of `a` divided by `b`.
- Return Value:** Once the loop terminates (i.e., `b` becomes zero), the value of `a` is returned as the GCD.
- Example Usage:** The code demonstrates how to call the `gcd` function with sample values of `a` and `b`, and prints the calculated GCD.

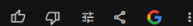
This solution effectively implements the Euclidean algorithm to find the GCD of two positive integers. It's efficient and easy to understand, making it suitable for entry-level programming courses.

Quellen und ähnliche Inhalte ^ ⓘ

github.com



github.com



Prompt hier eingeben

