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Heute
Python GCD Calculation
GCD Calculation in Python
Python GCD Function

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Consider the following programming problem:
Given two positive integers A and B,
find GCD of A and B.
Please provide a solution for this problem in the Python language.

To solve the problem of finding the Greatest Common Divisor (GCD) of two positive integers A and B in Python, you can use the Euclidean algorithm. The Euclidean algorithm is an efficient method to find the GCD and works based on the principle that:

$$\mathrm{GCD}(A, B) = \mathrm{GCD}(B, A\%B)$$

Where `%` is the modulo operation. This process is repeated until B becomes zero, at which point A will be the GCD.

Here's the Python code to implement this solution:

python — Code kopieren

```python
def gcd(A, B):
    while B != 0:
        A, B = B, A % B
    return A

# Example usage:
A = int(input("Enter the first number (A): "))
B = int(input("Enter the second number (B): "))

result = gcd(A, B)
print(f"The GCD of {A} and {B} is: {result}")
```

Explanation:

1. **Input:** The function `gcd()` takes two arguments, `A` and `B`, which are the two numbers for which we need to find the GCD.
2. **While Loop:** The loop continues as long as `B` is not zero. In each iteration, the value of `A` is replaced by `B`, and `B` is replaced by `A % B` (the remainder when `A` is divided by `B`).
3. **Termination:** The loop terminates when `B` becomes zero. At this point, `A` will be the GCD.
4. **Output:** The function returns the GCD of `A` and `B`.

You can test this function with different values of `A` and `B` to ensure it works correctly.