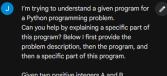




**?** 



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

```
Program:
```

```
def find_gcd(A, B):
  while B != 0:
    B = A % B
   A = temp
def main():
 A = 56
B = 98
  gcd = find_gcd(A, B)
  print(f"GCD of {A} and {B} is: {gcd}")
if __name__ == "__main__":
```

#### Specific part:

```
while B != 0:
    temp = B
B = A % B
    A = temp
```

Can you provide a detailed explanation about the specific part above in the context of the whole program?

Vorschläge anzeigen 🗸 🌖





 I'd be glad to provide a detailed explanation of the specific part of the Python program you've shared:

### Specific part:

```
while B != 0:

temp = B

B = A % B

A = temp
Verwende den Code mit Vorsicht.
```

## Explanation:

This code block implements the **Euclidean algorithm**, a classic method for finding the greatest common divisor (GCD) of two positive integers. Here's a breakdown of

- 1. while B != 0:: This loop continues as long as B is not equal to 0. It's the core of the algorithm.
- 2. temp = B: : This line temporarily stores the value of B in a variable temp . This is crucial for the subsequent calculations.
- 3. B = A % B: : This line calculates the remainder of A divided by B and assigns it to  $\,{}^{\,}_{\,}$  . This remainder is essentially the "leftover" after dividing  $\,{}^{\,}_{\,}$  A by  $\,{}^{\,}_{\,}$  B .
- 4. A = temp: : This line assigns the value stored in temp (which was originally  $\, B \,$ ) to  $\,{\rm A}$  . This effectively swaps the values of  $\,{\rm A}\,$  and  $\,{\rm B}\,$  .

The Euclidean algorithm works based on the following principle:

- If B is O, then A is the GCD.
- Otherwise, the GCD of A and B is the same as the GCD of B and the remainder of A divided by B.

The loop repeatedly calculates the remainder and swaps the values until B becomes 0. At that point, A holds the GCD.

# In the context of the entire program:

This specific part is essential for calculating the GCD of the two input numbers A and  $\, B$  . The  $\, \mbox{find\_gcd} \,$  function encapsulates this algorithm and returns the calculated GCD. The  $\ensuremath{\,^{\mathrm{main}}}$  function then calls this function with the given input values and prints the result.

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