



Please consider this programming problem:

Given a positive integer N. Calculate the Fibonacci series till the number N. If N is a part of the series, include N as well.

Provide an example solution for the problem in the R language.

Vorschläge anzeigen ▾



Fibonacci Series in R

Understanding the Problem:

- We need to generate the Fibonacci sequence up to a given number, N.
- If N is a Fibonacci number, it should be included in the sequence.

R Solution:

Code-Snippet

```
fibonacci_series <- function(N) {  
  fib_seq <- c(0, 1)  
  
  while (tail(fib_seq, 1) < N) {  
    fib_seq <- c(fib_seq, sum(tail(fib_seq, 2)))  
  }  
  
  if (N %in% fib_seq) {  
    return(fib_seq)  
  } else {  
    return(fib_seq[-length(fib_seq)])  
  }  
}
```

Verwende den Code [mit Vorsicht](#).



Explanation:

1. Initialization:

- `fib_seq` is initialized with the first two Fibonacci numbers: 0 and 1.

2. Iteration:

- The `while` loop continues as long as the last element in `fib_seq` is less than N.
- In each iteration, the next Fibonacci number is calculated by summing the last two elements of `fib_seq` and appending it to the sequence.

3. Inclusion of N:

- After the loop, if N is found within `fib_seq`, the entire sequence is returned.
- Otherwise, the last element (which is greater than N) is removed, and the remaining sequence is returned.

Example Usage:

Code-Snippet

```
N <- 20  
result <- fibonacci_series(N)  
print(result)
```

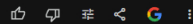
Verwende den Code [mit Vorsicht](#).



This will output:

```
[1] 0 1 1 2 3 5 8 13 21
```

As you can see, the Fibonacci series up to 20 is generated, and since 21 is the next Fibonacci number after 20, it's included in the result.



Prompt hier eingeben



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