

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.

Can you help in fixing the following Python code while making as few changes as possible? Below I first provide the problem description and then the current buggy program.

Given an integer N , find the number of divisors of N that are divisible by 3.

Buggy Program:

```
class P3_Python_buggy:
```

```
    def find_divisors_divisible_by_3(N):
        count = 0
```

```
        for i in range(1, N + 1):
            if N % i != 0:
                if i % 3 == 0:
                    count += 1
```

```
        return count
```

```
    def main():
        n = 36 # Beispielwert
        count = P3_Python_buggy.find_divisors_divisible_by_3(n)
        print(f"Number of divisors of {n} that are divisible by 3: {count}")
```

```
if __name__ == "__main__":
    P3_Python_buggy.main()
```

Can you fix the above buggy program? Modify only the code within the function. Make sure that you make minimal possible changes needed to fix the program.

Vorschläge anzeigen ▾



I'd be glad to help you fix the buggy Python code. Here's the corrected version:

Python

```
class P3_Python_buggy:

    def find_divisors_divisible_by_3(N):
        count = 0

        for i in range(1, N + 1):
            if N % i == 0 and i % 3 == 0: # Check both conditions in one line
                count += 1

        return count

    def main():
        n = 36 # Beispielwert
        count = P3_Python_buggy.find_divisors_divisible_by_3(n)
        print(f"Number of divisors of {n} that are divisible by 3: {count}")

if __name__ == "__main__":
    P3_Python_buggy.main()
```

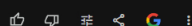
Verwende den Code [mit Vorsicht](#).



Explanation of the changes:

- Combined conditions:** The original code had two separate `if` statements, one to check if `i` is a divisor of `N` and another to check if `i` is divisible by 3. This can be combined into a single `if` statement using the `and` logical operator. This makes the code more concise and easier to read.
- Corrected divisor check:** The original code had an incorrect check for divisors. It was checking if `i` was not a divisor of `N` and then checking if `i` was divisible by 3. This is not the correct logic. We need to check if `i` is both a divisor of `N` and divisible by 3. Therefore, the `if` condition is changed to `if N % i == 0 and i % 3 == 0`.

With these changes, the code should now correctly count the number of divisors of `N` that are divisible by 3.



Prompt hier eingeben

