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Assignment - 1.2

Task Description#1

Write a comment: # Function to check if a string is a valid palindrome (ignoring spaces and case) and allow Copilot to complete it.

CODE

```
def is_palindrome(s: str) -> bool:
    cleaned = ''.join(s.split()).lower()
    return cleaned == cleaned[::-1]
print(is_palindrome("A man a plan a canal Panama"))  # True
print(is_palindrome("Hello World"))  # False
```

OUTPUT

```
True
False
```

Task Description#2

Generate a Python function that returns the Fibonacci sequence up to n terms. Prompt with only a function header and docstring.

CODE

```
def fibonacci(n: int) -> list:
    seq = []
    a, b = 0, 1
    for _ in range(n):
        seq.append(a)
        a, b = b, a + b
    return seq
print(fibonacci(5))
print(fibonacci(10))
```

Task Description#3

Write a comment like # Function to reverse a string and use Copilot to generate the function.

CODE

```
# Function to reverse a string

def reverse_string(s: str) -> str:

    return s[::-1]

# Example usage

print(reverse_string("hello"))

print(reverse_string("Python"))
```

OUTPUT

```
olleh

nohtyP
```

Task Description#4

Generate a program that simulates a basic calculator (add, subtract, multiply, divide). Write the comment: # Simple calculator with 4 operations and let AI complete it

CODE

```
def calculator():

    print("Basic Calculator")

    print("Select operation:")

    print("1. Add")

    print("2. Subtract")

    print("3. Multiply")

    print("4. Divide")

    choice = input("Enter choice (1/2/3/4): ")

    num1 = float(input("Enter first number: "))

    num2 = float(input("Enter second number: "))

    if choice == '1':

        print(f"Result: {num1} + {num2} = {num1 + num2}")
```

```
    elif choice == '2':
        print(f"Result: {num1} - {num2} = {num1 - num2}")
    elif choice == '3':
        print(f"Result: {num1} * {num2} = {num1 * num2}")
    elif choice == '4':
        if num2 != 0:
            print(f"Result: {num1} / {num2} = {num1 / num2}")
        else:
            print("Error: Division by zero is not allowed.")
    else:
        print("Invalid input")
calculator()
```

OUTPUT

```
Basic Calculator
Select operation:
1. Add
2. Subtract
3. Multiply
4. Divide
Enter choice (1/2/3/4): 1
Enter first number: 10
Enter second number: 5
Result: 10.0 + 5.0 = 15.0
Enter choice (1/2/3/4): 4
Enter first number: 7
Enter second number: 0
Error: Division by zero is not allowed.
```

Task Description#5

Use a comment to instruct AI to write a function that reads a file and returns the number of lines.

CODE

```
# Function to read a file and return the number of lines

def count_lines(filename: str) -> int:

    with open(filename, "r") as f:

        lines = f.readlines()

    return len(lines)

# Example usage

# Let's create a sample file first

with open("sample.txt", "w") as f:

    f.write("First line\n")

    f.write("Second line\n")

    f.write("Third line\n")

print("Number of lines:", count_lines("sample.txt"))
```

OUTPUT

```
Number of lines: 3
```