AI-ASSISTED-CODING

ASSIGNMENT-10.2

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B-12

Task Description#1 AI-Assisted Code Review (Basic Errors)

• Write Python program as shown below.

• Use an AI assistant to review and suggest corrections

```
def calcFact(n):
result=1
x=0
for i in range(1,n):
result=result i
return result
def main():
num = 5
FACT = calcFact (num)
print("the factorial of", num, "is", FACT)
t=10
if FACT>10:
```

print("BIG Number")

else:

print("small number")

main()

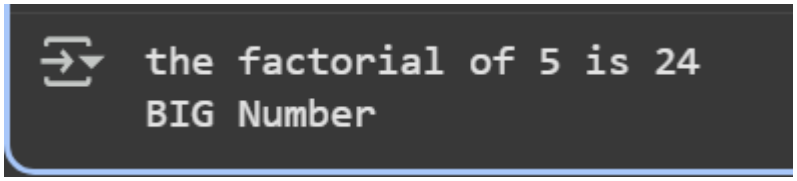
CODE:

```
def calcFact(n):
    result=1
    x=0
    for i in range(1,n):
        result=result*i
    return result

def main():
    num = 5
    FACT = calcFact(num)
    print("the factorial of",num,"is",FACT)
    t=10
    if FACT>10:
        print("BIG Number")
    else:
        print("small number")

main()
```

OUTPUT:



Task Description#2 Automatic Inline Comments

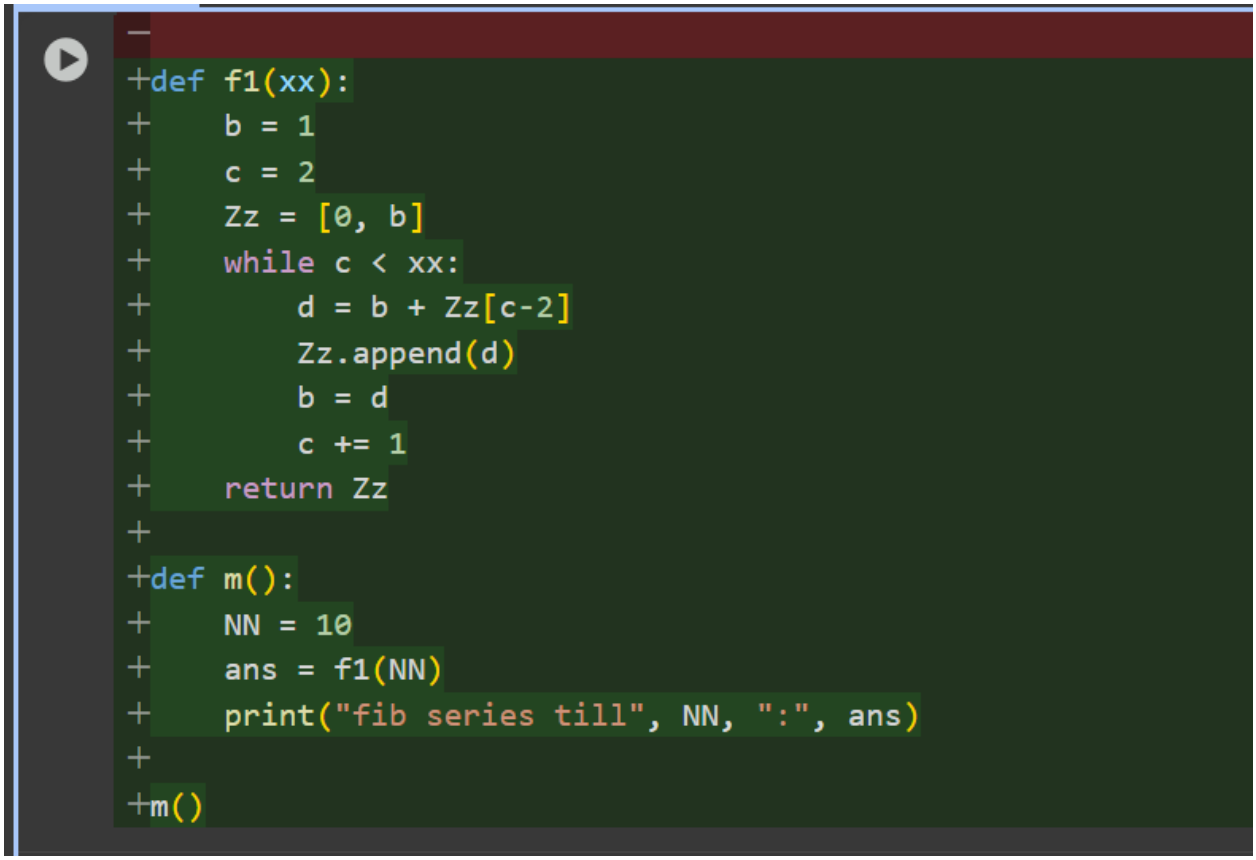
• Write the Python code for Fibonacci as shown below and execute.
• Ask AI to improve variable names, add comments, and apply PEP8 formatting
(cleaned up).
• Students evaluate which suggestions improve readability most. one.

```
def f1(xx):
b-1
c=2
Zz-[a,b]
while c<-XX:
death
Zz.append(d)
b-d
return zz
def m():
NN-10
ans-f1(NN)
```

print("fib series till", NN, ":", ans)

m()

code:



```
def f1(xx):
    b = 1
    c = 2
    Zz = [0, b]
    while c < xx:
        d = b + Zz[c-2]
        Zz.append(d)
        b = d
        c += 1
    return Zz

def m():
    NN = 10
    ans = f1(NN)
    print("fib series till", NN, ":", ans)

m()
```

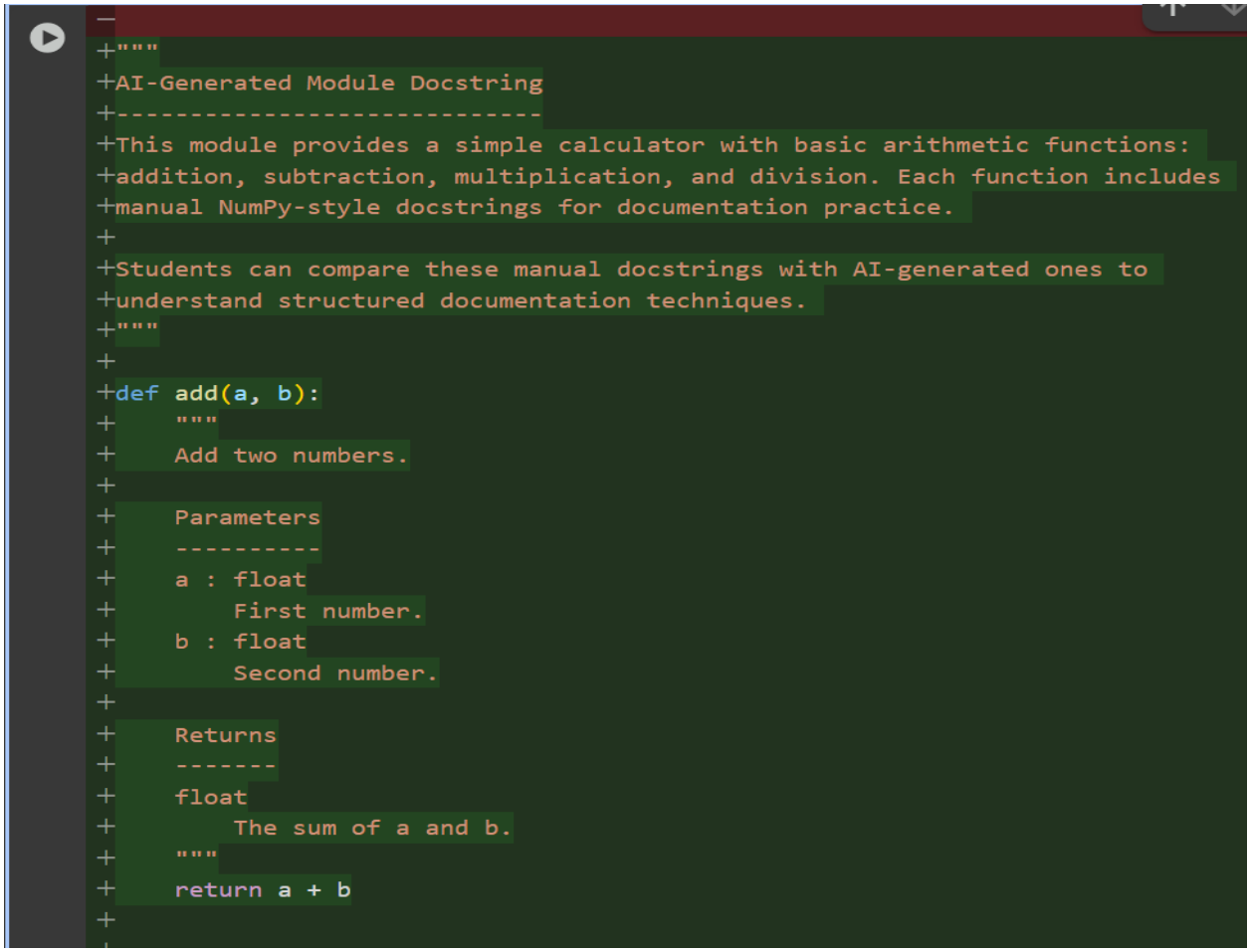
Output:

```
fib series till 10 : [0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
```

Task Description#3

Prompt: Create a Python script (add, subtract, multiply, divide) with NumPy-style docstrings, compare with AI docstrings, and explain code smells.

Code:



```
+"""
+AI-Generated Module Docstring
+----------------------------
+This module provides a simple calculator with basic arithmetic functions:
+addition, subtraction, multiplication, and division. Each function includes
+manual NumPy-style docstrings for documentation practice.
+
+Students can compare these manual docstrings with AI-generated ones to
+understand structured documentation techniques.
+"""
+
+def add(a, b):
+    """
+    Add two numbers.
+
+    Parameters
+    ----------
+    a : float
+        First number.
+    b : float
+        Second number.
+
+    Returns
+    -------
+    float
+        The sum of a and b.
+    """
+    return a + b
+
```

```
+def subtract(a, b):
+    """
+    Subtract one number from another.
+
+    Parameters
+    ----------
+    a : float
+        Number from which to subtract.
+    b : float
+        Number to subtract.
+
+    Returns
+    -------
+    float
+        The difference of a and b.
+    """
+    return a - b
+
```

```
+
+def multiply(a, b):
+    """
+    Multiply two numbers.
+
+    Parameters
+    ----------
+    a : float
+        First number.
+    b : float
+        Second number.
+
+    Returns
+    -------
+    float
+        The product of a and b.
+    """
+    return a * b
+
```

```
+def divide(a, b):
+    """
+    Divide one number by another.
+
+    Parameters
+    ----------
+    a : float
+        Numerator.
+    b : float
+        Denominator (must not be zero).
+
+    Returns
+    -------
+    float
+        The result of division.
+
+    Raises
+    ------
+    ValueError
+        If b is zero.
+    """
+    if b == 0:
+        raise ValueError("Division by zero is not allowed.")
+    return a / b
+
+
+
+if __name__ == "__main__":
+    # Example usage
+    x, y = 10, 5
+    print("Add:", add(x, y))
+    print("Subtract:", subtract(x, y))
+    print("Multiply:", multiply(x, y))
+    print("Divide:", divide(x, y))
+
```

Output:

```
Add: 15
Subtract: 5
Multiply: 50
Divide: 2.0
```