

Assignment-10.2

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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()
```

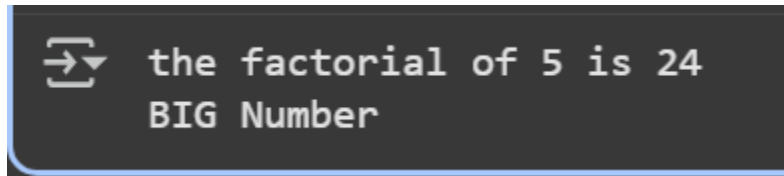
CODE:

```
 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:

A terminal window with a dark background and light blue text. It shows the output of a program: "the factorial of 5 is 24" followed by "BIG Number" on the next line. A small icon of a terminal window is visible in the top left corner of the terminal area.

```
the factorial of 5 is 24
BIG Number
```

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