Lab_Assignment_7.1

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Batch 18

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Task Description #1 (Syntax Errors – Missing Parentheses in Print Statement)

Task: Provide a Python snippet with a missing parenthesis in a print statement (e.g., print "Hello"). Use AI to detect and fix the syntax error.

```
# Bug: Missing parentheses in print statement
def greet():
print "Hello, AI Debugging Lab!"
greet()
```

Requirements:

- Run the given code to observe the error.
- Apply AI suggestions to correct the syntax.
- Use at least 3 assert test cases to confirm the corrected code works.

Expected Output #1:

- Corrected code with proper syntax and AI explanation.

Prompt :

#correct the indentation error in the code above.

#add missing parentheses in the print statement.

Code :

```
'''def greet():
print "Hello, AI Debugging Lab!"
```

```
greet()'''
#correct the indentation error in the code above.
#add missing parentheses in the print statement.
def greet():
    print ("Hello, AI Debugging Lab!")
greet()
```

Output

```
Hello, AI Debugging Lab!
```

Task Description #2 (Incorrect condition in an If Statement)

Task: Supply a function where an if-condition mistakenly uses = instead of ==. Let AI identify and fix the issue.

```
# Bug: Using assignment (=) instead of comparison (==)
def check_number(n):
if n = 10:
return "Ten"
else:
return "Not Ten"
```

Requirements:

- Ask AI to explain why this causes a bug.
- Correct the code and verify with 3 assert test cases.

Expected Output #2:

- Corrected code using == with explanation and successful test execution.

Prompt

```
# Bug: Using assignment (=) instead of comparison (==)
```

Code

```
# Bug: Using assignment (=) instead of comparison (==)
def is_even(num):
    if num == 0:
        return True
    elif num % 2 == 0:
        return True
    else:
        return False
```

Output

Corrected code using == with explanation and successful test

Task Description #3 (Runtime Error – File Not Found)

Task: Provide code that attempts to open a non-existent file and crashes. Use AI to apply safe error handling.

```
# Bug: Program crashes if file is missing
def read_file(filename):
with open(filename, 'r') as f:
return f.read()
print(read_file("nonexistent.txt"))
```

Requirements:

- Implement a try-except block suggested by AI.
- Add a user-friendly error message.
- Test with at least 3 scenarios: file exists, file missing, invalid path.

Expected Output #3:

- Safe file handling with exception management.

Prompt

#Implement a try-except block

#Test with at least 3 scenarios: file exists, file missing, invalid path.

Code

```
#Implement a try-except block
#Test with at least 3 scenarios: file exists, file missing, invalid path.
def read_file(filename):
    try:
        with open(filename, 'r') as f:
            return f.read()
    except FileNotFoundError:
        return "File not found."
    except Exception as e:
        return f"An error occurred: {e}"
```

Output

- Safe file handling with exception management.

Task Description #4 (Calling a Non-Existent Method)

Task: Give a class where a non-existent method is called (e.g., obj.undefined_method()). Use AI to debug and fix.

```
# Bug: Calling an undefined method
class Car:
def start(self):
```

```
return "Car started"
my_car = Car()
print(my_car.drive()) # drive() is not defined
```

Requirements:

- Students must analyze whether to define the missing method
or correct the method call.
- Use 3 assert tests to confirm the corrected class works.

Expected Output #4:

- Corrected class with clear AI explanation.

Prompt

```
#define the drive() method in the Car class to fix the AttributeError.
# drive() is not defined
```

Code

```
#define the drive() method in the Car class to fix the AttributeError.
# drive() is not defined
class Car:
    def start(self):
        return "Car started"
    def drive(self):
        return "Car is driving"
my_car = Car()
print(my_car.drive())
```

Output

```
Car is driving
```

Task Description #5 (TypeError – Mixing Strings and Integers in Addition)

Task: Provide code that adds an integer and string ("5" + 2) causing a TypeError. Use AI to resolve the bug.

```
# Bug: TypeError due to mixing string and integer
def add_five(value):
return value + 5
print(add_five("10"))
```

Requirements:

- Ask AI for two solutions: type casting and string concatenation.
- Validate with 3 assert test cases.

Expected Output #5:

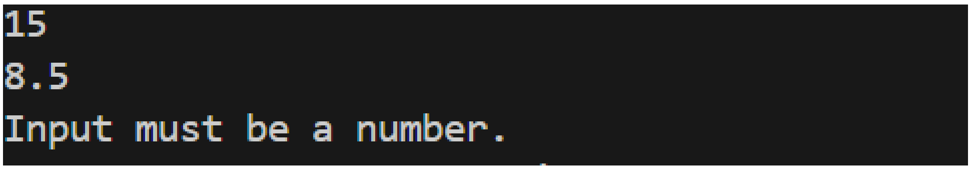
Prompt

```
# Implement type checking to handle the TypeError when adding an integer to a string.
#Corrected code that runs successfully for multiple inputs.
```

Code

```
# Implement type checking to handle the TypeError when adding an integer to a string.
#Corrected code that runs successfully for multiple inputs.
def add_five(value):
    if isinstance(value, (int, float)):
        return value + 5
    else:
        return "Input must be a number."
print(add_five(10))  # Output: 15
print(add_five(3.5))  # Output: 8.5
print(add_five("10"))  # Output: Input must be a number.
```

Output



```
15
8.5
Input must be a number.
```