Assingment-7.1

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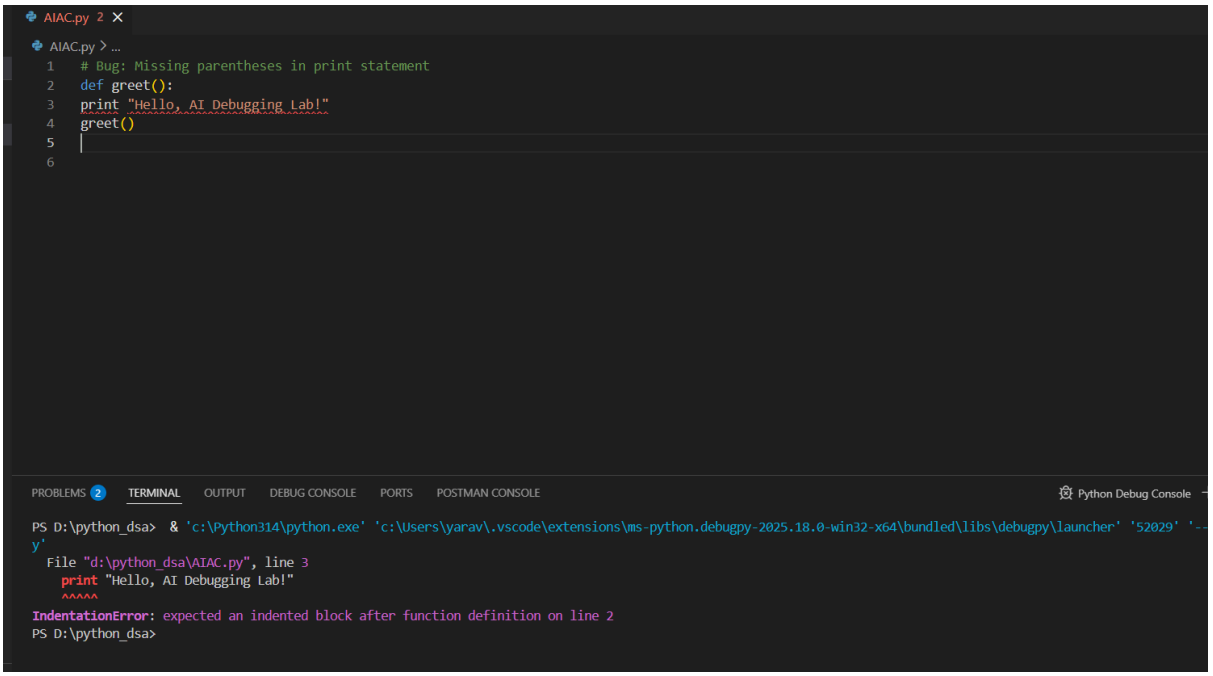
Batch-08

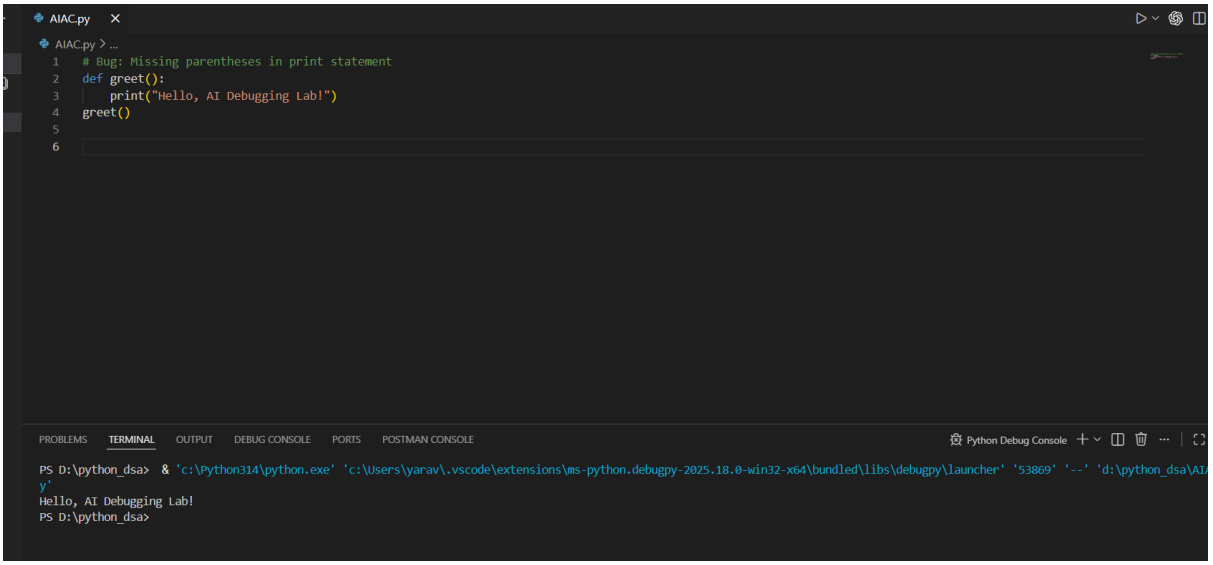
Lab 7: Error Debugging with AI: Systematic approaches to finding and fixing bugs

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.



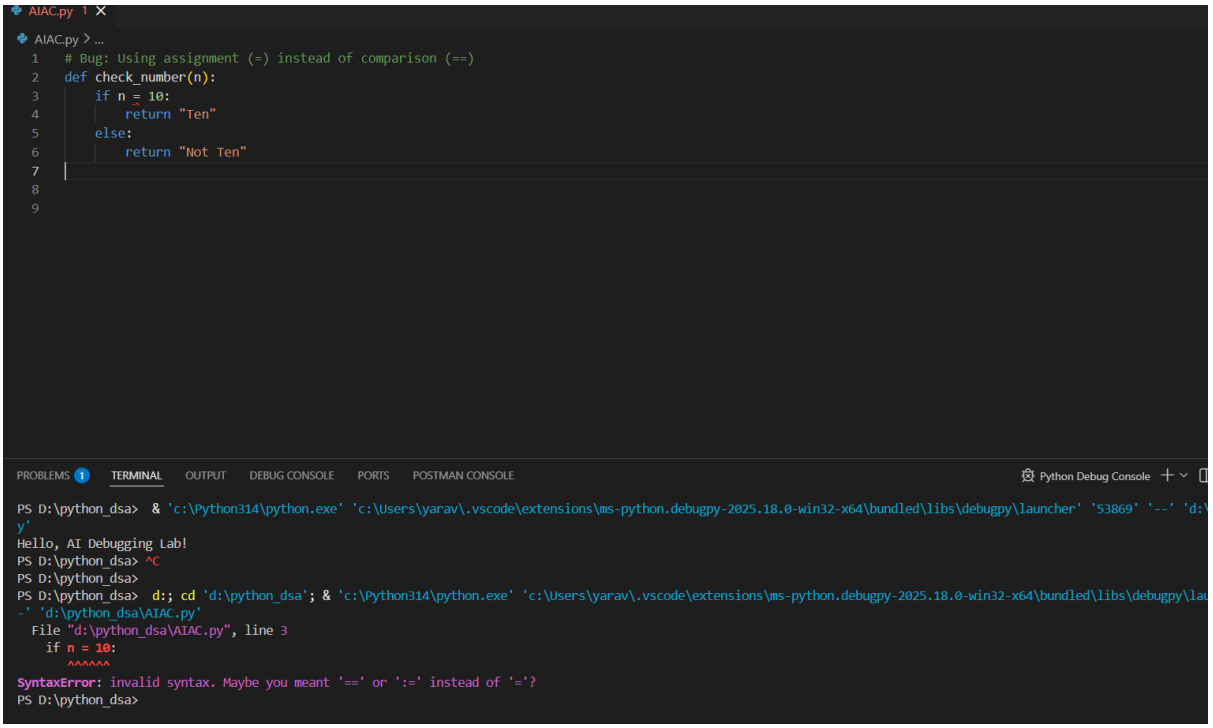
Corrected Code



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.



Corrected Code

AIAC.py

```python
# Fixed Version: Using comparison operator (==)
def check_number(n):
    if n == 10:
        return "Ten"
    else:
        return "Not Ten"


# ✅ Test Cases
assert check_number(10) == "Ten"
assert check_number(5) == "Not Ten"
assert check_number(-10) == "Not Ten"

print("All tests passed successfully!")
```

```
PS D:\python_dsa>  & 'c:\Python314\python.exe' 'c:\Users\yarav\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '57860' '
y'
All tests passed successfully!
PS D:\python_dsa>
```

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.

AIAC.py

```python
# 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"))
```

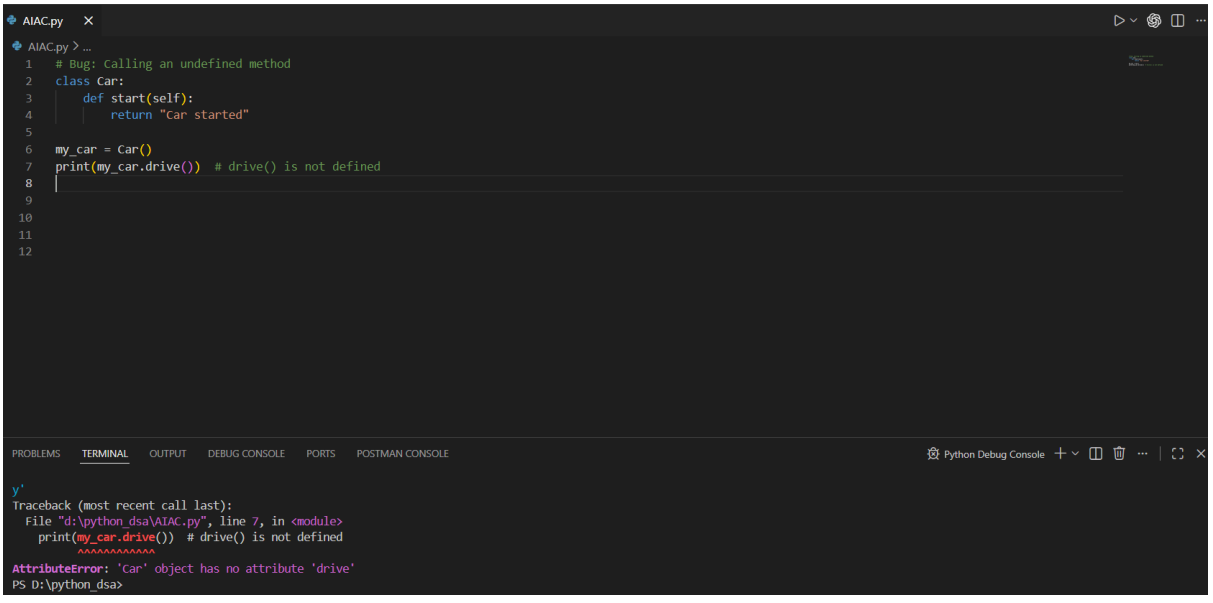
```
All tests passed successfully!
PS D:\python_dsa> ^C
PS D:\python_dsa>
PS D:\python_dsa>  d:; cd 'd:\python_dsa'; & 'c:\Python314\python.exe' 'c:\Users\yarav\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugp
-' 'd:\python_dsa\AIAC.py'
Traceback (most recent call last):
  File "d:\python_dsa\AIAC.py", line 6, in <module>
    print(read_file("nonexistent.txt"))
          ~~~~~~~~~^^^^^^^^^^^^^^^^^^^
  File "d:\python_dsa\AIAC.py", line 3, in read_file
    with open(filename, 'r') as f:
         ~~~~^^^^^^^^^^^^^^^^
FileNotFoundError: [Errno 2] No such file or directory: 'nonexistent.txt'
```

Safe Version with Exception Handling

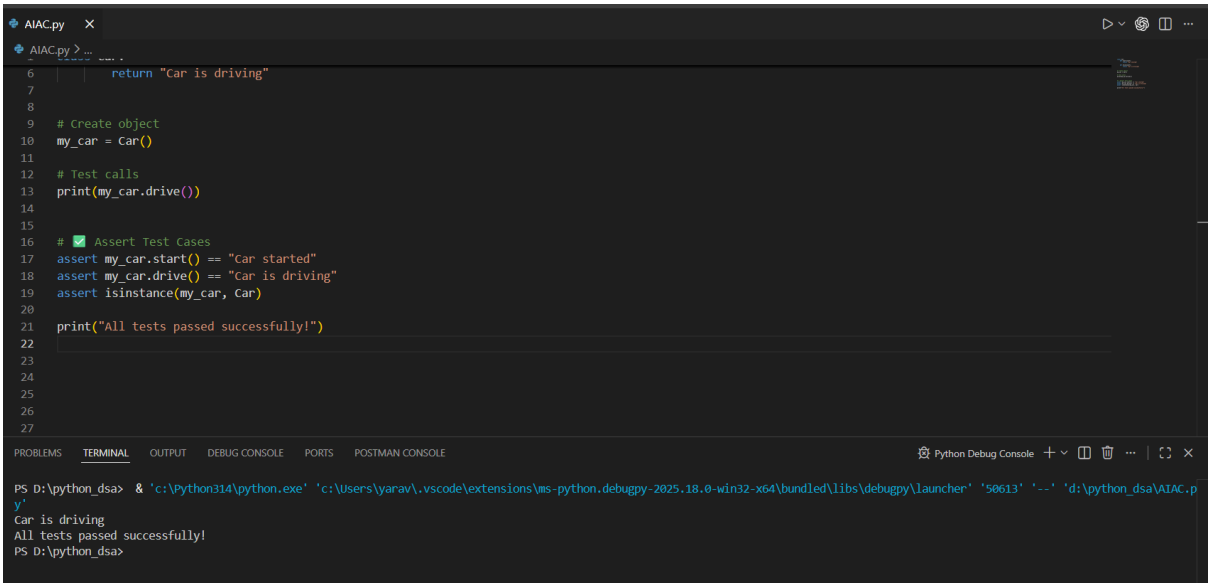
Task Description #4 (Calling a Non-Existent Method)

Task: Give a class where a non-existent method is called (e.g.,

obj.undefined_method()). Use AI to debug and fix.



Corrected Code

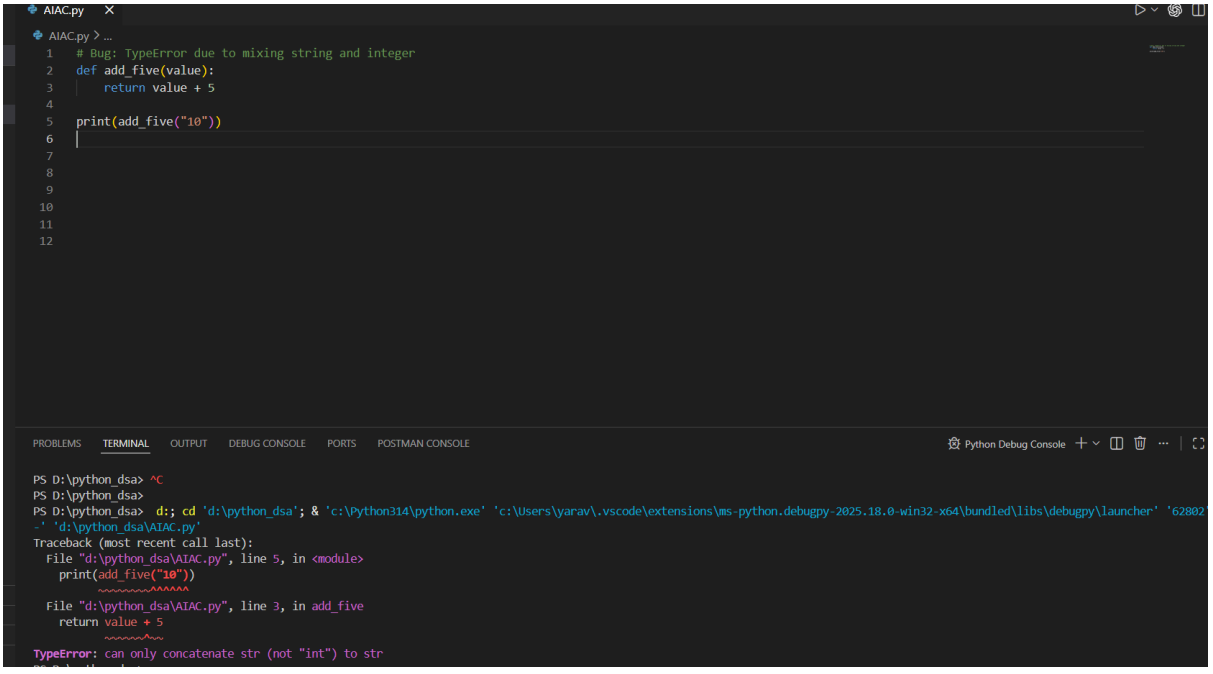


Task Description #5 (TypeError – Mixing Strings and Integers in

Addition)

Task: Provide code that adds an integer and string ("5" + 2) causing

a TypeError. Use AI to resolve the bug



Solution 1: Type Casting (Convert to Integer)

AIAC.py

```python
# Solution 1: Type Casting
def add_five(value):
    return int(value) + 5


# ✅ Test Cases
assert add_five("10") == 15
assert add_five(20) == 25
assert add_five("0") == 5

print("Solution 1 tests passed!")
```

PROBLEMS TERMINAL OUTPUT DEBUG CONSOLE PORTS POSTMAN CONSOLE Python Debug Console

```
PS D:\python_dsa> & 'c:\Python314\python.exe' 'c:\Users\yarav\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '59738' '--' 'd:\pyt
y'
Solution 1 tests passed!
PS D:\python_dsa>
```

Solution 2: String Concatenation

AIAC.py

```python
# Solution 2: String Concatenation
def add_five(value):
    return str(value) + "5"


# ✅ Test Cases
assert add_five("10") == "105"
assert add_five(20) == "205"
assert add_five("") == "5"

print("Solution 2 tests passed!")
```

PROBLEMS TERMINAL OUTPUT DEBUG CONSOLE PORTS POSTMAN CONSOLE Python Debug Console

```
PS D:\python_dsa> & 'c:\Python314\python.exe' 'c:\Users\yarav\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '63944' '--' 'd:\
y'
Solution 2 tests passed!
PS D:\python_dsa>
```