

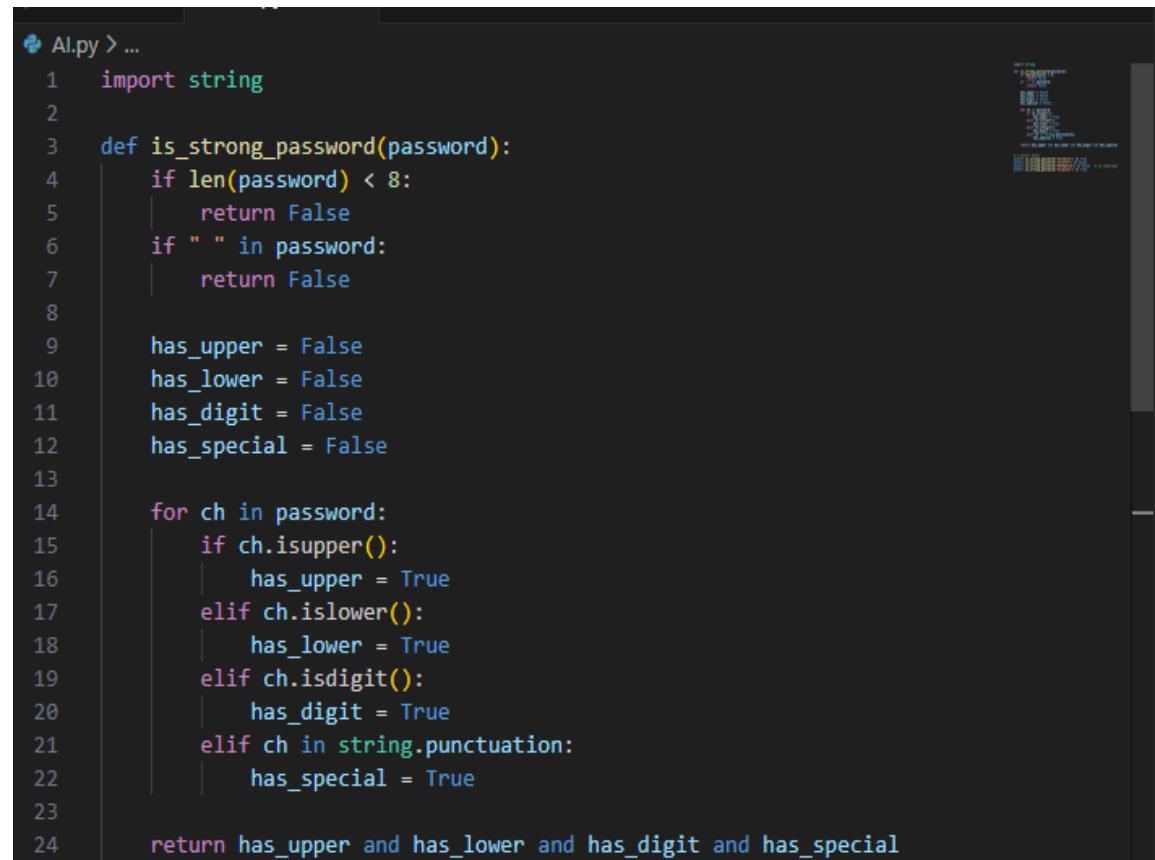
# Test-Driven Development with AI - Generating and Working with Test Cases

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AI Assisted Coding 8\_1

## TASK 1:



```
AI.py > ...
1 import string
2
3 def is_strong_password(password):
4     if len(password) < 8:
5         return False
6     if " " in password:
7         return False
8
9     has_upper = False
10    has_lower = False
11    has_digit = False
12    has_special = False
13
14    for ch in password:
15        if ch.isupper():
16            has_upper = True
17        elif ch.islower():
18            has_lower = True
19        elif ch.isdigit():
20            has_digit = True
21        elif ch in string.punctuation:
22            has_special = True
23
24    return has_upper and has_lower and has_digit and has_special
```

```
23     return has_upper and has_lower and has_digit and has_special
24
25
26
27 # ✅ Assert Tests
28 assert is_strong_password("Abcd@123") == True
29 assert is_strong_password("abcd123") == False
30 assert is_strong_password("ABCD@1234") == False    # no lowercase
31 assert is_strong_password("Aa1@aaaa") == True
32
```

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PROBLEMS    OUTPUT    TERMINAL    ...    Python Debug Console    + ▾    ⌂    ⌂    ⌂    ⌂    ⌂

```
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> & 'c:\Python314\python.exe' 'c:\Users\Admin\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '58873' '--' 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2\AI.py'
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> python AI.py
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2>
```

**Summary:** Implemented a password validator ensuring minimum length, character diversity, and no spaces. All security rules tested with asserts.

## Task2:

The screenshot shows the Visual Studio Code interface. The left pane displays a Python file named 'AI.py' with the following code:

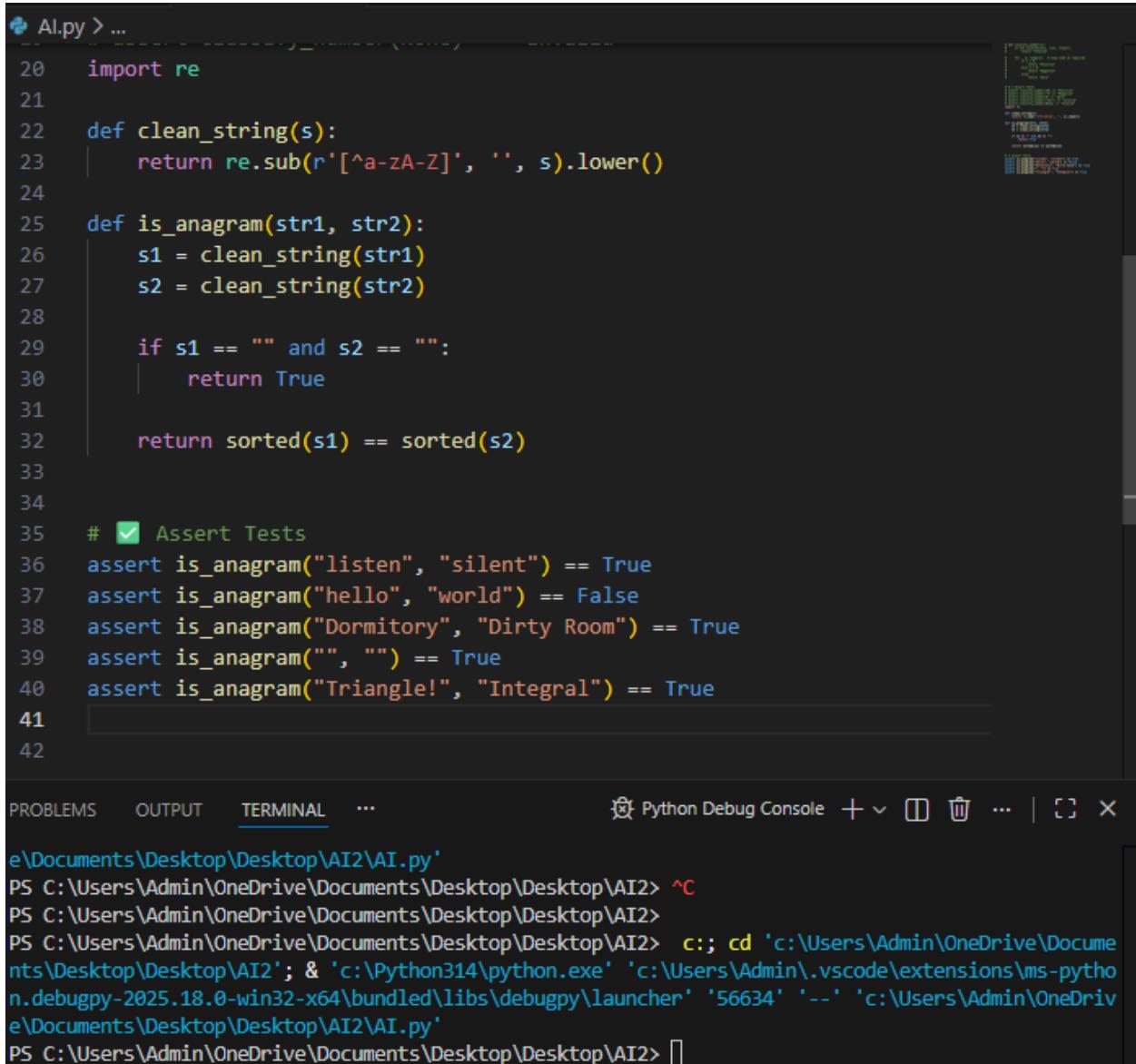
```
1 def classify_number(n):
2     if not isinstance(n, (int, float)):
3         return "Invalid"
4
5     for _ in range(1): # loop used as required
6         if n > 0:
7             return "Positive"
8         elif n < 0:
9             return "Negative"
10        else:
11            return "Zero"
12
13
14 # Assert Tests
15 assert classify_number(10) == "Positive"
16 assert classify_number(-5) == "Negative"
17 assert classify_number(0) == "Zero"
18 assert classify_number("abc") == "Invalid"
19 assert classify_number(None) == "Invalid"
```

The right pane shows a terminal window with the following command history:

```
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> & 'c:\Python314\python.exe' 'c:\Users\Admin\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '50873' '--' 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2\AI.py'
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> python AI.py
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> ^C
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2>
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> c:;
cd 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2'; & 'c:\Python314\python.exe' 'c:\Users\Admin\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '54981' '--' 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2\AI.py'
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2>
```

**Summary:** Created number classifier using loops and handled invalid inputs like strings and None safely.

### Task 3:



The screenshot shows a code editor in VS Code with a dark theme. The file being edited is `AI.py`. The code defines two functions: `clean_string` and `is_anagram`. The `clean_string` function uses regular expressions to remove non-alphabetic characters from a string and converts it to lowercase. The `is_anagram` function first calls `clean_string` on both input strings, then checks if their sorted versions are equal. A section of the code is annotated with a checkmark icon and the text "Assert Tests", containing several `assert` statements that check various cases of anagrams and non-anagrams.

```
AI.py > ...
20     import re
21
22     def clean_string(s):
23         return re.sub(r'[^a-zA-Z]', '', s).lower()
24
25     def is_anagram(str1, str2):
26         s1 = clean_string(str1)
27         s2 = clean_string(str2)
28
29         if s1 == "" and s2 == "":
30             return True
31
32         return sorted(s1) == sorted(s2)
33
34
35 # ✅ Assert Tests
36 assert is_anagram("listen", "silent") == True
37 assert is_anagram("hello", "world") == False
38 assert is_anagram("Dormitory", "Dirty Room") == True
39 assert is_anagram("", "") == True
40 assert is_anagram("Triangle!", "Integral") == True
41
42
```

Below the code editor, the terminal window shows the command line history. It starts with the path `e:\Documents\Desktop\Desktop\AI2\AI.py'`, followed by several PowerShell commands related to navigating the directory and running the Python file. The last command shown is `PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> []`.

```
PROBLEMS OUTPUT TERMINAL ...
Python Debug Console + ⚙️ 🗑️ ⏪ ⏴ ... | [ ] ×
e:\Documents\Desktop\Desktop\AI2\AI.py'
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> ^C
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2>
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> c::; cd 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2'; & 'c:\Python314\python.exe' 'c:\Users\Admin\.vscode\extensions\ms-python.python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '56634' '--' 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2\AI.py'
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> []
```

**Summary:** Built an anagram checker that ignores case, spaces, and punctuation. Handles empty and special cases.

## Task 4:

The screenshot shows a VS Code interface with the following details:

- Editor:** The main editor window displays the file `AI.py` containing Python code for an `Inventory` class. The code includes methods for adding, removing, and getting stock levels, along with assert tests for these operations.
- Terminal:** Below the editor is a terminal window showing the command-line output of running the `AI.py` script. The terminal shows the script being run from the directory `C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2`, and the command `python AI.py` being executed.
- Status Bar:** The status bar at the bottom indicates the current file is `e\Documents\Desktop\Desktop\AI2\AI.py'`.
- Bottom Navigation:** The bottom navigation bar includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is currently selected), PORTS, and GITLENS.

**Summary:** Designed an Inventory class supporting add, remove, and check stock with safe quantity handling

## Task 5:

The screenshot shows the VS Code interface with the following details:

- Editor:** The file `AI.py` is open, displaying Python code for validating and formatting dates. It includes a function `validate_and_format_date` and several assert statements for testing.
- Terminal:** The terminal window shows the command line history for running the script. The user navigated to the directory `C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2`, ran `python AI.py`, and received the output:

```
e:\Documents\Desktop\Desktop\AI2\AI.py'
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> ^C
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2>
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> c;; cd 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2'; & 'c:\Python314\python.exe' 'c:\Users\Admin\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '54095' ''
--> 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2\AI.py'
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> ^C
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2>
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> c;; cd 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2'; & 'c:\Python314\python.exe' 'c:\Users\Admin\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '57877' ''
--> 'c:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2\AI.py'
PS C:\Users\Admin\OneDrive\Documents\Desktop\Desktop\AI2> []
```

**Summary:** Validated dates using `datetime` and converted valid inputs to standard ISO format while rejecting invalid dates