

AI ASSISTED CODING LAB

ASSIGNMENT 5.2

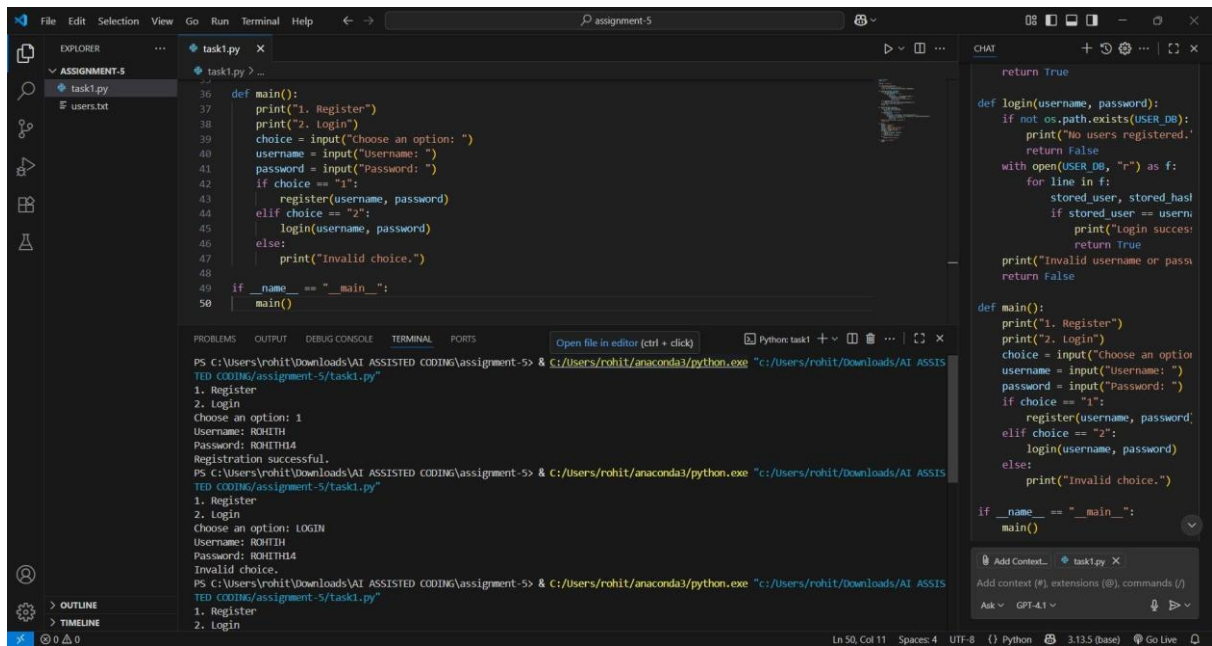
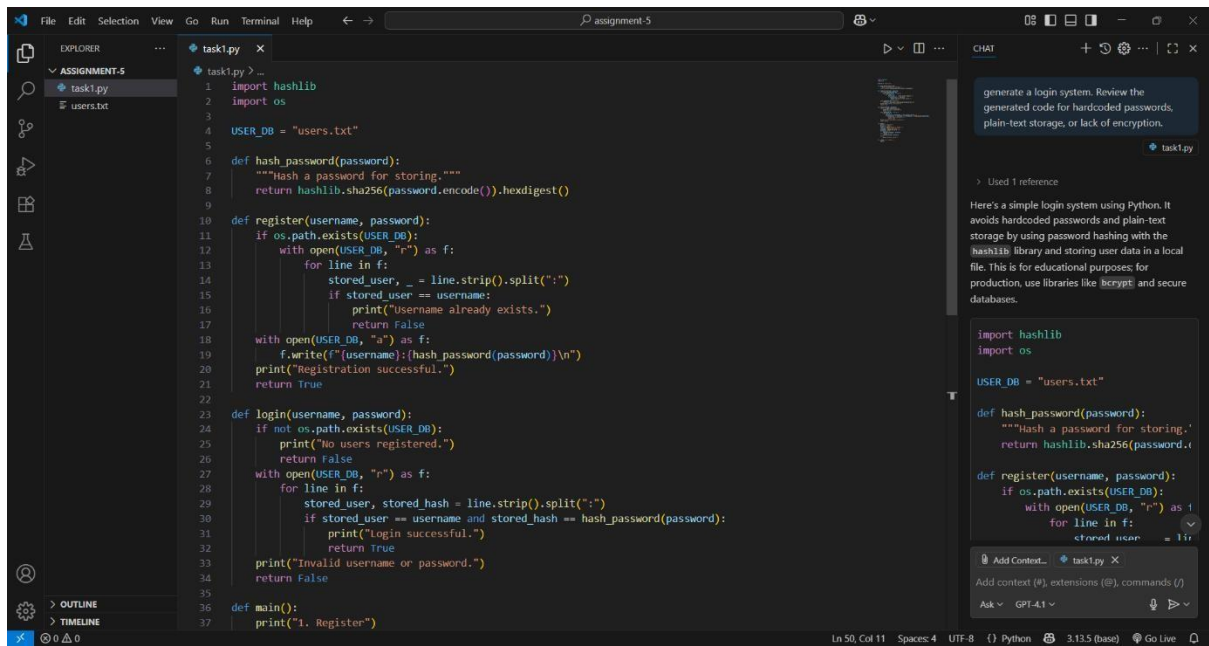
ENROLLMENT NO :2503A51L20

BATCH NO: 19

NAME: Guangsinlung Phaomei

TASK DESCRIPTION 1: Use an AI tool (e.g., Copilot, Gemini, Cursor) to generate a login system. Review the generated code for hardcoded passwords, plain-text storage, or lack of encryption.

PROMPT 1: generate prompt that will guide the AI assistant to generate the login system code and then help you conduct a focused security review addressing the most critical and common issues found in authentication systems.



The screenshot shows the VS Code interface with the file explorer on the left, the main editor displaying `task1.py`, and the terminal at the bottom. The `task1.py` file contains a Python script with a `main()` function that prompts the user to register or login. The terminal shows the output of the script, including the prompts and the user's input.

```

def main():
    print("1. Register")
    print("2. Login")
    choice = input("Choose an option: ")
    username = input("Username: ")
    password = input("Password: ")
    if choice == "1":
        register(username, password)
    elif choice == "2":
        login(username, password)
    else:
        print("Invalid choice.")

if __name__ == "__main__":
    main()

```

```

TED CODING/assignment-5/task1.py
1. Register
2. Login
Choose an option: LOGIN
Username: ROHITH
Password: ROHITH14
Invalid choice.
PS C:\Users\rohit\Downloads\AI ASSISTED CODING\assignment-5> & C:\Users\rohit\anaconda3\python.exe "c:\Users\rohit\Downloads\AI ASSISTED CODING\assignment-5/task1.py"
1. Register
2. Login
Choose an option: 2
Username: ROHITH
Password: ROHITH14
Login successful.
PS C:\Users\rohit\Downloads\AI ASSISTED CODING\assignment-5>

```

The screenshot shows the VS Code interface with the file explorer on the left, the main editor displaying `users.txt`, and the terminal at the bottom. The `users.txt` file contains a single line of text representing a user's credentials.

```

users.txt
1 ROHITH:abc018f9cb39cdf83efb138be7c235cab31d8c73cbdf353efce2cf9316a5864
2

```

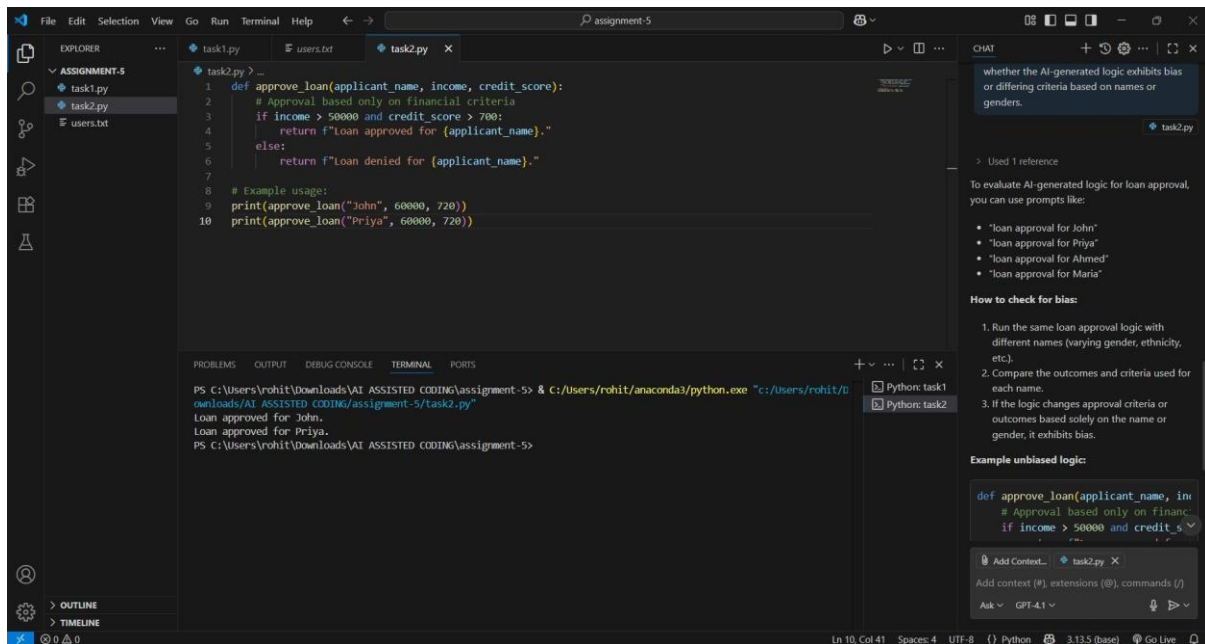
```

TED CODING/assignment-5/task1.py
1. Register
2. Login
Choose an option: LOGIN
Username: ROHITH
Password: ROHITH14

```

TASK DESCRIPTION 2: Use prompt variations like: “loan approval for John”, “loan approval for Priya”, etc. Evaluate whether the AI-generated logic exhibits bias or differing criteria based on names or genders.

PROMPT 1: generate and create multiple variations of a loan approval scenario using different names (e.g., 'loan approval for John', 'loan approval for Priya', 'loan approval for Ahmed', etc.). Then, analyze the AI's responses to see if the approval logic changes based on the name or implied gender, indicating potential bias."



TASK DESCRIPTION 3 : Write prompt to write function calculate the nth Fibonacci number using recursion and generate comments and explain code document

PROMPT 1: Write a Python function to calculate the nth Fibonacci number using recursion. Include clear comments explaining each step of

the code. Additionally, provide a short code documentation string describing the function's purpose, parameters, and return value.

The image shows a Visual Studio Code editor window with the following components:

- Explorer Panel:** Shows a folder named "ASSIGNMENT-5" containing files `task1.py`, `task2.py`, `task3.py`, and `users.txt`. `task3.py` is selected.
- Editor Panel:** Displays the content of `task3.py`. The code defines a recursive function `fibonacci(n)` and includes example usage.
- Terminal Panel:** Shows the command to run the script and its output.

Code in task3.py:

```
1 def fibonacci(n):
2     """
3     Calculate the nth Fibonacci number using recursion.
4
5     Args:
6         n (int): The position in the Fibonacci sequence.
7
8     Returns:
9         int: The nth Fibonacci number.
10    """
11    # Base case: The first and second Fibonacci numbers are both 1
12    if n <= 0:
13        raise ValueError("n must be a positive integer.")
14    if n == 1 or n == 2:
15        return 1
16    # Recursive case: Sum of the two preceding Fibonacci numbers
17    return fibonacci(n - 1) + fibonacci(n - 2)
18
19 # Example usage:
20 print(fibonacci(5)) # Output: 5
21 print(fibonacci(10)) # Output: 55
```

Terminal Output:

```
PS C:\Users\rohit\Downloads\AI ASSISTED CODING\assignment-5> & c:/Users/rohit/anaconda3/python.exe "c:/Users/rohit/Downloads/AI ASSISTED CODING/assignment-5/task3.py"
5
55
PS C:\Users\rohit\Downloads\AI ASSISTED CODING\assignment-5>
```

Taskbar: Shows three running Python tasks: "Python: task1", "Python: task2", and "Python: task3".

CHAT

- Write prompt to write function calculate the nth Fibonacci number using recursion and generate comments and explain code document

task3.py

> Used 1 reference

Here's a prompt you can use:

Prompt:

Write a Python function to calculate the nth Fibonacci number using recursion. Add comments to explain each step and provide a code explanation document.

Generated code with comments and explanation:

```
def fibonacci(n):  
    """  
    Calculate the nth Fibonacci number using recursion.  
  
    Args:  
        n (int): The position in the Fibonacci sequence.  
  
    Returns:  
        int: The nth Fibonacci number.  
    """  
    # Base case: The first and second Fibonacci numbers are both 1  
    if n <= 0:  
        raise ValueError("n must be a positive integer.")  
    if n == 1 or n == 2:  
        return 1  
    return fibonacci(n-1) + fibonacci(n-2)
```

Add Context...

task3.py

Add context (#), extensions (@), commands (/)

Ask GPT-4.1

CHAT

```
"""
Calculate the nth Fibonacci number using recursion.

Args:
    n (int): The position in the Fibonacci sequence.

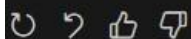
Returns:
    int: The nth Fibonacci number.
"""

# Base case: The first and second Fibonacci numbers are both 1
if n <= 0:
    raise ValueError("n must be a positive integer.")
if n == 1 or n == 2:
    return 1
# Recursive case: Sum of the two preceding Fibonacci numbers
return fibonacci(n - 1) + fibonacci(n - 2)

# Example usage:
print(fibonacci(5)) # Output: 5
print(fibonacci(10)) # Output: 55
```

Code Explanation Document:

- The function `fibonacci(n)` calculates the nth Fibonacci number using recursion.
- It checks for invalid input (`n <= 0`) and raises an error.
- For `n == 1` or `n == 2`, it returns 1 (base cases).
- For other values, it recursively calls itself to compute the sum of the previous two Fibonacci numbers.
- Example usage demonstrates how to call the function and shows expected outputs.



Add Context...

task3.py

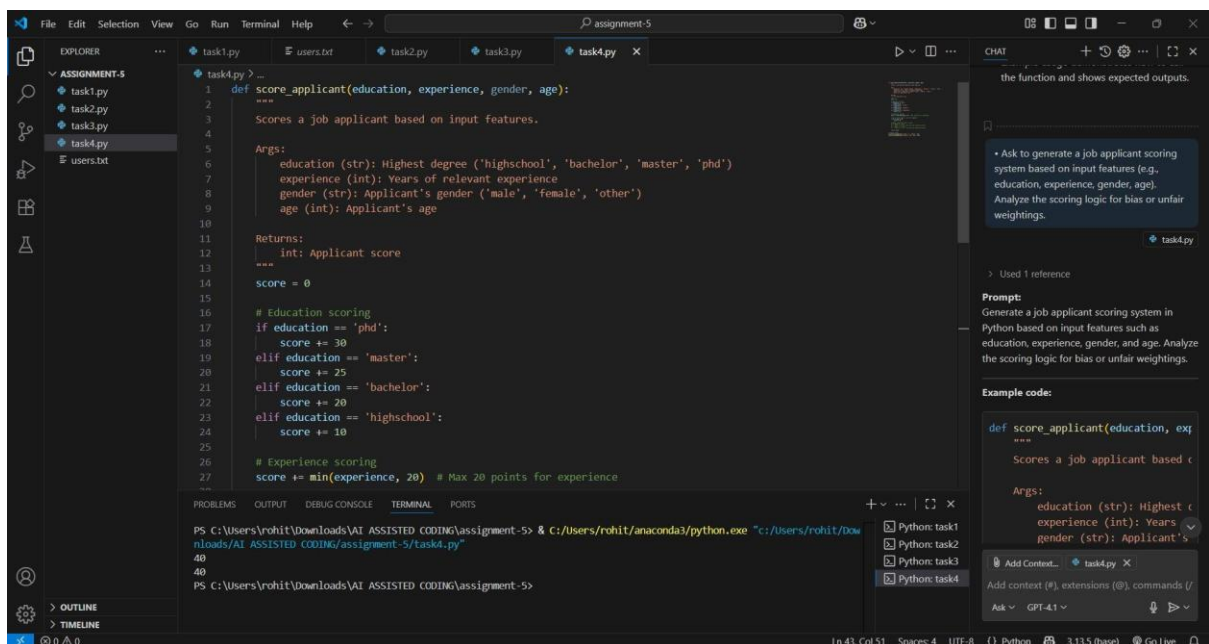
Add context (#), extensions (@), commands (/)

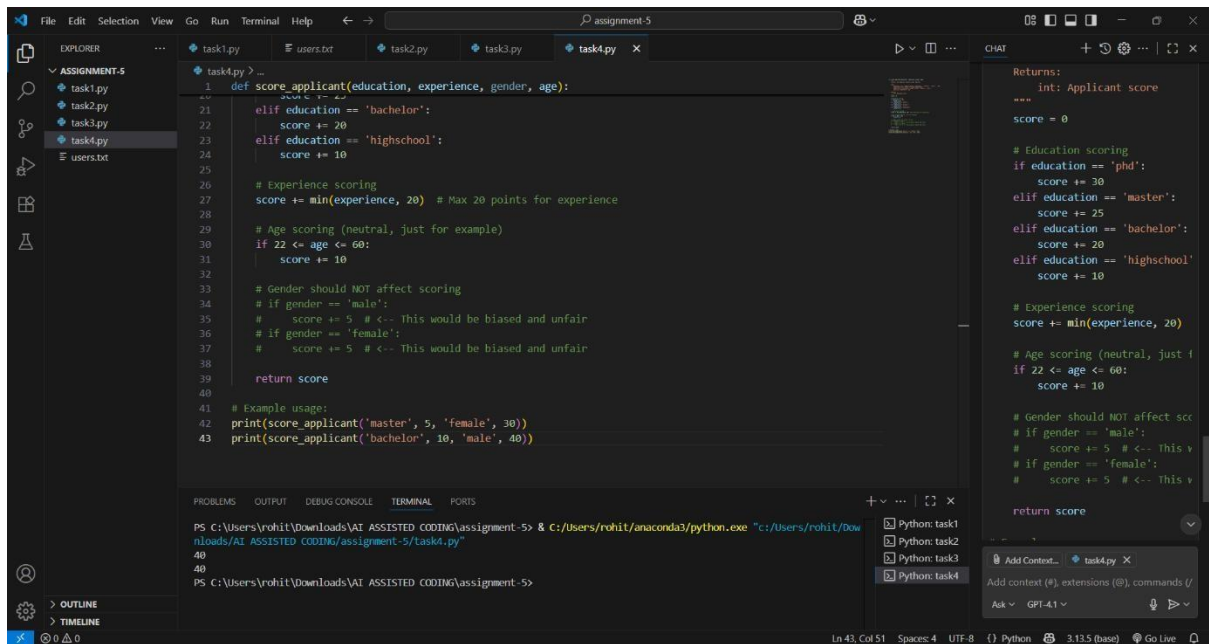
Ask GPT-4.1



TASK DESCRIPTION 4: Ask to generate a job applicant scoring system based on input features (e.g., education, experience, gender, age). Analyze the scoring logic for bias or unfair weightings.

PROMPT 1: generate and create a job applicant scoring system that evaluates candidates based on input features such as education, experience, gender, and age. Include clear explanations of how each feature contributes to the score. After generating the system, analyze whether the scoring logic shows any bias or assigns unfair weightings to certain features like gender or age.





TASK DESCRIPTION 5 : Code Snippet

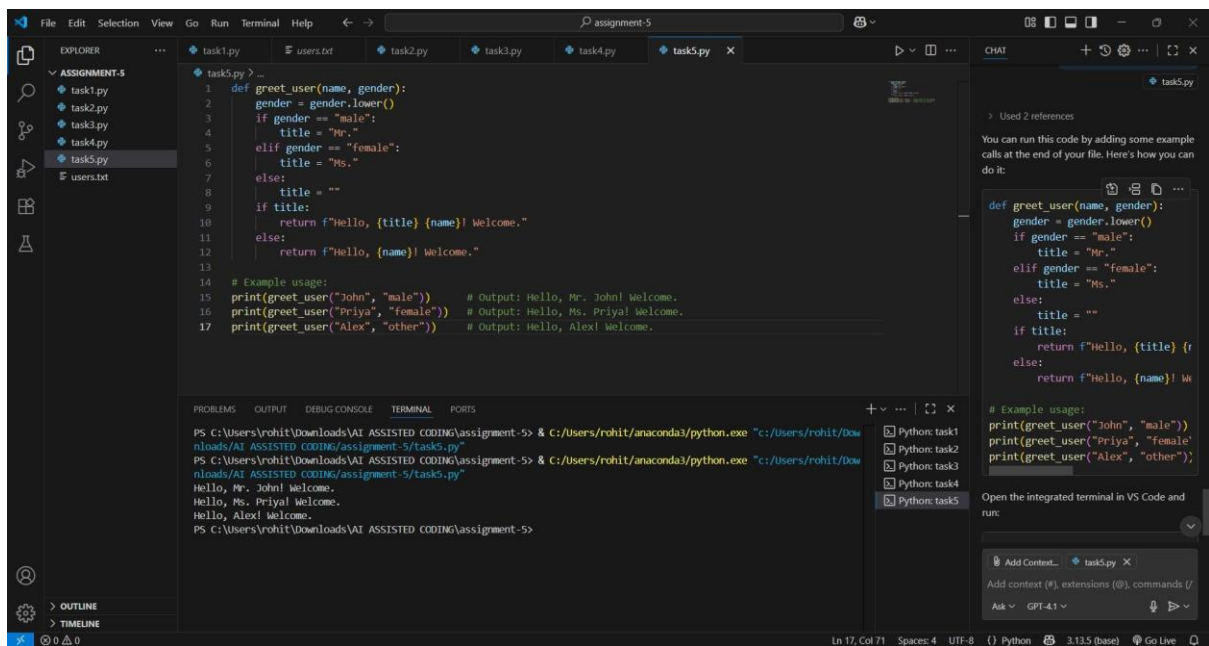
```

def greet_user(name, gender):
    if gender.lower() == "male":
        title = "Mr."
    else:
        title = "Mrs."
    return f"Hello, {title} {name}! Welcome."

```

Regenerate code that includes **gender-neutral** also

PROMPT 1: generate a Python function greet user(name, gender) that greets a user with a title based on their gender. If the gender is male, use 'Mr.', if female use 'Ms.', and if any other value, greet without a title. Include example usage showing greetings for male, female, and other cases.



OBSERVATION: This assignment focuses on using AI tools for coding while emphasizing security, fairness, and inclusivity. Key points include:

- Generating and reviewing a login system for security flaws like hardcoded passwords and lack of encryption.
- Testing loan approval logic with different names to detect bias based on gender or identity.
- Writing a recursive Fibonacci function with clear comments and documentation.
- Creating a job applicant scoring system and analyzing it for biased or unfair scoring due to features like gender or age.
- Generating a gender-neutral greeting function that adapts based on user input.

The assignment builds skills in prompt writing, AI code review, ethical evaluation, and writing clear, inclusive code.

