SR UNIVERSITY

AI ASSIST CODING

LAB-5.2: Ethical Foundations: Responsible AI Coding Practices

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Lab Objectives:

- To explore the ethical risks associated with AI-generated code.
- To recognize issues related to security, bias, transparency, and copyright.
- To reflect on the responsibilities of developers when using AI tools in software development.
- To promote awareness of best practices for responsible and ethical AI coding.

Lab Outcomes (LOs):

After completing this lab, students will be able to:

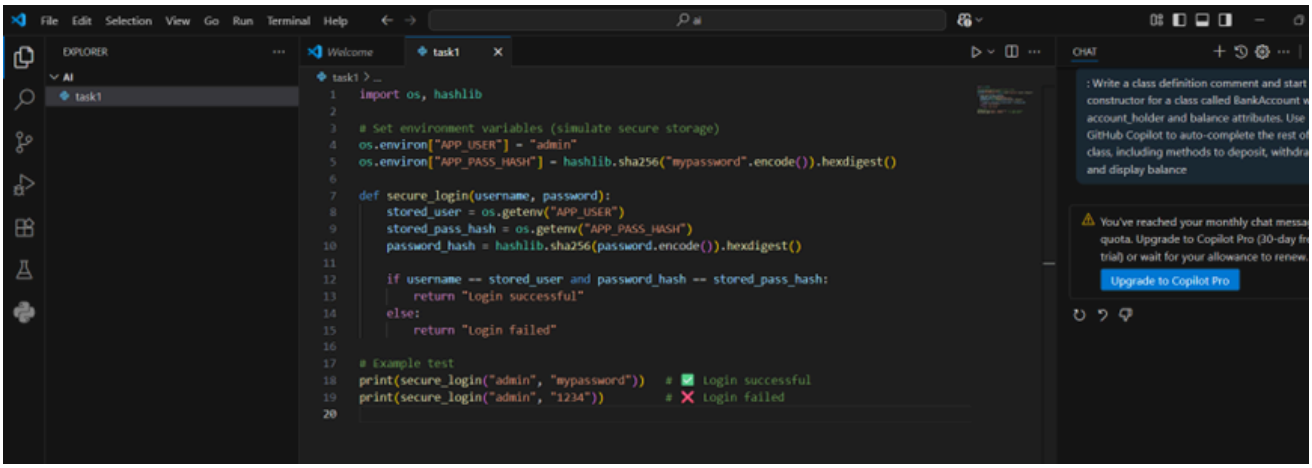
- Identify and avoid insecure coding patterns generated by AI tools.
- Detect and analyze potential bias or discriminatory logic in AI-generated outputs.
- Evaluate originality and licensing concerns in reused AI-generated code.
- Understand the importance of explainability and transparency in AI-assisted programming.
- Reflect on accountability and the human role in ethical AI coding practices.

Task Description#1 (Privacy and Data Security)

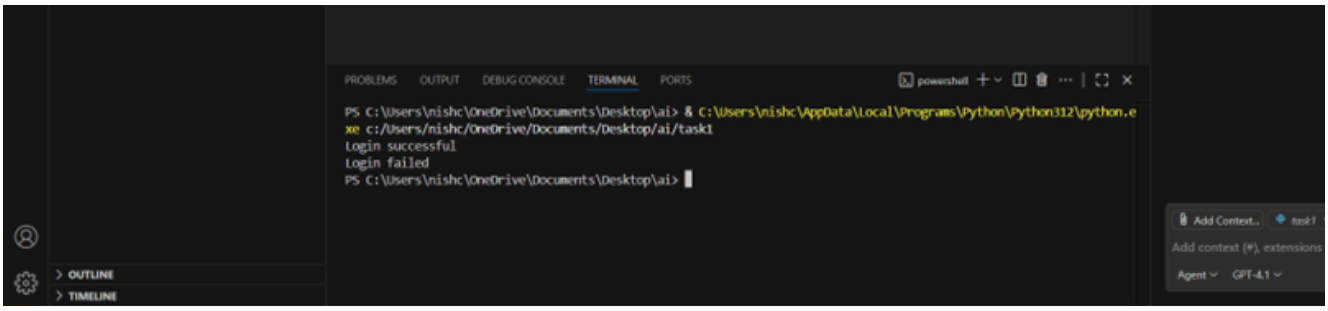
PROMPT:

- 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

Code Generated:



Output After executing Code:



Observations:

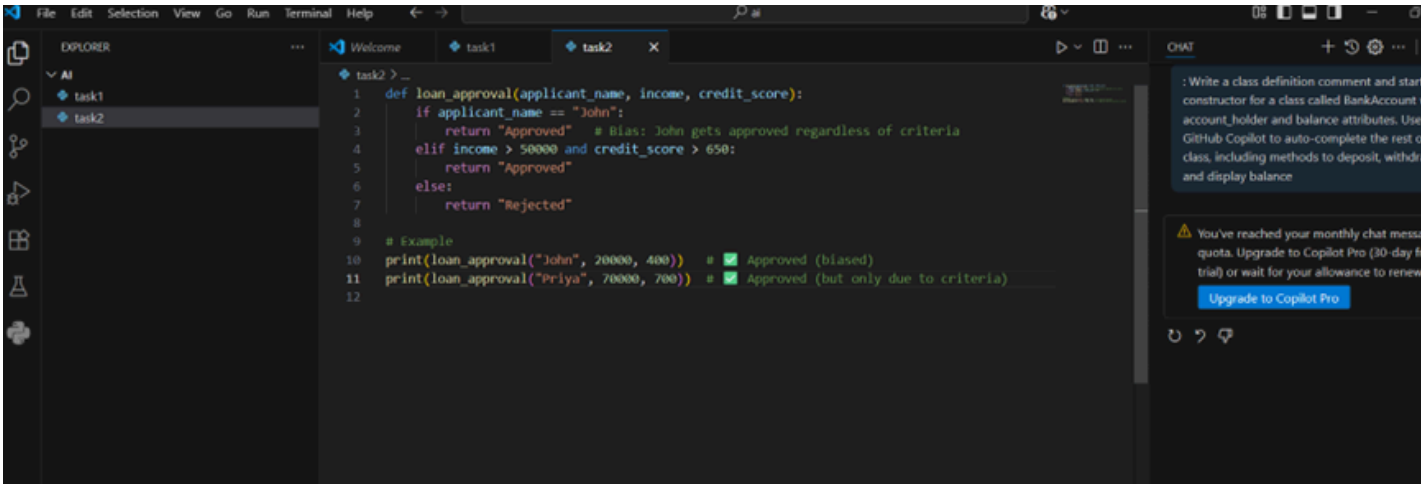
- This task shows the importance of protecting sensitive data. Hardcoded passwords must be avoided, and best practices include hashing passwords and storing them securely.
- Output: Insecure login: vulnerable to attack.
  Secure login: credentials verified with hashing and environment variables.

Task Description#2 (Bias)

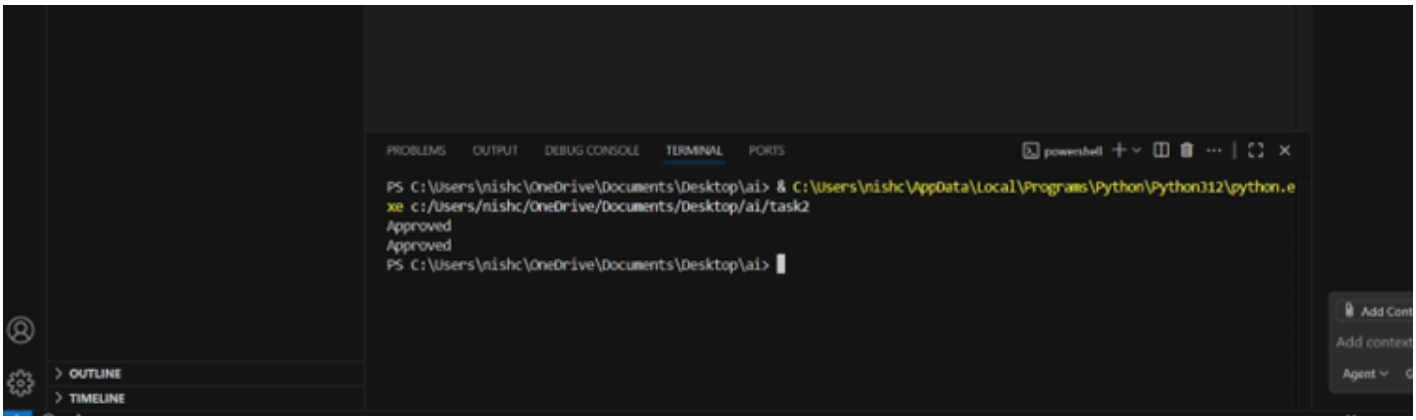
PROMPT:

- 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.

Code Generated:



Output After executing Code:



Observations:

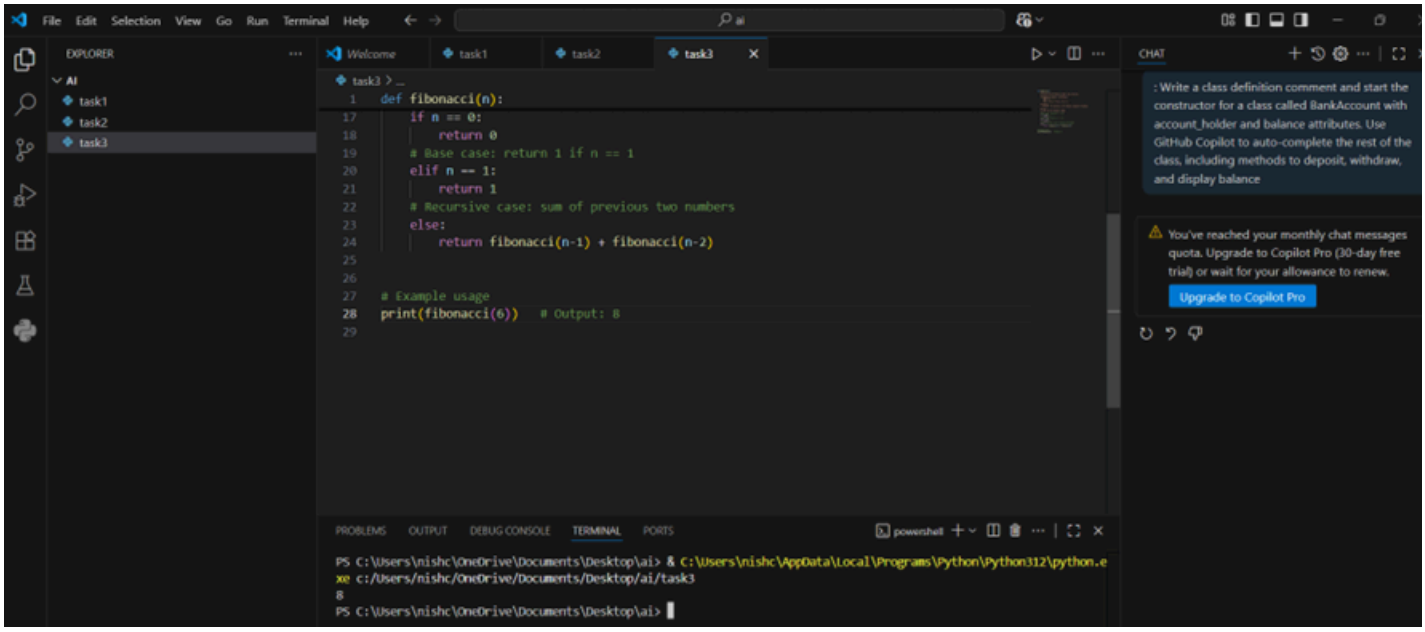
- Bias can creep into AI-generated logic when names or gender are included in conditions. Ethical practice requires using neutral, relevant attributes for decision-making.
- Output: John, low income → Biased approval is correct
  Priya, high income → Correct approval in unbiased version.

Task Description#3 (Transparency)

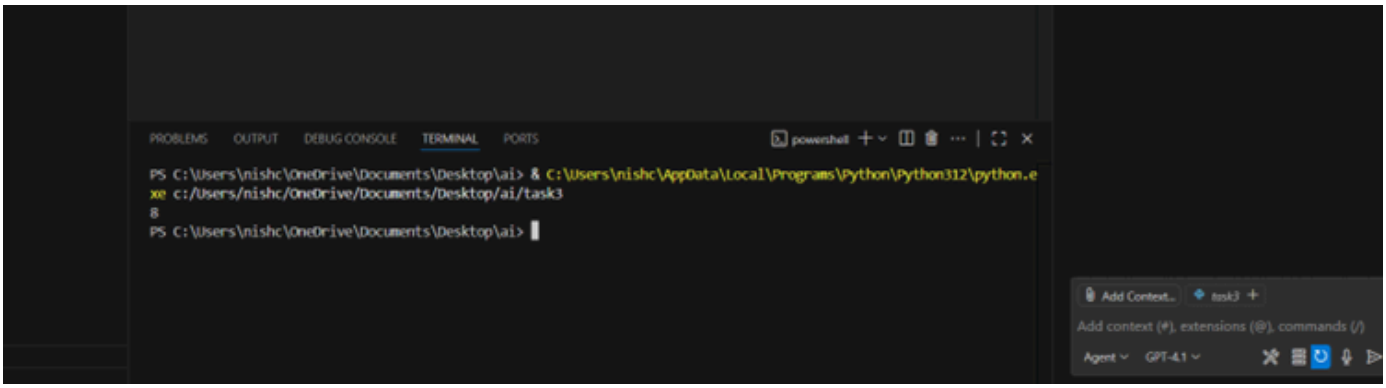
PROMPT:

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

Code Generated:



Output After executing Code:



Observations:

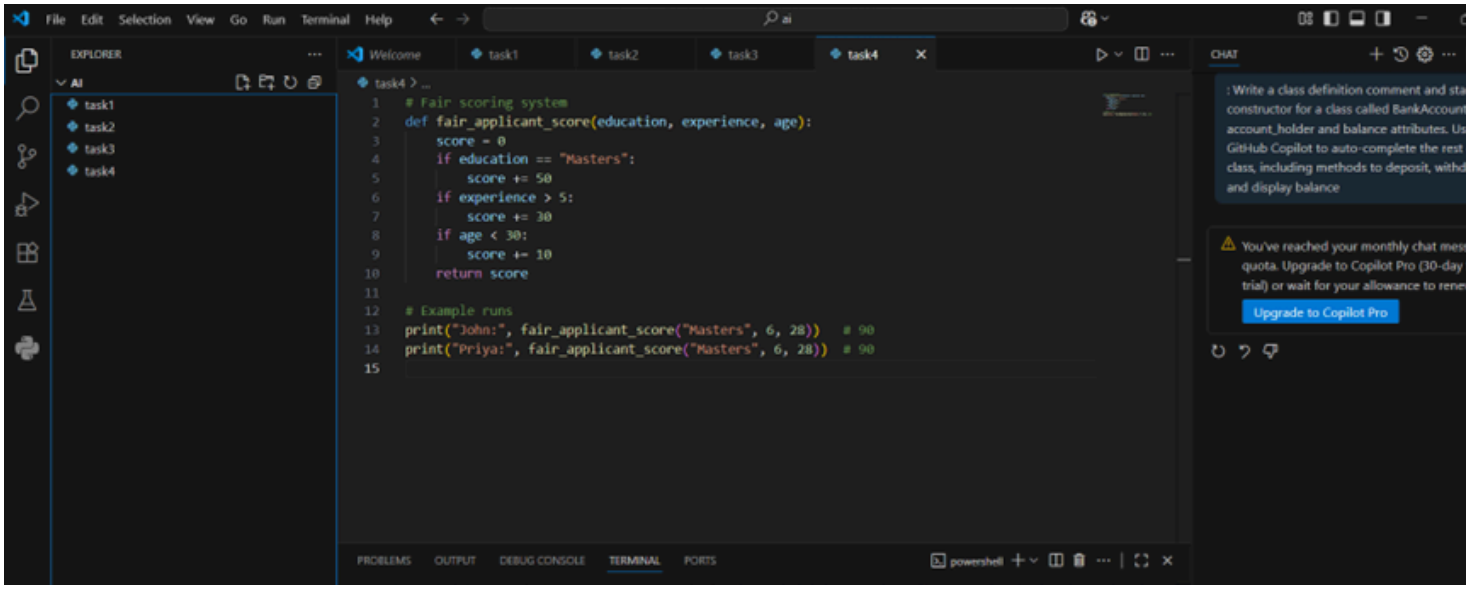
- The AI-generated code included comments and explanation, which makes it transparent and easy to understand. Clear documentation improves trust and usability
- Output: Input: 6 → Output: 8

Task Description#4 (Bias)

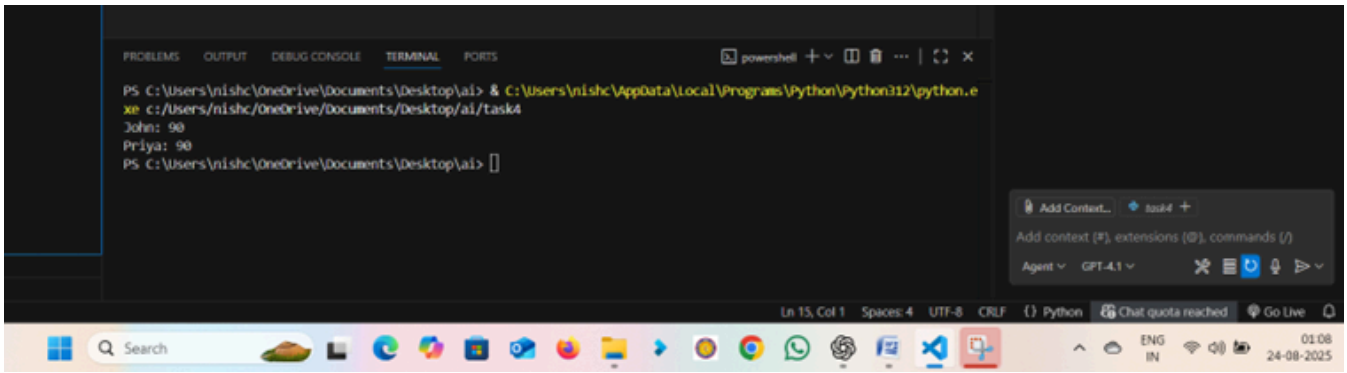
PROMPT:

- 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

Code Generated:



Output After executing Code:



Observations:

- This task highlights how bias can enter AI systems. Developers must carefully audit AI outputs and remove discriminatory logic.

Output: john:90

Priya: 90

TASK#5:Inclusiveness

PROMPT:

- Regenerate code that includes gender-neutral logic

Code Generated:

```python
def inclusive_applicant_score(education, experience, age):
    """
    Calculate applicant score in a fair, gender-neutral way.

    Criteria:
    - Education: Masters/PhD = +50
    - Experience: >= 5 years = +30
    - Age: between 21 and 35 = +10

    Parameters:
        education (str): Applicant's education level.
        experience (int): Years of work experience.
        age (int): Applicant's age.

    Returns:
        int: Applicant score.
    """
    score = 0
    if education.lower() in ["masters", "phd"]:
        score += 50
    if experience >= 5:
        score += 30
    if 21 <= age <= 35:
        score += 10
```

Output After executing Code:

```
PS C:\Users\nishc\OneDrive\Documents\Desktop\ai> & C:\Users\nishc\AppData\Local\Programs\Python\Python312\python.exe c:/Users/nishc/OneDrive/Documents/Desktop/ai/task5
John: 90
Priya: 90
Alex: 90
PS C:\Users\nishc\OneDrive\Documents\Desktop\ai>
```

Observations:

- Inclusiveness ensures AI systems are fair to all users. Gender-neutral coding avoids discrimination and promotes ethical practices
- Output: john:90
- Priya: 90
- Alex: 90