Course : AI Assisted Coding SR University

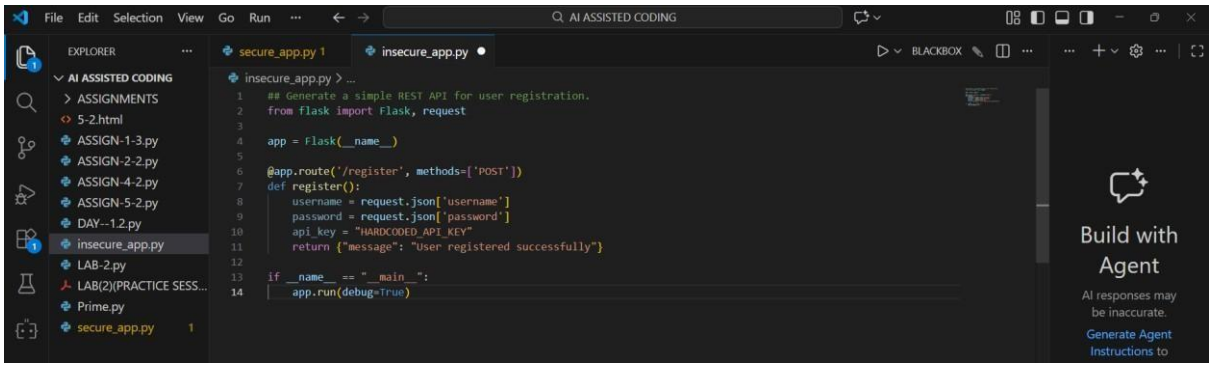
2403a51L40

B-52

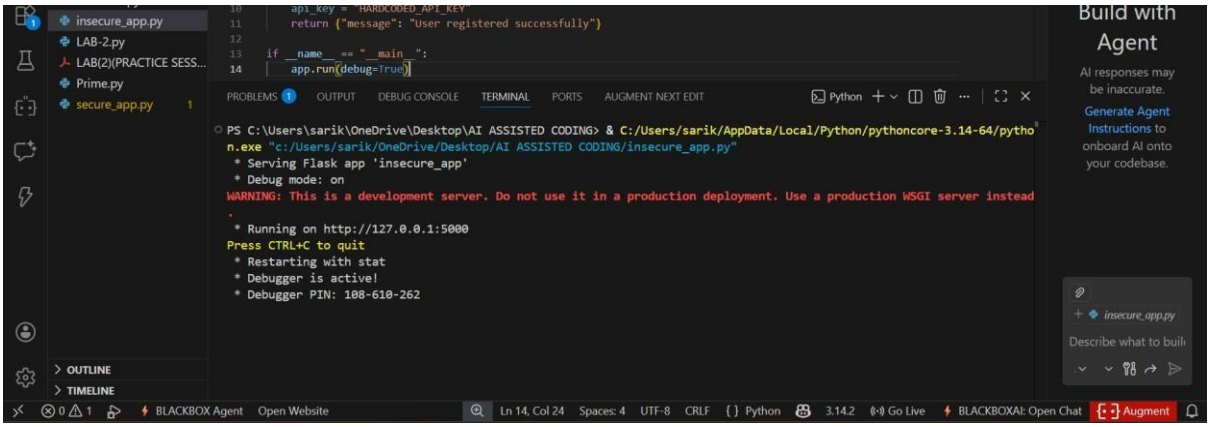
Lab 5: Ethical Foundations – Responsible AI Coding Practices

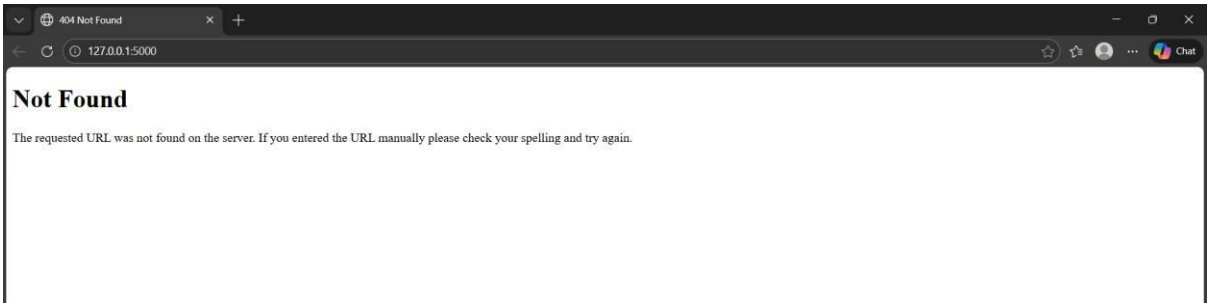
Task Description – 1: Secure API Usage

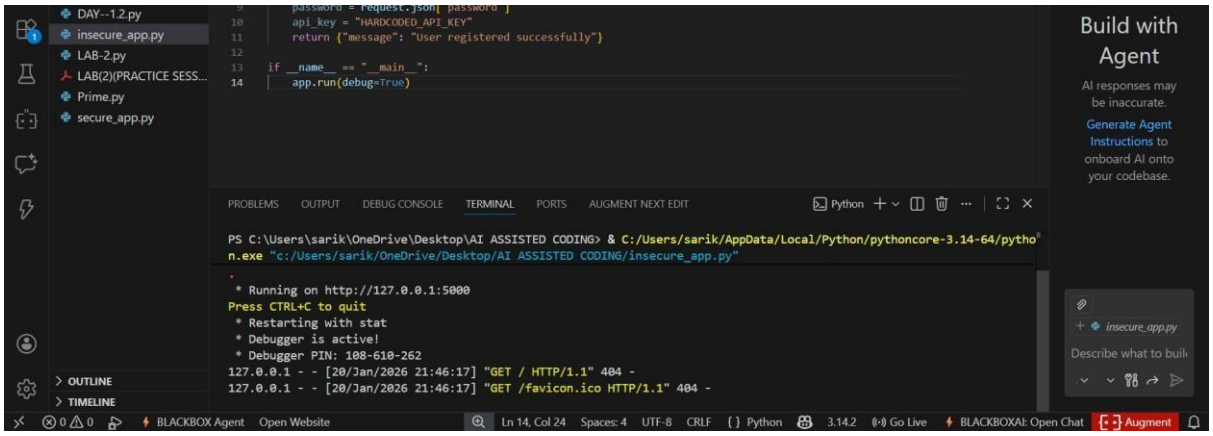
Prompt: Generate a simple REST API for user registration.



OUTPUT:





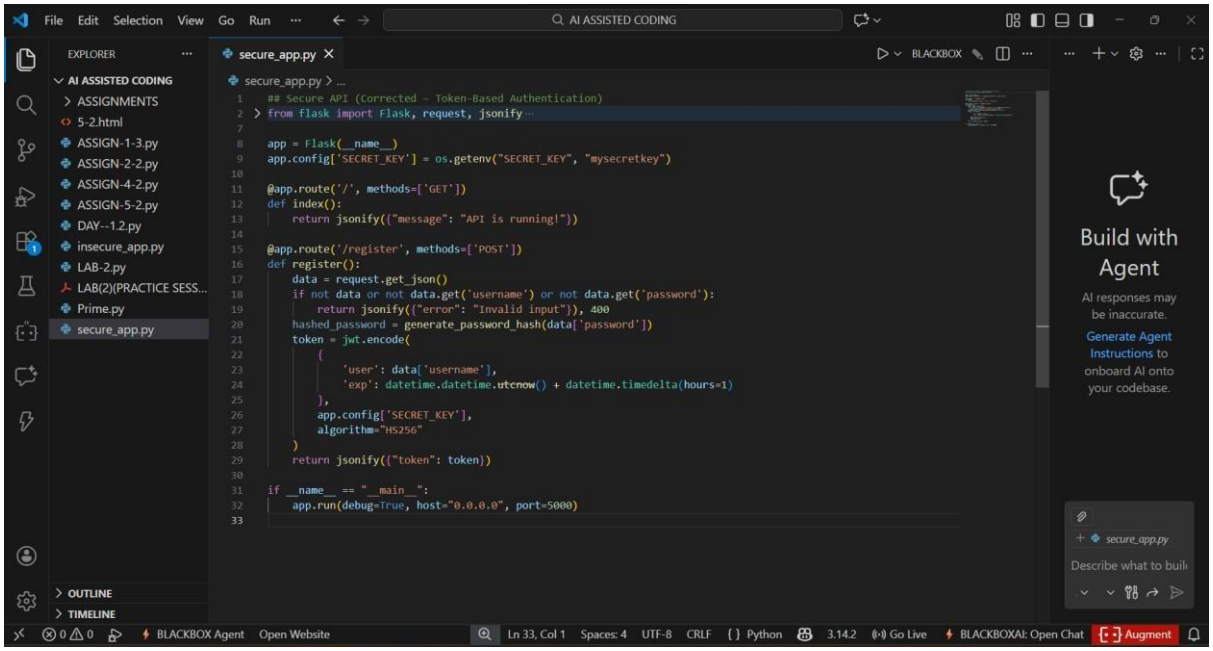


Explanation: You got 404 error because your Flask app does not have a home (/) route, so the browser cannot find that page.

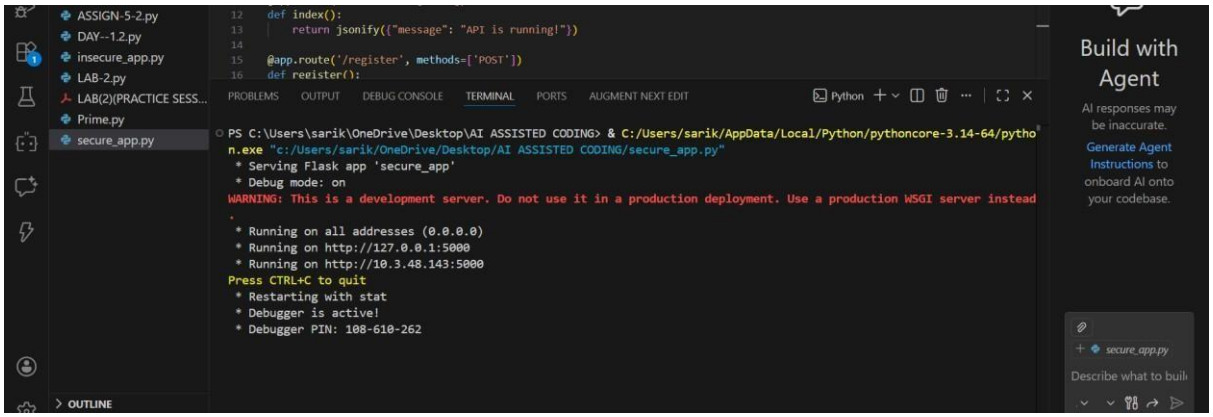
Identified Security Flaws:

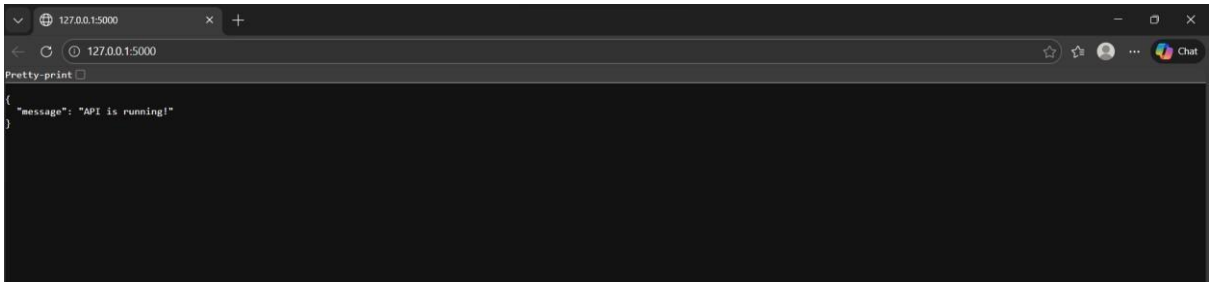
1. API key is **hardcoded**, exposing sensitive credentials
2. No authentication or authorization mechanism
3. No input validation (password strength, missing fields)
4. Password stored/used in **plain text**
5. No token-based access control

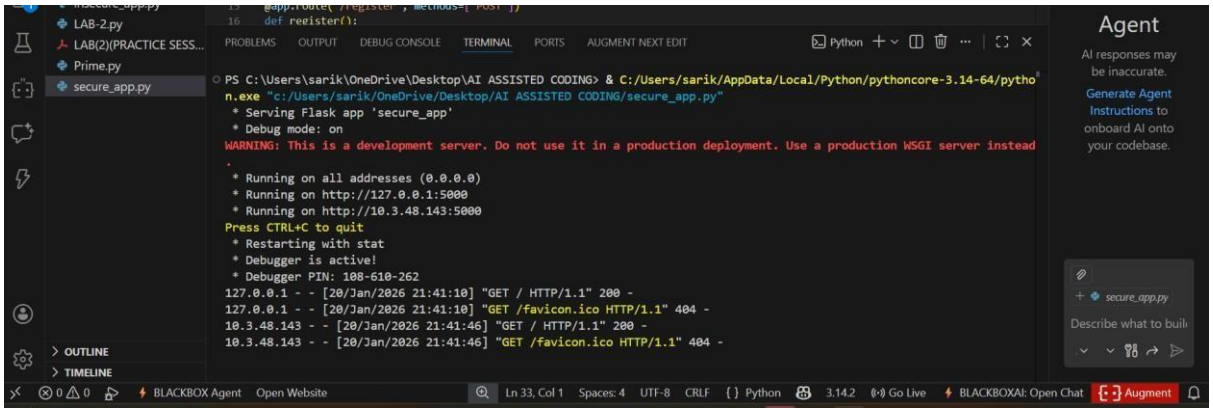
Corrected Secure Version (Token-Based Authentication):



OUTPUT:







Observations: The initial API code is insecure because it uses a hardcoded API key and does not protect user data. The corrected version improves security by validating inputs, hashing passwords, and using token-based authentication for safer access control.

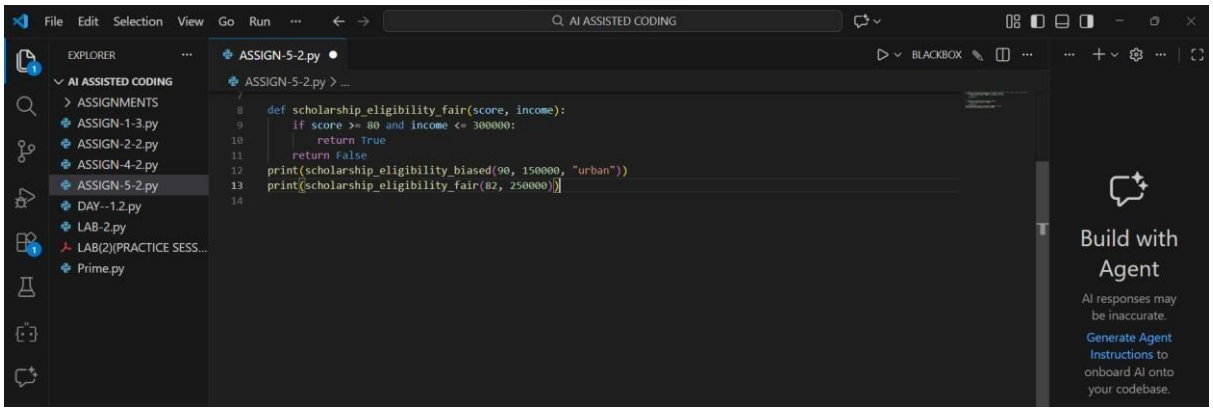
Task Description – 2: Fair Decision Logic

Prompt: Generate a scholarship eligibility checker based on academic score, family income, and location.

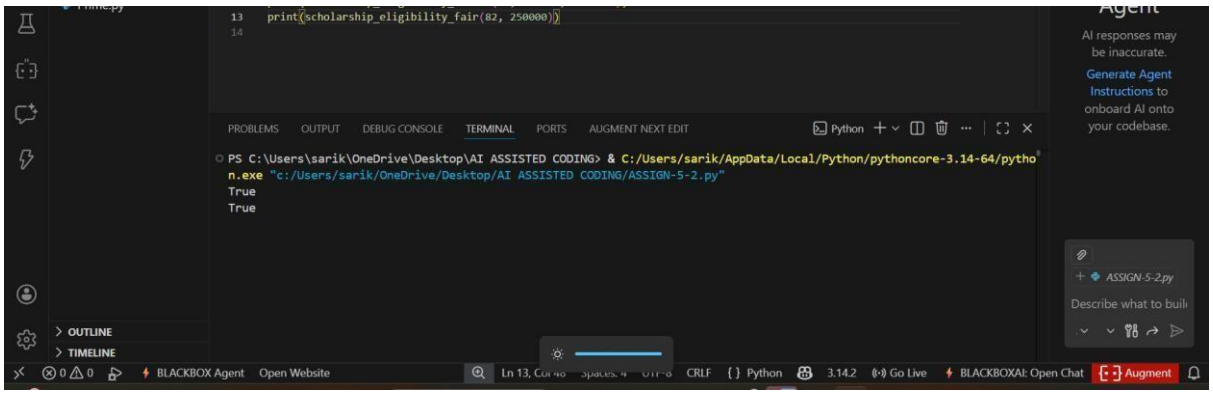
AI-Generated Code:

Observations:

1. The logic unfairly favors urban students
2. Rural or semi-urban students are excluded
3. No flexibility or weighted scoring approach **Improved Version:**



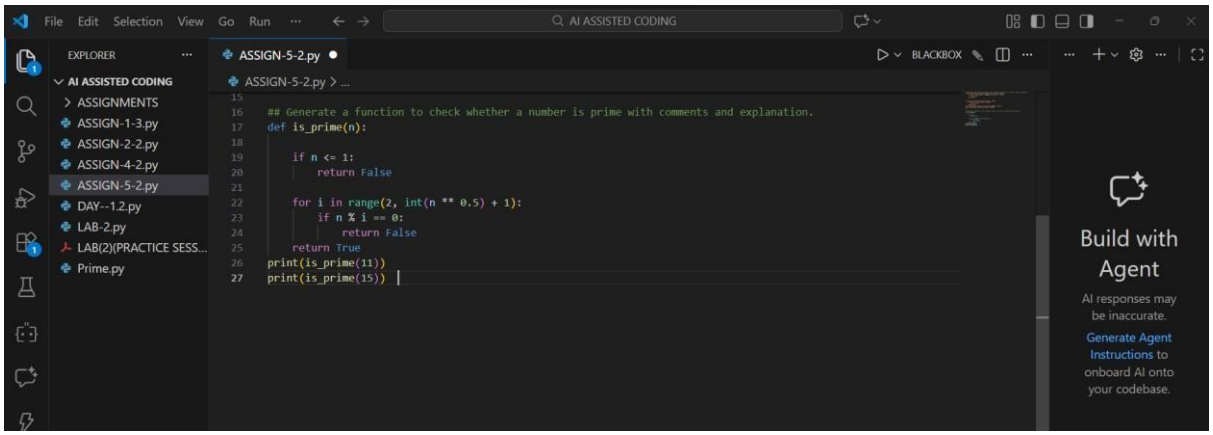
OUTPUT:



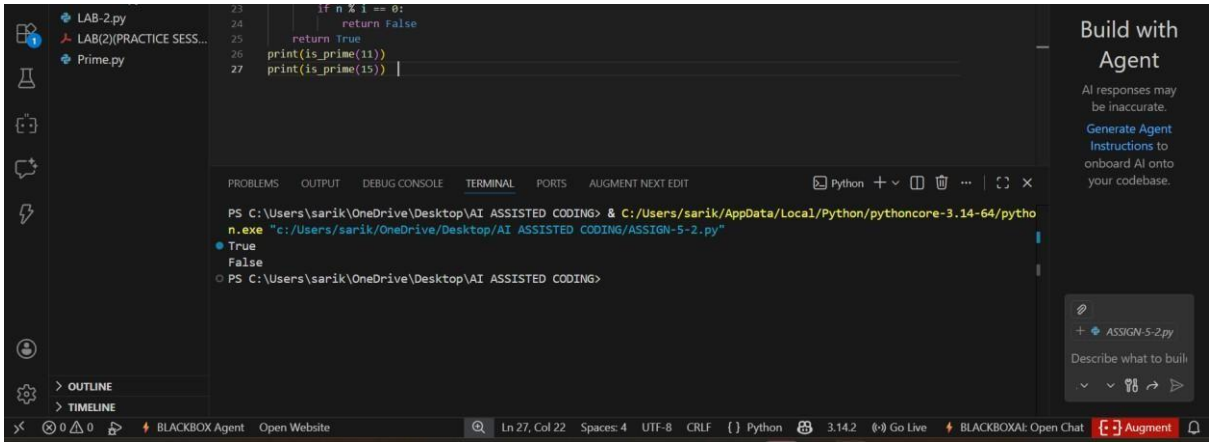
Explanation: The original logic introduces geographic bias by favoring urban students. Location should not be a deciding factor unless justified by policy. A fair system focuses on merit and economic need. Weighted or threshold-based criteria help ensure equitable access.

Task Description – 3: Explainability

Prompt: Generate a function to check whether a number is prime with comments and explanation.



OUTPUT:

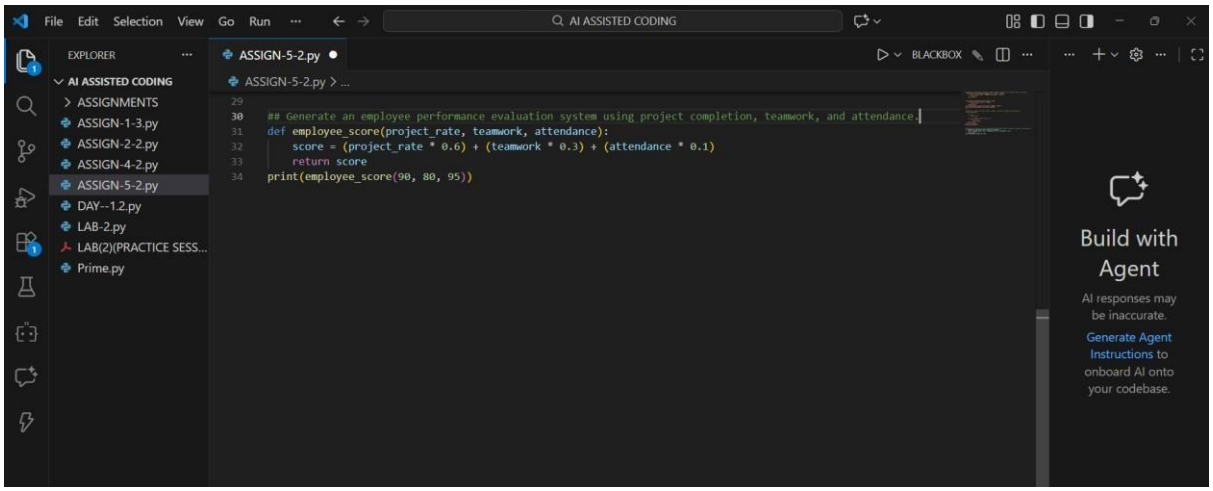


Explanation: The function first checks if the number is greater than 1. It then tests divisibility from 2 up to the square root of the number to reduce computation. If any divisor is found, the number is not prime; otherwise, it is prime.

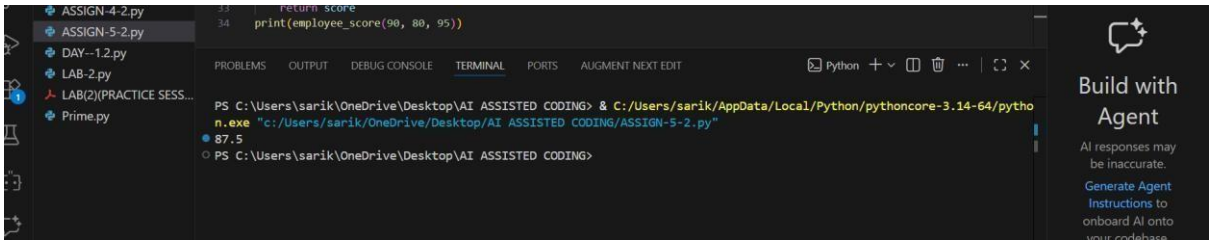
The explanation is clear, correct, and efficient. Inline comments improve readability and help beginners understand the logic easily.

Task Description – 4: Ethical Scoring System

Prompt: Generate an employee performance evaluation system using project completion, teamwork, and attendance.



OUTPUT:



Observations:

1. Heavy weight on project completion may disadvantage collaborative roles
2. Attendance weighting may penalize employees with health or caregiving needs
3. Teamwork score depends on subjective evaluation

The criteria are reasonable but require transparency and flexibility. Ethical systems should allow contextual review and avoid over-reliance on single metrics.

Task Description – 5: Accessibility and Inclusiveness Prompt:

Generate a user feedback form application.

5-2.html

File Edit View

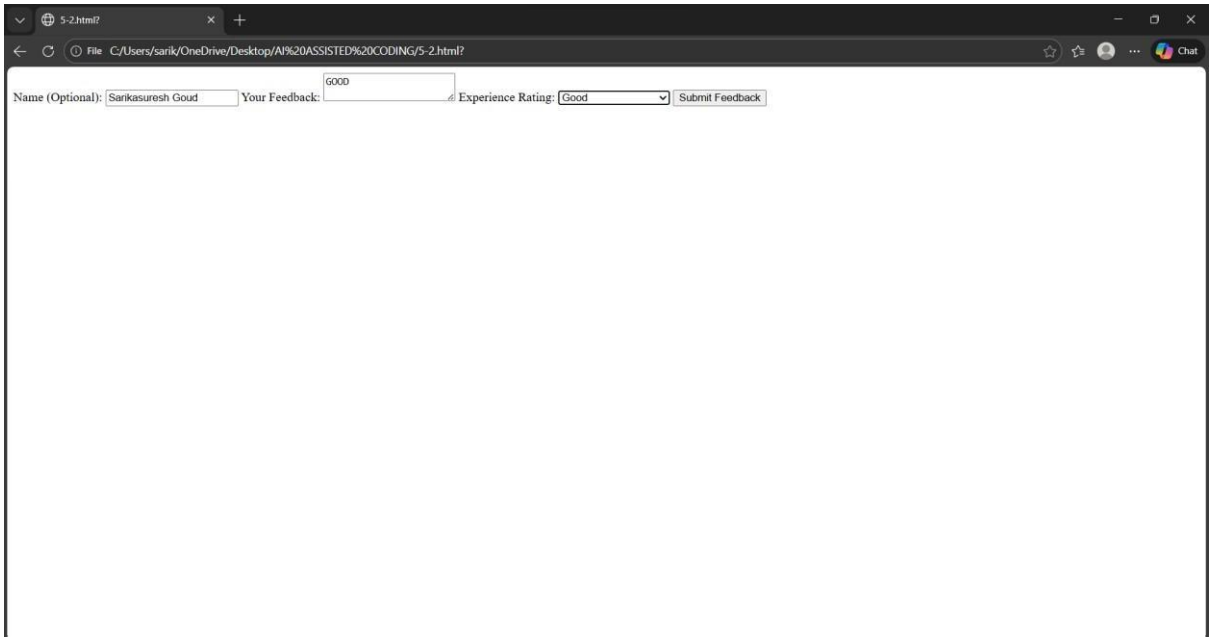
```
<form aria-label="User Feedback Form">
  <label for="name">Name (Optional):</label>
  <input type="text" id="name" aria-required="false">

  <label for="feedback">Your Feedback:</label>
  <textarea id="feedback" aria-required="true"></textarea>

  <label for="rating">Experience Rating:</label>
  <select id="rating">
    <option>Very Good</option>
    <option>Good</option>
    <option>Neutral</option>
    <option>Needs Improvement</option>
  </select>

  <button type="submit">Submit Feedback</button>
</form>
```

OUTPUT:



Observations: The feedback form uses neutral and inclusive language to avoid exclusion of any user group. Accessibility is enhanced through ARIA labels, optional fields, and simple input options for diverse users.