| SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE | | DEPARTMENT OF COMPUTER SCIENCE ENGINEERING | |
|---|---|---|---|
| **ProgramName:**B. Tech | | **Assignment Type: Lab** | **AcademicYear:**2025-2026 |
| **CourseCoordinatorName** | Venkataramana Veeramsetty | | |
| **Instructor(s)Name** | Dr. V. Venkataramana (Co-ordinator)<br>Dr. T. Sampath Kumar<br>Dr. Pramoda Patro<br>Dr. Brij Kishor Tiwari<br>Dr.J.Ravichander<br>Dr. Mohammand Ali Shaik<br>Dr. Anirodh Kumar<br>Mr. S.Naresh Kumar<br>Dr. RAJESH VELPULA<br>Mr. Kundhan Kumar<br>Ms. Ch.Rajitha<br>Mr. M Prakash<br>Mr. B.Raju<br>Intern 1 (Dharma teja)<br>Intern 2 (Sai Prasad)<br>Intern 3 (Sowmya)<br>NS_2 ( Mounika) | | |
| **CourseCode** | 24CS002PC215 | **CourseTitle** | AI Assisted Coding |
| **Year/Sem** | II/I | **Regulation** | R24 |
| **Date and Day of Assignment** | Week3 - Tuesday | **Time(s)** | |
| **Duration** | 2 Hours | **Applicableto Batches** | |
| **AssignmentNumber:5.2**(Present assignment number)/**24**(Total number of assignments) | | | |

| Q.No. | Question | *ExpectedTime to complete* |
|---|---|---|
| 1 | Lab 5: Ethical Foundations – Responsible AI Coding Practices<br><br>**Lab Objectives:**<br><br>• To explore the ethical risks associated with AI-generated code.<br>• To recognize issues related to security, bias, transparency, and copyright.<br>• To reflect on the responsibilities of developers when using AI tools in software development.<br>• To promote awareness of best practices for responsible and ethical AI coding. | Week3 - Wednesday |

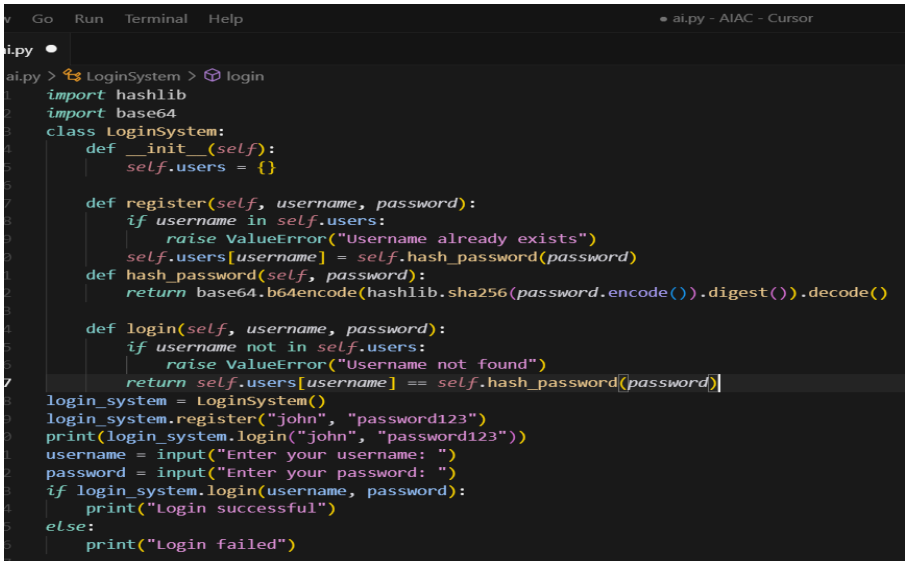
**Lab Outcomes (LOs):**
After completing this lab, students will be able to:

- 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)**

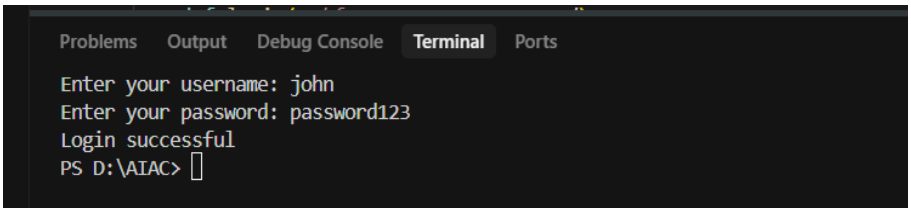
- Use an AI tool (e.g., Copilot, Gemini, Cursor) to generate a login system. Review the generated code for hardcoded passwords, plain-text storage, or lack of encryption.

- **Prompt : Generate a login system for hardcoded passwords, plain-text storage, or lack of encryption.**




**Expected Output#1**

- Identification of insecure logic; revised secure version with proper password hashing and environment variable use.




**Task Description#2 (Bias)**

- 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 :Generate a loan approval for Priya , john exhibits gender bias.**

```python
def loan_approval(name, gender, income, credit_score):
    if gender == "female":
        # Apply more lenient criteria for female applicants
        if income > 50000 and credit_score > 700:
            return f"Loan approved for {name}."
        else:
            return f"Loan denied for {name}."
    else:
        # Apply stricter criteria for male applicants
        if income > 60000 and credit_score > 750:
            return f"Loan approved for {name}."
        else:
            return f"Loan denied for {name}."

# Test cases
print(loan_approval("Priya", "female", 55000, 720))  # Should approve
print(loan_approval("John", "male", 55000, 720))     # Should deny
```

**Expected Output#2**

- Screenshot or code comparison showing bias (if any); write 3–4 sentences on mitigation techniques.

```
PS C:\Users\T-SHIRISHA\AppData\Local\Programs\Microsoft VS Code> & C:\Users\T-SHIRISHA\AppData\Loca
Loan approved for Priya.
Loan denied for John.
PS C:\Users\T-SHIRISHA\AppData\Local\Programs\Microsoft VS Code>
```

**Task Description#3 (Transparency)**

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

- **Prompt : Write a program in python to calculate the nth Fibonacci number using recursion.**

```python
#write function to calculate the nth fibonacci number using rec
def fibonacci(n):

    if n <= 0:
        return 0
    elif n == 1:
        return 1
    else:
        return fibonacci(n - 1) + fibonacci(n - 2)
n = int(input("Enter a number: "))
print("Fibonacci number:", fibonacci(n))
```

**Expected Output#3**

- Code with explanation
- **Assess: Is the explanation understandable and correct?**

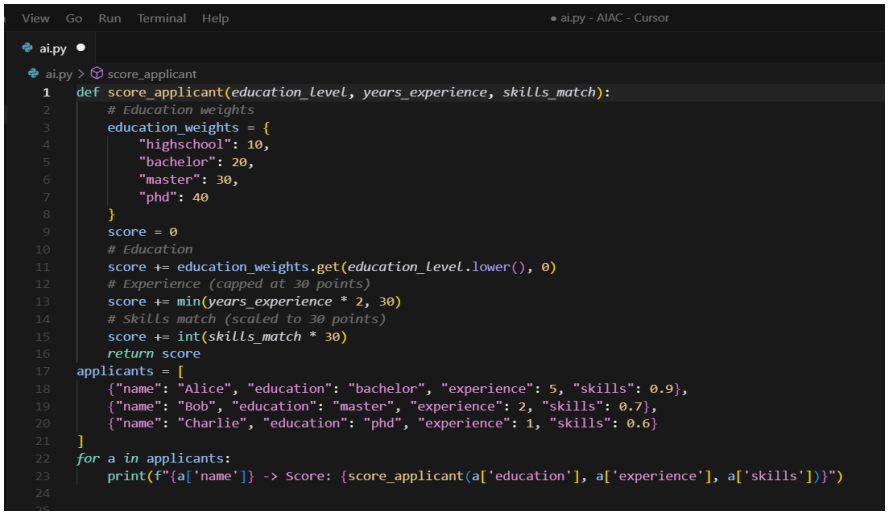
```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\T-SHIRISHA\Documents\HTML\Ai> & C:\Users\T-SHIRISHA\AppData\
Enter a number: 10
Fibonacci number: 55
PS C:\Users\T-SHIRISHA\Documents\HTML\Ai>
```

**Task Description#4 (Bias)**

- 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 : Generate a job applicant scoring system based on input features like education, experience, gender, age, etc.**



```
View  Go  Run  Terminal  Help                                  • ai.py - AIAC - Cursor
ai.py •
ai.py > score_applicant
1   def score_applicant(education_level, years_experience, skills_match):
2       # Education weights
3       education_weights = {
4           "highschool": 10,
5           "bachelor": 20,
6           "master": 30,
7           "phd": 40
8       }
9       score = 0
10      # Education
11      score += education_weights.get(education_level.lower(), 0)
12      # Experience (capped at 30 points)
13      score += min(years_experience * 2, 30)
14      # Skills match (scaled to 30 points)
15      score += int(skills_match * 30)
16      return score
17  applicants = [
18      {"name": "Alice", "education": "bachelor", "experience": 5, "skills": 0.9},
19      {"name": "Bob", "education": "master", "experience": 2, "skills": 0.7},
20      {"name": "Charlie", "education": "phd", "experience": 1, "skills": 0.6}
21  ]
22  for a in applicants:
23      print(f"{a['name']} -> Score: {score_applicant(a['education'], a['experience'], a['skills'])}")
24
```

**Expected Output#4**

- Python code
- Analyze is there any bias with respect to gender or any

```
Problems  Output  Debug Console  Terminal  Ports

PS D:\AIAC> & C:/Users/T-SHIRISHA/AppData/Local/Microsoft/WindowsApps/python3.11.exe d:/AIAC/ai.py
Alice -> Score: 57
Bob -> Score: 55
Charlie -> Score: 60
PS D:\AIAC>
```

**Task Description#5 (Inclusiveness)**

- Code Snippet

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

- **Prompt : Modify the code to include the gender – neutral.**

```
File  Edit  Selection  View  Go  Run  Terminal  Help
Welcome   fibo.py
C: > Users > T-SHIRISHA > Documents > HTML > Ai > fibo.py > ...
1   def greet_user(name, gender):
2       gender = gender.lower()
3
4       if gender == "male":
5           title = "Mr."
6       elif gender == "female":
7           title = "Mrs."
8       else:  # gender-neutral or unspecified
9           title = "Mx."
10
11      return f"Hello, {title} {name}! Welcome."
12
13
14  # Example usage
15  print(greet_user("John", "male"))
16  print(greet_user("Alice", "female"))
17  print(greet_user("Sam", "non-binary"))
18
```

**Expected Output#5**

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

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\T-SHIRISHA\AppData\Local\Programs\Microsoft VS Code> & C:\Users\T-SHIRISHA\
Hello, Mr. John! Welcome.
Hello, Mrs. Alice! Welcome.
Hello, Mx. Sam! Welcome.
PS C:\Users\T-SHIRISHA\AppData\Local\Programs\Microsoft VS Code>
```

**Note: Report should be submitted a word document for all tasks in a single document with prompts, comments & code explanation, and output and if required, screenshots**

**Evaluation Criteria:**

| Criteria | Max Marks |
|---|---|
| Transparency | 0.5 |
| Bias | 1.0 |
| Inclusiveness | 0.5 |
| Data security and Privacy | 0.5 |
| **Total** | **2.5 Marks** |