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| **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) | | Dr. T. Sampath Kumar | | Dr. Pramoda Patro | | Dr. Brij Kishor Tiwari | | Dr.J.Ravichander | | Dr. Mohammand Ali Shaik | | Dr. Anirodh Kumar | | Mr. S.Naresh Kumar | | Dr. RAJESH VELPULA | | Mr. Kundhan Kumar | | Ms. Ch.Rajitha | | Mr. M Prakash | | Mr. B.Raju | | Intern 1 (Dharma teja) | | Intern 2 (Sai Prasad) | | Intern 3 (Sowmya) | | 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) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | ***ExpectedTime***  ***to complete*** |  |
|  | 1 | Lab 5: Ethical Foundations – Responsible AI Coding Practices  **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)**   * 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.   **Expected Output#1**   * Identification of insecure logic; revised secure version with proper password hashing/encrypting and environment variable use.   VS Code:    **Output:**    **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.   **Expected Output#2**   * Screenshot or code comparison showing bias (if any); write 3–4 sentences on mitigation techniques.   **Prompt 1: Write Python code for loan approval for John.**  VS Code:    **Output:**    **Prompt 2: Write Python code for loan approval for Priya.**  **VS Code:**    **Output:**    **Bias**   * In task2.1\_vs.py, the loan approval outcome depends on the applicant’s name (if name.lower() == "john":), which is **biased and discriminatory**. * In task2.2\_vs.py, approval is based only on financial criteria, making it **unbiased**.   **Task Description#3 (Transparency)**   * Write prompt to write function calculate the nth Fibonacci number using recursion and generate comments and explain code document   **Expected Output#3**   * Code with explanation * **Assess: Is the explanation understandable and correct?**   **Prompt: : Write a Python function to calculate the nth Fibonacci number using recursion,**  **include clear comments, and provide a simple explanation document of how the code works.**  **VS Code**    **Output:**    **Explanation:**   1. **The program defines a function fibonacci(n) that calculates the nth Fibonacci number using recursion.** 2. **Base cases:**    * **If n == 0, return 0.**    * **If n == 1, return 1.** 3. **Recursive case: For any n > 1, return fibonacci(n-1) + fibonacci(n-2).** 4. **The user is prompted to enter a number, and the program prints the Fibonacci value for that term.**   **Assessment of Transparency**   * **The explanation is understandable and correct: it clearly describes recursion, base cases, and how the sequence is built.** * **Comments in the code make it easy for beginners to follow.** * **One limitation: recursion is elegant but inefficient for large n (recomputes values many times). Iterative or memoized approaches would be faster.**   **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.   **Expected Output#4**   * Python code * Analyze is there any bias with respect to gender or any   VS Code:    **Output:**    **Bias :**   * **Gender Bias: The logic gives 10 points for male and only 5 points for female, which is unfair.** * **Age Bias: Candidates outside 25–40 automatically lose points, even if equally qualified.** * **Fair Scoring: Gender and most age-related scoring should be removed, focusing only on education, skills, and experience.**   **Task Description#5 (Inclusiveness)**   * Code Snippet     **Expected Output#5**   * Regenerate code that includes **gender-neutral** also   VS Code:    Output:    **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** | | | | | | | Week3 - Wednesday |  |