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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.   Code by using google collab:    ------------------------------------------------------------------------------------------------------------  **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.   **Report: There is no gender bias for the loan approval.** **The logic explicitly approves loans only for the names "John" and "Priya", regardless of any other criteria that would typically be used for loan approval (like credit score, income, etc.). This is a clear example of bias based on name.**  **While the code doesn't directly check for gender, the names "John" and "Priya" are commonly associated with specific genders. By only approving these two names, the code indirectly introduces a form of bias that could disproportionately affect individuals with other names, potentially correlating with gender bias depending on the name distribution.**  **In a real-world loan approval system, using names as the sole criterion for approval is highly inappropriate and would be considered discriminatory. Loan decisions should be based on objective financial factors, not personal attributes like name or gender.**  **Therefore, the AI-generated logic does exhibit bias by using names as the sole criteria for loan approval.**  **-------------------------------------------------------------------------------------------------------------**  **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?**       **EXPLANATION :**  **This code calculates Fibonacci numbers. The sequence starts with 0 and 1. Each next number is the sum of the previous two (0, 1, 1, 2, 3, 5...).**  **The fibonacci\_recursive(n) function finds the number at position n.**  **It checks for negative input (invalid). It has direct answers for positions 0 (which is 0) and 1 (which is 1). For positions greater than 1, it adds the results of the function for the two positions before it (n-1 and n-2). This is the "recursion" - the function calling itself to solve simpler steps until it hits the starting points (0 and 1). Essentially, it breaks down finding a Fibonacci number into finding the two previous ones, until it gets back to the known starting numbers.**  **---------------------------------------------------------------------------------------------------------------**  **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                 **SUMMARY :  Data Analysis Key Findings**   * **The initial scoring system explicitly assigns different points based on gender (Female: $10 \* weight, Male: $5 \* weight, Other: $7 \* weight) and age ranges (25-40: $50 \* weight, <25: $30 \* weight, >40: $40 \* weight).** * **Directly scoring based on gender introduces a clear potential for bias and discrimination.** * **Scoring based on arbitrary age ranges can unfairly penalize applicants based on age, potentially leading to age discrimination.** * **These hardcoded biases have significant ethical and legal implications, as they violate anti-discrimination principles and laws in many jurisdictions.**   **Insights or Next Steps**   * **Remove gender and age as direct scoring factors from the system.** * **Redesign the scoring logic to prioritize job-related qualifications, relevant experience, and skills, which are better indicators of a candidate's suitability for a role.**   **------------------------------------------------------------------------------------------------------------------**  **Task Description#5 (Inclusiveness)**   * Code Snippet     **Expected Output#5**   * Regenerate code that includes **gender-neutral** also   Error :    Corrected code :    I have corrected and added print statement to remove the confusion .  REPORT : The greet\_user function is running correctly, but it's not producing any visible output because there's no print statement to display the returned value. I'll add one for you so you can see the output.  I've added print statements to the code, and now you should be able to see the output of the greet\_user function.  **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 |  |