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| **SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING** | | | | |
| **Program Name:** B. Tech | | | | **Assignment Type: Lab** | | | **Academic Year:**2025-2026 | | |
| **Course Coordinator Name** | | | | Dr. Rishabh Mittal | | | | | |
| **Instructor(s) Name** | | | | |  | | --- | | Mr. S Naresh Kumar | | Ms. B. Swathi | | Dr. Sasanko Shekhar Gantayat | | Mr. Md Sallauddin | | Dr. Mathivanan | | Mr. Y Srikanth | | Ms. N Shilpa | | Dr. Rishabh Mittal (Coordinator) | | Dr. R. Prashant Kumar | | Mr. Ankushavali MD | | Mr. B Viswanath | | Ms. Sujitha Reddy | | Ms. A. Anitha | | Ms. M.Madhuri | | Ms. Katherashala Swetha | | Ms. Velpula sumalatha | | Mr. Bingi Raju | | | | | | |
| **CourseCode** | | | 23CS002PC304 | **Course Title** | | AI Assisted Coding | | | |
| **Year/Sem** | | | III/II | **Regulation** | | R23 | | | |
| **Date and Day**  **of Assignment** | | | **Week3 –** | **Time(s)** | | 23CSBTB01 To 23CSBTB52 | | | |
| **Duration** | | | 2 Hours | **Applicable to**  **Batches** | | All batches | | | |
| **Assignment Number: 5.5**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | ***Expected Time***  ***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 (Transparency in Algorithm Optimization)**  **Task:** Use AI to generate two solutions for checking prime numbers:   * Naive approach(basic) * Optimized approach   **Prompt:** “Generate Python code for two prime-checking methods and explain how the optimized version improves performance.”  **Expected Output:**   * Code for both methods. * Transparent explanation of time complexity. * Comparison highlighting efficiency improvements.   **Task Description #2 (Transparency in Recursive Algorithms)**  **Objective:** Use AI to generate a recursive function to calculate Fibonacci numbers.  **Instructions:**   1. Ask AI to add clear comments explaining recursion. 2. Ask AI to explain base cases and recursive calls.   **Expected Output:**   * Well-commented recursive code. * Clear explanation of how recursion works. * Verification that explanation matches actual execution.   **Task Description #3 (Transparency in Error Handling)**  **Task:** Use AI to generate a Python program that reads a file and processes data. **Prompt:** “Generate code with proper error handling and clear explanations for each exception.”  **Expected Output:**   * Code with meaningful exception handling. * Clear comments explaining each error scenario. * Validation that explanations align with runtime behavior.   **Task Description #4 (Security in User Authentication)**  **Task:** Use an AI tool to generate a Python-based login system. **Analyze:** Check whether the AI uses secure password handling practices.  **Expected Output:**   * Identification of security flaws (plain-text passwords, weak validation). * Revised version using password hashing and input validation. * Short note on best practices for secure authentication.   **Task Description #5 (Privacy in Data Logging)**  **Task:** Use an AI tool to generate a Python script that logs user activity (username, IP address, timestamp). **Analyze:** Examine whether sensitive data is logged unnecessarily or insecurely.  **Expected Output:**   * Identified privacy risks in logging. * Improved version with minimal, anonymized, or masked logging. * Explanation of privacy-aware logging principles. | | | | | | Week3 - |  |