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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** | | | | 1. Dr. Mohammed Ali Shaik  2. Dr. T Sampath Kumar  3. Mr. S Naresh Kumar  4. Dr. V. Rajesh  5. Dr. Brij Kishore  6. Dr Pramoda Patro  7. Dr. Venkataramana  8. Dr. Ravi Chander  9. Dr. Jagjeeth Singh | | | | | |
| **CourseCode** | | | 24CS002PC215 | **CourseTitle** | | AI Assisted Coding | | | |
| **Year/Sem** | | | II/I | **Regulation** | | R24 | | | |
| **Date and Day**  **of Assignment** | | |  | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicableto**  **Batches** | |  | | | |
| **AssignmentNumber:3.3**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | ***ExpectedTime***  ***to complete*** |  |
|  | 1 | Lab 3: Prompt Engineering – Improving Prompts and Context Management  **Lab Objectives:**   * To understand how prompt structure and wording influence AI-generated code. * To explore how context (like comments and function names) helps AI generate relevant output. * To evaluate the quality and accuracy of code based on prompt clarity. * To develop effective prompting strategies for AI-assisted programming.   **Lab Outcomes (LOs):**  After completing this lab, students will be able to:   * Generate Python code using Google Gemini in Google Colab. * Analyze the effectiveness of code explanations and suggestions by Gemini. * Set up and use Cursor AI for AI-powered coding assistance. * Evaluate and refactor code using Cursor AI features. * Compare AI tool behavior and code quality across different platforms.   **Task Description#1**   * Try 3 different prompts to generate a factorial function.   **Expected Output#1**   * Comparison of AI-generated code styles   Prompt 1: can you give a python function that reads a number and returns factorial of the given number      **Prompt 2:**Write a python function to calculate the factorial of a number.      **Prompt 3:**Create a python function called factorial that takes positive numbers and returns its factorial using iteration . include input validation      **Task Description#2**   * Provide a clear example input-output prompt to generate a sorting function.   **Expected Output#2**   * Functional sorting code from AI   Prompt : Write a python function that takes a list of integers from the user and returns it sorted in ascending order.      **Task Description#3**   * Start with the vague prompt “Generate python code to calculate power bill” and improve it step-by-step   **Expected Output#3**   * Enhanced AI output with clearer prompts   Prompt : Generate python code to generate a electric bill that includes the below following steps   1. Ask to enter the customer name and customer id 2. Then ask the no.of watts used by the customer and if the customer use below 100wats then charge 3 rupees for every wattt 3. If customer uses above 100 watts then charge 4 rupees for each watt and calculate the total bill 4. Finally generate the bill with customer name AND CUSTMOER ID AND NO.OF WATTES USED AND TOTAL BILL       **Task Description#4**   * Write structured comments to help AI generate two linked functions (e.g., login\_user() and register\_user()).   **Expected Output#4**   * Consistent functions with shared logic   Prompt: Write Python code with two functions registerd\_user() to take username and password and store them, and login\_user() to check login using stored data. Add comments to explain each step.      **Task Description#5**   * Analyzing Prompt Specificity: Improving Temperature Conversion Function with Clear Instructions   **Expected Output#5**   * Code quality difference analysis for various prompts   Prompt: Give Python code to convert temperature between Celsius and Fahrenheit Then show how changing the prompt (making it more specific) improves the code quality. Compare basic vs improved prompts and explain the difference.      **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** | | --- | --- | | Factorial Function (Task#1) | 0.5 | | Sorting Function (Task#2) | 0.5 | | Vogue Vs. Specific Prompting (Task #3) | 0.5 | | Linked Functions (Task #4) | 0.5 | | Temperature Conversion Function (Task #5) | 0.5 | | **Total** | **2.5 Marks** | | | | | | | 03.08.2025 EOD |  |