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| **SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING** | | | | |
| **Program Name:** M. Tech/MCA | | | | **Assignment Type: Lab** | | | **AcademicYear:**2025-2026 | | |
| **Course Coordinator Name** | | | | Venkataramana Veeramsetty | | | | | |
| **Course Code** | | |  | **Course Title** | | AI Assisted Problem Solving Using Python | | | |
| **Year/Sem** | | | I/I | **Regulation** | | R24 | | | |
| **Date and Day**  **of Assignment** | | | Week1 - TUESDAY | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicable to**  **Batches** | | M. Tech/MCA | | | |
| **AssignmentNumber:2.3**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
| Name : Nancy Kumari , Enrollment no : 2503B09909 | | | | | | | | | |
|  | **Q.No.** | **Question** | | | | | | ***Expected Time***  ***to complete*** |  |
|  | 1 | Lab 2: Exploring Additional AI Coding Tools – Gemini (Colab) and Cursor AI  **Lab Objectives:**   * To explore and evaluate the functionality of Google Gemini for AI-assisted coding within Google Colab. * To understand and use Cursor AI for code generation, explanation, and refactoring. * To compare outputs and usability between Gemini, GitHub Copilot, and Cursor AI. * To perform code optimization and documentation using AI tools.   **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**   * Use Google Gemini in Colab to write a function that reads a CSV file and calculates mean, min, max.   **Prompt : Create a Python program to generate a CSV file containing student details and read it and calculate the mean, minimum, and maximum for numeric columns**.      **Expected Output#1**   * Functional code with output and screenshot     **Task Description#2**   * Compare Gemini and Copilot outputs for a palindrome check function.   **Prompt : write a user input palindrome function**      **Expected Output#2**   * Side-by-side comparison and observations     **Task Description#3**   * Ask Gemini to explain a Python function (to calculate area of various shapes) line by line..   Prompt : Write a user input python function to calculate area of various shape    **Expected Output#3**   * Detailed explanation with code snippet   **Line by line explanation:**   1. **Import math → for π and sqrt functions.** 2. **Define calculate\_area() → main function.** 3. **Create shapes dict → stores each shape and needed parameters.** 4. **Ask user for shape → converts to lowercase, removes spaces.** 5. **Validate shape → error if shape not in list.** 6. **Get inputs → ask user for required measurements, ensure > 0.** 7. **Calculate area → use correct formula based on shape.** 8. **Print area → formatted to 2 decimal places.** 9. **Handle errors → show messages for invalid or unexpected input.** 10. **Run function if script is main.**     **Task Description#4**   * Install and configure Cursor AI. Use it to generate a Python function (e.g., sum of squares).   PROMPT : Generate a user input python function to calculate sum of square    **Expected Output#4**   * Screenshots of working environments with few prompts to generate python code     **Task Description#5**   * Student need to write code to calculate sum of add number and even numbers in the list       **Expected Output#5**   * Refactored code written by student with improved logic   **Refactored code**      **The refactored code is shorter, cleaner, and easier to read. It uses Python’s built-in sum() function and list comprehension, making it faster and more efficient. It also allows user input, making the program more flexible and reusable.**  **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** | | --- | --- | | Successful Use of Gemini in Colab (Task#1 & #2) | 2.5 | | Code Explanation Accuracy (Gemini) (Task#3) | 2.5 | | Cursor AI Setup and Usage (Task#4) | 2.5 | | Refactoring and Improvement Analysis (Task#5) | 2.5 | | **Total** | **10 Marks** | | | | | | | Week1 - TuesDay |  |