**Course Code: AIPP**

**Assignment No: 2**

**Done by: 2503B05203 (M.Tech)**

**Name: B Subhash Chandra**

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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) | | | | | | | | | |
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|  | **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.   **Colab Code using Gemini**        **Expected Output#1**   * Functional code with output and screenshot     **Task Description#2**   * Compare Gemini and Copilot outputs for a palindrome check function.   **Colab + gemini code:**  **VS code + Co-pilot code:**    **Expected Output#2**   * Side-by-side comparison and observations   **Gemini output**      **Copilot output**    **Observation**   * Copilot's is\_palindrome function uses type hints for better code clarity, while Gemini's does not. * Copilot uses the more comprehensive .casefold() for case-insensitivity, whereas Gemini uses the standard .lower(). * Copilot's script includes full command-line argument handling using sys.argv, while Gemini's only uses input() for interactive testing. * Copilot organizes the script using a structured main() function and if \_\_name\_\_ == "\_\_main\_\_": block, while Gemini provides a simpler function definition followed by direct execution. * Gemini includes a descriptive docstring within the function definition, while Copilot uses a brief file-level comment. * Gemini uses an f-string in its output to quote the input for clarity, while Copilot's output is a simple statement.   **Task Description#3**   * Ask Gemini to explain a Python function (to calculate area of various shapes) line by line.. * Prompt: Write a Python function to calculate area of various shapes   Code:      **Expected Output#3**   * Detailed explanation with code snippet       **Task Description#4**   * Install and configure Cursor AI. Use it to generate a Python function (e.g., sum of squares).     **Expected Output#4**   * Screenshots of working environments with few prompts to generate python code      * **Write a Python function named sum\_of\_squares that takes a list of numbers** * **and returns the sum of their squares. Include a docstring and an example.**   **Task Description#5**   * Student need to write code to calculate sum of add number and even numbers in the list   **Code before refactor:**    **Expected Output#5**   * Refactored code written by student with improved logic     **Code After refactor:**      **Expected Output#5**   * Refactored code written by student with improved logic     **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 |  |