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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** | | | Week1 - Wednesday | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicableto**  **Batches** | | 24CSBTB01 To 24CSBTB39 | | | |
| **AssignmentNumber:2.3**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | ***ExpectedTime***  ***to complete*** |  |

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|  | 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.   **Expected Output#1**   * Functional code with output and screenshot       **Task Description#2**   * Compare Gemini and Copilot outputs for a palindrome check function.   **Expected Output#2**   * Side-by-side comparison and observations   **A screenshot of a computer  AI-generated content may be incorrect.**  **Gemini Features:**   * Removed spaces and used .lower() for case-insensitive comparison. * Added docstring and comments. * Sample outputs shown:   + 'A man a plan a canal Panama' is a palindrome   + 'hello' is not a palindrome   **Copilot Features:**   * Used input() for dynamic testing. * Same logic: removes spaces, ignores case. * Output:   + User input: hello → "Not a palindrome"   **Task Description#3**   * Ask Gemini to explain a Python function (to calculate area of various shapes) line by line..   **Code snippet :**  import math  def calculate\_area(shape, dimensions):  """  Calculates the area of different shapes based on the provided shape and dimensions.    Args:  shape (str): The type of shape (e.g., 'circle', 'rectangle', 'triangle').  dimensions (tuple or list): The dimensions of the shape.    Returns:  float: The calculated area.  str: An error message if the shape is not supported.  """    if shape == 'circle':  if len(dimensions) == 1:  radius = dimensions[0]  return math.pi \* radius\*\*2  else:  return "Error: A circle requires a single dimension (radius)."  elif shape == 'rectangle':  if len(dimensions) == 2:  length, width = dimensions  return length \* width  else:  return "Error: A rectangle requires two dimensions (length, width)."  elif shape == 'triangle':  if len(dimensions) == 2:  base, height = dimensions  return 0.5 \* base \* height  else:  return "Error: A triangle requires two dimensions (base, height)."    else:  return "Error: Unsupported shape. Please choose from 'circle', 'rectangle', or 'triangle'."  # Example Usage  print(calculate\_area('circle', (5,)))  print(calculate\_area('rectangle', (4, 6)))  print(calculate\_area('triangle', (10, 5)))  print(calculate\_area('square', (5,)))  **Expected Output#3**   * Detailed explanation with code snippet     **A screenshot of a computer  AI-generated content may be incorrect.**  **A screenshot of a computer  AI-generated content may be incorrect.**  **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     **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:** | | --- | | Shorter, more concise | | Used bulit in sum()+ comprehension | | Cleaner and simpler | | Faster, built-in functions |   **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) | 1.0 | | Code Explanation Accuracy (Gemini) (Task#3) | 0.5 | | Cursor AI Setup and Usage (Task#4) | 0.5 | | Refactoring and Improvement Analysis (Task#5) | 0.5 | | **Total** | **2.5 Marks** | | Week1 - Wednesday |  |

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