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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 - Monday | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicable to**  **Batches** | | M. Tech/MCA | | | |
| **AssignmentNumber:1.3**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | ***Expected Time***  ***to complete*** |  |
|  | 1 | Lab 1: Environment Setup – GitHub Copilot and VS Code Integration  **Lab Objectives:**   * To install and configure GitHub Copilot in Visual Studio Code. * To explore AI-assisted code generation using GitHub Copilot. * To analyze the accuracy and effectiveness of Copilot's code suggestions. * To understand prompt-based programming using comments and code context   **Lab Outcomes (LOs):**  After completing this lab, students will be able to:   * Set up GitHub Copilot in VS Code successfully. * Use inline comments and context to generate code with Copilot. * Evaluate AI-generated code for correctness and readability. * Compare code suggestions based on different prompts and programming styles.   **Task Description#1**   * Install and configure GitHub Copilot in VS Code. Take screenshots of each step.   **Expected Output#1**   * Install and configure GitHub Copilot in VS Code. Take screenshots of each step.   **Task Description#2**   * Use Copilot to generate a is\_prime() Python function**.**   **Prompt** : write a python function to check whether the user input number is prime or not  **Expected Output#2**   * Function to check primality with correct logic.       **Task Description#3**   * Write a comment like # Function to reverse a string and use Copilot to generate the function.   **Prompt : write a python function to reverse the user input string**      **Expected Output#3**   * Auto-completed reverse function     **Task Description#4**   * Generate both recursive and iterative versions of a factorial function using comments   **Prompt** : **write a python code for user input recursive and iterative function of a factorial function using comment**  ..      **Expected Output#4**   * Two working factorial implementations     **Task Description#5**   * Use Copilot to find the largest number in a list. Assess code quality and efficiency   **Prompt** : **write a user input python code to find largest number in the list and assess the code quality and efficiency**      **Expected Output#5**   * A valid function with your review     **Assessment (brief)**   * **Correctness: Handles typical numeric input, empty input, and invalid tokens (raises/handles ValueError).** * **Time complexity: O(n) for both implementations (optimal for finding max).** * **Space complexity: O(1) extra space for iterative version; parsing requires O(n) to store values.** * **Readability: Clear functions with single responsibilities; parse helper improves robustness.** * **Suggestions: Add unit tests, support integers exclusively if required, or accept streamed input for very large data to avoid storing the whole list.**   **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 Setup of Copilot (Task #1) | 2 | | is\_prime() Python function (Task #2) | 2 | | Reverse a string function (Task #3) | 2 | | Factorial Function (Task #4) | 2 | | Find the largest number (Task #5) | 2 | | **Total** | **10 Marks** | | | | | | | Week1 - Wednesday |  |