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| **SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING** | | | | |
| **Program Name:** M.Tech. and 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** | | | Week3 - Monday | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicable to**  **Batches** | | M.Tech. and MCA | | | |
| **AssignmentNumber:4.3**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
| **NAME : Shreemayi Katakam**  **Roll No: 2503B05124**  **Branch: M-TECH(CSE)** | | | | | | | | | |
|  | **Q.No.** | **Question** | | | | | | ***Expected Time***  ***to complete*** |  |
|  | 1 | Lab 4: Advanced Prompt Engineering – Zero-shot, One-shot, and Few-shot Techniques  **Lab Objectives:**   * To explore and apply different levels of prompt examples in AI-assisted code generation. * To understand how zero-shot, one-shot, and few-shot prompting affect AI output quality. * To evaluate the impact of context richness and example quantity on AI performance. * To build awareness of prompt strategy effectiveness for different problem types.   **Lab Outcomes (LOs):**  After completing this lab, students will be able to:   * Use zero-shot prompting to instruct AI with minimal context. * Use one-shot prompting with a single example to guide AI code generation. * Apply few-shot prompting using multiple examples to improve AI responses. * Compare AI outputs across the three prompting strategies.   **Task Description#1**   * Zero-shot: Prompt AI to write a function that checks whether a given year is a leap year.   **Prompt:** write a python function which checks whether a given year is a leap yearby taking user input manually.  **Code:**    **Expected Output#1**    **Task Description#2**   * One-shot: Give one input-output example to guide AI in writing a function that converts centimeters to inches.   **Prompt:** Write a Python function that converts centimeters to inches. take input from user manually  **Code:**    **Expected Output#2**      **Task Description#3**   * Few-shot: Provide 2–3 examples to generate a function that formats full names as “Last, First”.   Promt: Generate a python function that formats full name as “last, first” .The program should take input from the user, and print the formated name.    **Expected Output#3**    **Task Description#4**   * Compare zero-shot and few-shot prompts for writing a function that counts the number of vowels in a string.   **Zero-shot code Promt:** write a python function that counts the number of vowels in a given string. The program should take input from user and print the vowels.  **Few -Shot Code Promt:** write a python function that counts the number of vowels in a given string. The program should take input from user and print the vowels. Example Apple – 2 Vowels, Phone-2 Vowels, Television- 5Vowels  **Zero Shot Code:**    **Zero Shot Output:**    **Few Shot Code:**      **Few Shot Output:**    **Comparsion between zero-shot and few shot**  Zero-shot learning means the model performs a task without any prior examples, relying only on its general knowledge.  Few-shot learning provides the model with a few input-output examples to guide its response.  Zero-shot is useful for general, well-known tasks, while few-shot improves accuracy on specific tasks.  Few-shot learning helps the model adapt better to context than zero-shot.  **Task Description#5**   * Use few-shot prompting to generate a function that reads a .txt file and returns the number of lines.     **Expected Output#5**   * Working file-processing function with AI-guided 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** | | --- | --- | | Zero Shot (Task #1) | 2.5 | | One Shot (Task#2) | 2.5 | | Few Shot (Task#3 & Task #5) | 2.5 | | Comparison (Task#4) | 2.5 | | **Total** | **10 Marks** | | | | | | | Week3 - Monday |  |