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| **SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING** | | | | |
| **ProgramName:**M.Tech. and MCA | | | | **Assignment Type: Lab** | | | **AcademicYear:**2025-2026 | | |
| **CourseCoordinatorName** | | | | Venkataramana Veeramsetty | | | | | |
| **CourseCode** | | |  | **CourseTitle** | | AI Assisted Problem Solving Using Python | | | |
| **Year/Sem** | | | I/I | **Regulation** | | R24 | | | |
| **Date and Day**  **of Assignment** | | | Week3 - Monday | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicableto**  **Batches** | | M.Tech. and MCA | | | |
| **AssignmentNumber:4.3**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | ***ExpectedTime***  ***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.   **Expected Output#1**   * AI-generated function with no examples provided   **Prompt: write a function that checks whether a given a year is a leap year or not by user input function using zero-shot.**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{0B2EE1CB-87AE-45B1-A845-E9F050F52404}.png**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{6BA38054-7381-4404-9E1C-C458C13EB591}.png**  **Task Description#2**   * One-shot: Give one input-output example to guide AI in writing a function that converts centimeters to inches.   **Expected Output#2**   * Function with correct conversion logic   **Prompt: writing a function that converts centimeters to inches by user input function using one-shot.**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{6D1BC20F-0076-4D09-BE4F-A0F189ED033E}.png**  C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{E012EFC7-60C0-4BDB-A22F-ABDB8BA7D491}.png  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{2AAA7DDF-1809-4143-8F51-519512364486}.png Task Description#3**   * Few-shot: Provide 2–3 examples to generate a function that formats full names as “Last, First”.   **Expected Output#3**   * Well-structured function respecting the example   **Prompt: Generate a function that formats full names as “Last, First” by providing using user input function**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{F5348988-C8AA-4FE9-9859-B3C40BEB36C1}.png**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{E407D396-4286-4EF3-BB30-1F9334EB3F21}.png**    **Task Description#4**   * Compare zero-shot and few-shot prompts for writing a function that counts the number of vowels in a string.   **Expected Output#4**   * Functional output and comparative reflection   **Prompt: write a function that counts the number of vowels in a string by comparing zero-short and few-shot using user input function.**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{D6D07C65-EF9A-4EF6-951B-ECA008A18E5F}.png**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{8C194BE6-D889-454C-97BB-9C39CF4A1653}.png**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{E2B471D9-26AE-422D-89CD-45DF75557D60}.png**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{7634C3A8-3C51-4042-8F68-0EFB04366199}.png**  **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   **Prompt:** **Generate a function that reads a .txt file and returns the number of lines by few-shot using user input function.**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{E0ACEB58-61BC-415C-96A4-FC94A1749BA3}.png**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{D7E71C46-C066-4418-B9F2-472F078661A1}.png**  **C:\Users\madad\AppData\Local\Packages\MicrosoftWindows.Client.CBS_cw5n1h2txyewy\TempState\ScreenClip\{93D473E2-5EEB-493C-B009-18AEB3A572FB}.png**  **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 |  |