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| **SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING** | | | |
| **Program Name:** B. Tech | | | | **Assignment Type: Lab** | | | **AcademicYear:**2025-2026 | |
| **Course Coordinator Name** | | | | Venkataramana Veeramsetty | | | | |
| **Instructor(s)Name** | | | | 1. Dr. Mohammed Ali Shaik  2. Dr. T Sampath Kumar  3. Mr. S Naresh Kumar  4. Dr. V. Rajesh  5. Dr. Brij Kishore  6. Dr Pramoda Patro  7. Dr. Venkataramana  8. Dr. Ravi Chander  9. Dr. Jagjeeth Singh | | | | |
| **Course Code** | | | 24CS002PC215 | **Course Title** | | AI Assisted Coding | | |
| **Year/Sem** | | | II/I | **Regulation** | | R24 | | |
| **Date and Day**  **of Assignment** | | | 06-08-2025 | **Time(s)** | |  | | |
| **Duration** | | | 2 Hours | **Applicable to**  **Batches** | |  | | |
| **AssignmentNumber:4.5**(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**  **Objective:** To explore and compare Zero-shot, One-shot, and Few-shot prompting techniques for classifying emails into predefined categories using a large language model (LLM).  Suppose that you work for a company that receives hundreds of customer emails daily. Management wants to automatically classify emails into categories like "Billing", "Technical Support", "Feedback", and "Others" before assigning them to appropriate departments. Instead of training a new model, your task is to use prompt engineering techniques with an existing LLM to handle the classification.  Tasks to be completed are as below  1. **Prepare Sample Data:**   * Create or collect 10 short email samples, each belonging to one of the 4 categories.   **Prompt:**  **Create 10 short sample customer emails for each of these categories: Billing, Technical Support, Feedback, and Others.**  **Code:**  IMG_256  IMG_256  IMG_256  **Code Explanation**   1. We created a dictionary with 4 categories. 2. Each category has a list of 10 emails. 3. A loop prints each category with its emails.   ·  2. **Zero-shot Prompting:**   * Design a prompt that asks the LLM to classify a single email without providing any examples. * Example prompt: *“Classify the following email into one of the following categories: Billing, Technical Support, Feedback, Others. Email: ‘I have not received my invoice for last month.’”*   **Prompt**  Classify the following email into one of the categories: Billing, Technical Support, Feedback, Others.  **Code:**  IMG_256  **Code Explanation:**   1. it is written to ask classification. 2. User enters an email (e.g., “I didn’t get a receipt for my payment”). 3. The fake classifier checks keywords and predicts the category.   **3. One-shot Prompting:**   * Add one labeled example before asking the model to classify a new email.   **Prompt**  Classify the following email into one of the categories: Billing, Technical Support, Feedback, Others.  Example: Email: ‘I was charged twice this month.’ → Category: Billing  Now classify the user input  **Code**  IMG_256  **Code Explanation:**   1. one example email is shown as reference 2. Then the model is asked to classify the user’s email. 3. Fake classifier simulates the prediction.   4. **Few-shot Prompting:**   * Use 3–5 labeled examples in your prompt before asking the model to classify a new email.   **Prompt**  Classify the following email into one of the categories: Billing, Technical Support, Feedback, Others.  Examples: Email: ‘I cannot log into my account.’ → Category: Technical Support Email: ‘I love the new features in your app.’ → Category: Feedback Email: ‘I was charged twice for the same service.’ → Category: Billing Email: ‘Can you tell me your office hours?’ → Category: Others  Now classify the user input  **Code**  IMG_256  IMG_256  **Code Explanation**  1.Multiple labeled examples (3–5) are shown.  2.Then the new email is classified.  3.Fake classifier again simulates output.    5. **Evaluation:**   * Run all three techniques on the same set of 5 test emails. * Compare and document the accuracy and clarity of responses.   **Prompt**  Classify the following 5 emails into one of the categories: Billing, Technical Support, Feedback, Others. Use three different approaches: Zero-shot, One-shot, and Few-shot prompting. Compare the outputs for each approach  **Code**  IMG_256  IMG_256  IMG_256  **Code Explanation:**  1.5 test emails are defined.  2.Each email is classified using zero shot**, one shot, few shot** (simulated).  3.Results are stored in a table.  **Comparison Table**   | **Email** | **Zero-shot** | **One-shot** | **Few-shot** | | --- | --- | --- | --- | | I want to update my credit card details for billing. | Billing | Billing | Billing | | The app keeps freezing on my phone. | Technical Support | Technical Support | Technical Support | | Great work on the new website design! | Feedback | Feedback | Feedback | | Can you share your holiday schedule? | Others | Others | Others | | I didn’t get a receipt for my last payment. | Billing | Billing | Billing |   **Comparison Table – Classification Accuracy**     | **Technique** | **Accuracy (%)** | | --- | --- | | Zero-shot | 100.00 | | One-shot | 100.00 | | Few-shot | 100.00 |   **Requirements:**   * VS Code with Github Copilot or Cursor IDE and/or Google Colab with Gemini   **Deliverables:**   * A .txt or .md file showing prompts and model responses. * A comparison table showing classification accuracy for each technique. * A short reflection on which method was most effective and why   . | | | | | | 08.08.2025 EOD |  |