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| **SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING** | | | | |
| **Program Name:** B. Tech | | | | **Assignment Type: Lab** | | | **Academic Year:**2025-2026 | | |
| **Course Coordinator Name** | | | | 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) | | NS2 ( Mounika) | | | | | | |
| **Course Code** | | | 24CS002PC215 | **Course Title** | | AI Assisted Coding | | | |
| **Year/Sem** | | | II/I | **Regulation** | | R24 | | | |
| **Date and Day**  **of Assignment** | | | Week2 - Monday | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicable to**  **Batches** | |  | | | |
| **Assignment Number:3.1**(Present assignment number)/**24**(Total number of assignments) | | | | | | | | | |
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|  | **Q.No.** | **Question** | | | | | | ***Expected Time to complete*** |  |
|  | **1** | **Lab Experiment: Prompt Engineering – Improving Prompts and Context Management (0.5 marks)**  **Objective**  To explore how prompt design and context influence AI-generated outputs and to learn techniques to improve AI responses.  Tools Required   * GitHub Copilot / Google Gemini / ChatGPT * VS Code / Google Colab * Internet access   Procedure   1. Select a simple task: *"Write a Python function to check if a number is prime."* 2. Use different prompting strategies to generate the solution: 3. Zero-Shot – no examples. 4. One-Shot – one example provided. 5. Few-Shot – multiple examples provided. 6. Context-Managed – detailed prompt with constraints and instructions. 7. Record AI responses and refine prompts to improve code quality. 8. Request AI to optimize the logic for efficiency. 9. Compare results and document improvements. 10. **Sample Prompts**  * Zero-Shot: Write a Python function to check if a number is prime. * One-Shot: Example: Input: 5 → Output: Prime. Now, write a function to check if a number is prime. * Few-Shot:   Example 1: Input: 7 → Output: Prime  Example 2: Input: 10 → Output: Not Prime  Example 3: Input: 2 → Output: Prime  Generate the function accordingly.   * Context-Managed (With Optimization) | | | | | | Week2 - Monday |  |
|  | **2** | **Task: Mobile Data Usage Billing Application (1.0 Marks)**  **Objective:**  Use Python programming and AI-assisted coding tools to create an application that simulates mobile data billing for a telecom service provider.  Instructions   1. Use GitHub Copilot or Google Gemini to assist in writing the program. 2. Read the following inputs from the user:    * Data consumed    * Plan Type (Prepaid / Postpaid)    * Additional services used (e.g., caller tune, OTT subscription, etc.) cost - ₹200    * Prepaid plans (unlimited)    * 30 days – ₹250    * 90 days – ₹700,    * 365 days - ₹2700    * Data charges - ₹0    * Postpaid plans for 30 days    * ₹450, 50GB    * ₹700, 105GB    * ₹1000, 150GB    * Additional data charges ₹10 per GB 3. Implement billing logic based on plan type and data usage:    * DC (Data Charges) – charges based on data consumption    * VC (Value-added Charges) – charges for additional services    * Tax – applicable tax 18% on the total bill 4. Display an itemized bill showing:    * Plan Type    * Data Usage and Charges    * Value-added Services and Charges    * Tax    * Total Bill Amount   Requirements   * Students must refer to their actual mobile bill for charge structure (data cost, service fees, taxes) to make the program realistic. * AI assistance (Copilot/Gemini) must be used to generate and refine the initial code.   Deliverables   * AI prompts used for code generation. * AI-generated Python code and any optimized version. * Screenshots of:   + AI interactions   + Program execution and output   + Comparison with the student’s actual mobile bill. | | | | | | Week2 - Monday |  |
|  | **3** | **Task: Develop an LPG Billing System (1.0 Marks)**  **Objective**  Apply your Python programming skills and utilize AI-assisted coding tools to build an application that calculates the LPG bill based on specified customer inputs and billing parameters.  Instructions   1. Use GitHub Copilot or Google Gemini to assist in writing and refining the program. 2. Read the following user inputs:    * Cylinder Type (Domestic 14.2 kg / Domestic 5 kg / Commercial 19 kg / Commercial 47.5 kg)    * Number of Cylinders Booked    * Subsidy Amount (applicable only for domestic cylinders) 3. Refer to the given LPG Price List to determine the price per cylinder:    * Domestic LPG (14.2 kg) → ₹905.00    * Domestic LPG (5 kg) → ₹335.50    * Commercial LPG (19 kg) → ₹1,886.50    * Commercial LPG (47.5 kg) → ₹4,712.00    * Delivery Charges (₹10 to ₹50) 4. Implement the billing formula:   Bill Amount = (Price per Cylinder × Quantity) - Subsidy (if applicable) + Delivery Charges   1. Calculate and display an itemized bill including:  * Cylinder Type * Number of Cylinders * Base Amount * Subsidy * Delivery Charges * Total Bill Amount   Deliverables   * A report containing:   + AI prompts used to generate the program   + AI-generated Python code   + Line-by-line explanation of the code | | | | | | Week2 - Monday |  |