**Assignment 2 – Problem Statement F**

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**Instructions**

1. **Follow the instructions in each question carefully.**
2. **Only two files should be uploaded in canvas without zipping them. One is ipynb file and other one html output of the ipynb file. No other files should be uploaded**
3. **Any assignment submitted using other python IDEs are not considered for grading.**
4. **Incorrect Assignment Set submitted will not be considered.**

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**Problem Statement:**

Develop and implement a healthcare query system that utilizes Small Language Models (SLMs) and traditional NLP techniques to provide accurate answers to patients. The system should include fallback mechanisms to handle cases where the SLM's responses are inadequate, using intent capture and specific methods for improvement. The goal is to demonstrate the effectiveness of creating a highly efficient and accurate healthcare query system. The project will culminate in a detailed implementation, results, and analysis.

**Tasks:**

1. **Design an End-to-End Application Prototype (4 Marks):**  
   Create an end-to-end prototype of the healthcare query system. The prototype should demonstrate two distinct query flows, showcasing how the system processes and responds to different types of healthcare questions.
2. **Build the Application Using SLM and Traditional NLP Techniques (4 Marks):**  
   Implement the healthcare query system using Small Language Models and traditional NLP techniques. Ensure that the system efficiently handles patient queries and provides accurate responses.
3. **Develop a User Interface (UI) for Patient Interaction (4 Marks):**  
   Create a user-friendly interface to allow patients to interact with the healthcare query system. Use tools like Streamlit or Gradio to develop the UI.
4. **Showcase Working Examples of the Prototype (3 Marks):**  
   Provide 5-10 working examples demonstrating the end-to-end functionality of the healthcare query system. These examples should be generated through the actual application, not through any design tools, and should highlight the system's effectiveness in handling various healthcare queries.