1) Design and implement a Python program to manage hospital patient records using appropriate data structures. Each patient has a unique patient_id (string), a name (string), an age (integer), and a medical_history, which is a **list of tuples**. Each tuple in the medical history represents a medical visit and should contain two elements: the **date** (in YYYY-MM-DD format) and a **diagnosis** (string). Store the patient records in a **dictionary**, where the key is the patient_id and the value is a tuple containing the patient's name, age, and medical history list.

   Your program should allow the following operations:

   1. Add a new patient record to the system.
   2. Update an existing patient's medical history by appending a new (date, diagnosis) tuple.
   3. Display the details of all patients who are **over the age of 60** and have at least one diagnosis that includes the word **"diabetes"** (case-insensitive match).
   4. Count and display how many patients have more than **three medical diagnoses** in their history.

2) Develop a Python program to assist a university in planning and analyzing course schedules and student enrollments. Each course is uniquely identified by a course_code (e.g., "CS101") and includes the following details: the instructor (string), a schedule represented as a **list of tuples**, where each tuple contains the **day and time** of a session (e.g., ("Mon", "10:00AM")), and a list of enrolled_students (names as strings). All course data should be stored in a **dictionary**, with the course_code as the key and the value being a tuple containing the instructor's name, schedule list, and the list of enrolled students.

   Your program should provide functionality to:

   1. Add new courses or update the schedule of existing courses.
   2. Detect and report **scheduling conflicts** for instructors—cases where an instructor is assigned to more than one course at the same time on the same day.
   3. Generate a new dictionary that maps each **student name** to a **list of course codes** they are enrolled in.
   4. Identify and display the names of all students who are enrolled in **more than three courses**.