# Extra SQL Tasks for Clinic Management System

## 1. Trigger to Prevent Overlapping Appointments for the Same Doctor

This trigger ensures that no two appointments for the same doctor overlap in time on the same date. It checks the new appointment against existing ones before inserting.

DELIMITER //  
CREATE TRIGGER prevent\_overlapping\_appointments  
BEFORE INSERT ON appointment  
FOR EACH ROW  
BEGIN  
 IF EXISTS (  
 SELECT 1  
 FROM appointment  
 WHERE doctor\_id = NEW.doctor\_id  
 AND appointment\_date = NEW.appointment\_date  
 AND (  
 (NEW.start\_time BETWEEN start\_time AND end\_time)  
 OR (NEW.end\_time BETWEEN start\_time AND end\_time)  
 OR (start\_time BETWEEN NEW.start\_time AND NEW.end\_time)  
 )  
 ) THEN  
 SIGNAL SQLSTATE '45000'  
 SET MESSAGE\_TEXT = 'Overlapping appointment for this doctor is not allowed.';  
 END IF;  
END;  
//  
DELIMITER ;

## 2. Query to Fetch Each Patient and Their Total Number of Appointments

This query lists all patients with the total count of their appointments. It uses a LEFT JOIN to include patients even if they have no appointments.

SELECT   
 p.patient\_id,  
 CONCAT(p.first\_name, ' ', p.last\_name) AS patient\_name,  
 COUNT(a.appointment\_id) AS total\_appointments  
FROM patient p  
LEFT JOIN appointment a ON p.patient\_id = a.patient\_id  
GROUP BY p.patient\_id, p.first\_name, p.last\_name;

## 3. View Showing Each Doctor’s Upcoming Appointment Count for Next Month

This view counts the number of appointments each doctor has scheduled for the next month. It groups the results by doctor ID and name.

CREATE VIEW doctor\_next\_month\_appointments AS  
SELECT   
 d.doctor\_id,  
 CONCAT(d.doctor\_first\_name, ' ', d.doctor\_last\_name) AS doctor\_name,  
 COUNT(a.appointment\_id) AS upcoming\_appointments  
FROM doctor d  
LEFT JOIN appointment a   
 ON d.doctor\_id = a.doctor\_id  
 AND a.appointment\_date >= DATE\_FORMAT(CURDATE() + INTERVAL 1 MONTH, '%Y-%m-01')  
 AND a.appointment\_date < DATE\_FORMAT(CURDATE() + INTERVAL 2 MONTH, '%Y-%m-01')  
GROUP BY d.doctor\_id, d.doctor\_first\_name, d.doctor\_last\_name;