Here are healthcare-focused SQL project ideas that emphasize database fundamentals and provide meaningful solutions to real-world problems:

**1. Patient Management System**

* **Goal:** Create a database to manage patient information in a hospital or clinic.
* **Features:**
  + Store patient demographics, medical history, and contact details.
  + Track appointments, diagnoses, and treatments.
  + Generate reports on patient history or doctor workload.
* **Focus Areas:**
  + Schema with relationships between patients, doctors, visits, and treatments.
  + SQL queries to retrieve patient history or generate a list of upcoming appointments.
  + Use of stored procedures for scheduling conflicts and patient reminders.

**2. Medication Inventory System**

* **Goal:** Design a system for tracking medications in a pharmacy or hospital.
* **Features:**
  + Manage drug stock levels, supplier information, and expiry dates.
  + Track medications dispensed to patients.
  + Generate alerts for low stock or expiring drugs.
* **Focus Areas:**
  + Normalized schema for medications, suppliers, and prescriptions.
  + SQL queries for stock reports and usage trends.
  + Triggers to automatically flag low inventory or expired items.

**3. Electronic Health Record (EHR) Database**

* **Goal:** Build a database for storing comprehensive electronic health records.
* **Features:**
  + Store patient information, lab results, imaging data, and prescriptions.
  + Allow authorized users to query and update records securely.
  + Support queries for patient conditions, test results, or treatment outcomes.
* **Focus Areas:**
  + Schema with robust foreign key relationships for modular data storage.
  + SQL joins to retrieve complex records (e.g., patient lab results and treatments).
  + Views for role-specific access (e.g., doctor, nurse, admin).

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**4. Health Insurance Claims Management**

* **Goal:** Create a database to track health insurance claims and reimbursements.
* **Features:**
  + Store data on claims, policyholders, and providers.
  + Track claim statuses (e.g., pending, approved, rejected).
  + Generate analytics on claim trends and fraud detection.
* **Focus Areas:**
  + Schema design for claims, policyholders, and insurance plans.
  + SQL queries for filtering claims by provider, policyholder, or status.
  + Procedures for calculating reimbursement amounts based on policy terms.

**Clinical Trial Database**

* **Goal:** Create a database to manage data from clinical trials.
* **Features:**
  + Store data on participants, study protocols, and outcomes.
  + Track adverse events and drug efficacy metrics.
  + Generate summaries for regulatory submissions.
* **Focus Areas:**
  + Schema design for participants, trials, and results.
  + SQL queries for data analysis (e.g., participant demographics, trial outcomes).
  + Views to isolate blinded and unblinded data for specific roles.

**Healthcare Analytics Platform**

* **Goal:** Build a database for storing and analyzing healthcare data for insights.
* **Features:**
  + Store data on patient admissions, procedures, and outcomes.
  + Analyze trends like disease prevalence or readmission rates.
  + Generate reports for decision-making.
* **Focus Areas:**
  + Schema for data aggregation and analysis.
  + SQL queries for generating analytics reports.
  + Use of indexing and partitioning for performance optimization with large datasets.

**Prescription Management System**

* **Goal:** Create a database to track prescriptions and dispensing.
* **Features:**
  + Record prescription details, including drugs, dosages, and frequencies.
  + Track fulfillment and renewal of prescriptions.
  + Generate reminders for prescription renewals.
* **Focus Areas:**
  + Schema with relationships between patients, prescriptions, and pharmacists.
  + SQL queries to retrieve prescription history and generate renewal lists.
  + Triggers for reminder notifications.