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VITYARTHI Project Python Essentials REPORT

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Overview of the Project

A Pharmacy Management System implemented using Python and SQLite for efficient CRUD operations on medicine inventory.

Introduction

This system facilitates managing a pharmacy's medicine database, including adding, viewing, searching, updating, and deleting medicine records.

Problem Statement

Managing inventory manually can lead to errors and inefficiencies; this system automates inventory tracking to improve accuracy and accessibility.

Functional Requirements

The system allows users to add new medicines, view current inventory, search medicines by name, update medicine details, and delete medicines.

Non-functional Requirements

The system ensures data persistence using SQLite, provides a user-friendly command-line interface, and handles input validation and error management.

System Architecture

The architecture is a client-side command-line application interacting with a local SQLite database to store medicine records.

Design Diagrams

- Use Case Diagram: Users interact with the system to perform CRUD operations on medicines.
- Workflow Diagram: Sequential steps include input collection, database operations, and result display.
- Sequence Diagram: Illustrates interactions between user inputs, application functions, and the database.
- Class/Component Diagram: Components include database module and interface functions for each operation.
- ER Diagram: A single table "medicines" with fields id, name, price, quantity, and expiry date.

Design Decisions & Rationale

SQLite is chosen for lightweight local storage; Python ensures simplicity and rapid development; command-line interface for easy deployment.

Implementation Details

Implemented in Python, utilizing SQLite commands for database operations encapsulated within functions for each CRUD operation.

Testing Approach

Manual testing is performed through interactive inputs covering all CRUD functions to ensure proper database operations.

Challenges Faced

Handling input validation and managing database connections gracefully to avoid errors during runtime.

Learnings & Key Takeaways

Gained experience in integrating SQLite with Python and structuring a simple but functional command-line CRUD application.

Future Enhancements

Potential improvements include GUI integration, multi-user support, and enhanced reporting capabilities.

References

Used Python documentation and SQLite tutorials to implement database connectivity and CRUD logic.