Python System

Inventory Management System in Python

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Overview

The Inventory Management System in Python is a project inspired by the tutorials created by RenzyCode. The project implements CRUD (Create, Read, Update, Delete) operations and features a graphical user interface (GUI) built with Tkinter. It serves as a comprehensive solution for managing sales and inventory records for a sari-sari store.

Scope

The project aims to enhance and extend the functionalities introduced in the original tutorials. It provides a user-friendly system tailored for a **sari-sari store,** The system combines Tkinter for GUI, SQLite3 for database operations, and follows an Object-Oriented Programming (OOP) paradigm for implementation.

Implementation

The project builds upon the original codebase, implementing additional features, optimizations, and customization to meet the specific needs of a sari-sari store. The GUI is created using the Tkinter module, and the backend utilizes the SQLite3 database.

Dependencies

- **sqlite3**: Python module for SQLite database operations.
- **csv**: Python module for CSV file handling.
- **tkinter**: GUI toolkit for building desktop applications.
- **PIL**: Python Imaging Library, used for image handling.
- **datetime**: Python module for working with dates and times.

Relational Database Design

Database Table: `inventory`

Inventory table is for keeping details for products in the sari-sari store. Product table has 4 attributes:

Column	Data Type	Constraints
itemID	INTEGER	NOT NULL
itemName	TEXT	
itemPrice	MONEY	NOT NULL
itemQuantity	INTEGER	NOT NULL

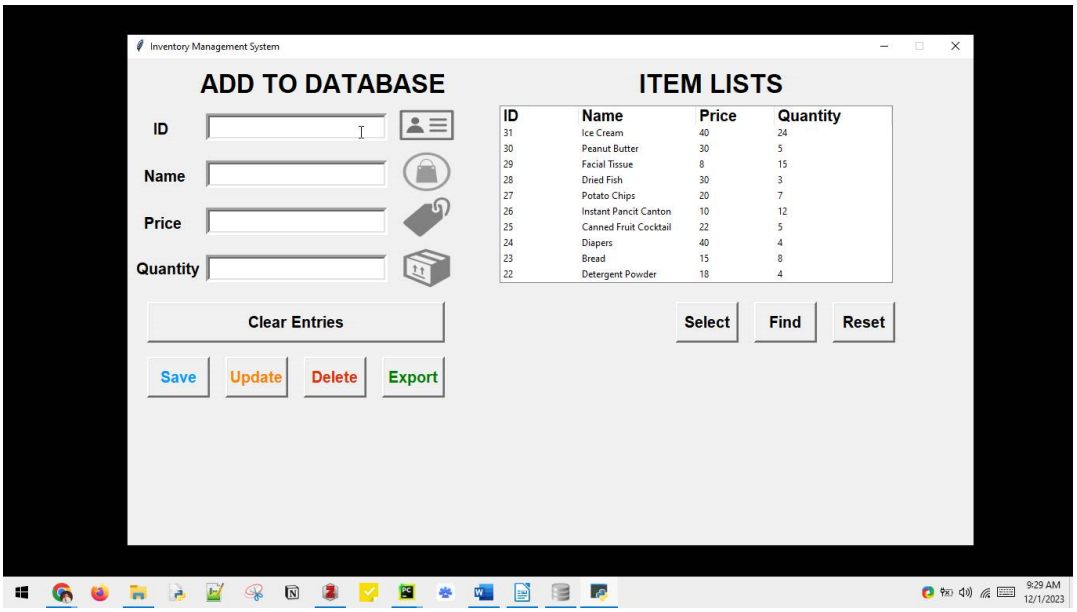
itemID, Product Name, Price, and Quantity are mandatory fields.

Functions

1. **insert(itemId, name, price, quantity)** - Inserts a new item into the database.
2. **delete(data) -** Deletes an item from the database based on its ID.
3. **update(itemid, name, price, quantity,)** - Updates an existing item in the database.
4. **read()** - Retrieves all items from the database.
5. **clear_data()** - Clears the entry fields.
6. **export_data()** - Exports inventory data to a CSV file.
7. **find_data()** - Searches and filters items based on user input.
8. **reset_find()** - Resets the search and displays all items.
9. **insert_data()** - Validates and inserts new data into the database.
10. **delete_data()** - Deletes the selected item from the database.
11. **select_data()** - Retrieves and displays data for the selected item.
12. **update_data()** - Validates and updates data for the selected item.
13. **treeview_sort_column(tv, col, reverse)** - Sorts the Treeview widget columns.

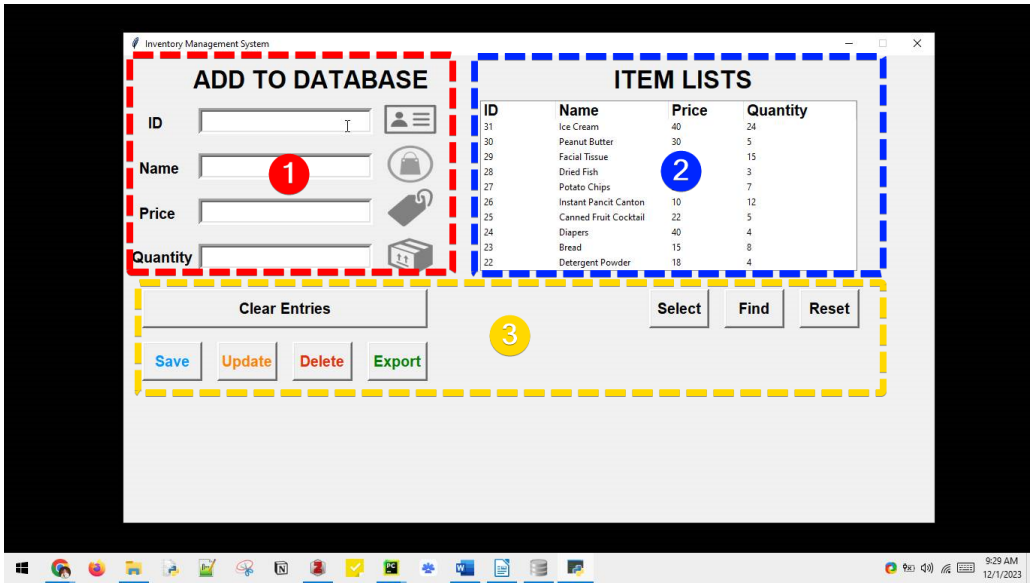
Run Program

To run the program, you have to run ***InventorySystem.py*** on shell.



User Interface

1. Entry fields for user input (ID, Name, Price, Quantity).
2. Treeview widget for displaying and interacting with inventory data.
3. Buttons for various operations (Save, Update, Delete, etc.).



Features

1. Add to Database: Allows users to add items to the inventory.
2. Item Lists: Displays a list of items with their ID, Name, Price, and Quantity.
3. Search and Filter: Enables users to search and filter items based on various criteria.
4. Update and Delete: Allows users to modify and remove items from the inventory.
5. Sort Treeview Widget: Allows users to sort ascending and descending.
6. Export to CSV: Supports exporting the inventory data to a CSV file.

Original Tutorials

CRUD Inventory System using Python GUI tkinter (October 27, 2021):

- RenzyCode (Director). (2021, October 27). CRUD Inventory System using Python GUI tkinter. https://www.youtube.com/watch?v=ej7gRbQX1_k
- Original codebase that served as the foundation for this project.

Stock Management System CRUD operations using Python tkinter GUI MySQL database (September 13, 2023):

- RenzyCode (Director). (2023, September 13). Stock Management System CRUD operations using Python tkinter GUI MySQL database (FREE SOURCE CODE). https://www.youtube.com/watch?v=vZsTBcoUPOs
- Additional tutorial extending the project's functionality.

Project Details and Technology

- **Project Title:** Inventory Management System Project in Python
- **Abstract**: A desktop application designed to simplify sales and inventory management, utilizing Python and Tkinter for GUI, SQLite3 for the database, and following OOP principles.
- **Technology**: PyCharm IDE Platform
- **Language**: Python
- **Database**: SQLite3
- **Developers**: Group 2 (Francis Paul Palis, Jarielle Brent Sison, Ron Carlo Quiroz, Sandy Buemio, Sir Xziann Jeano Genuino)