ICT Assignment 03:

Introduction:

1. **Seaborn**: Seaborn is a Python data visualization library based on Matplotlib. It provides a high-level interface for drawing attractive and informative statistical graphics. Seaborn is particularly useful for creating visually appealing plots with minimal code. It offers several built-in themes and color palettes to customize the look of the plots. Seaborn is commonly used for exploratory data analysis and communicating insights from data through visualizations.
2. **Tkinter**: Tkinter is the standard GUI (Graphical User Interface) library for Python. It provides a set of tools for creating desktop applications with graphical user interfaces. Tkinter is easy to use, cross-platform (works on Windows, macOS, and Linux), and comes bundled with Python, making it accessible to beginners and experienced developers alike. With Tkinter, you can create windows, buttons, labels, textboxes, and other GUI elements to build interactive applications.
3. **Importance of GUI**: Graphical User Interfaces (GUIs) play a crucial role in software applications for several reasons:
    - **User Interaction**: GUIs provide a visual and intuitive way for users to interact with software applications. They allow users to perform tasks, input data, and navigate through different functionalities with ease.
    - **Ease of Use**: GUIs make applications more user-friendly by presenting information in a visually appealing and organized manner. Users can quickly understand how to use the application without needing to learn complex commands or programming syntax.
    - **Increased Productivity**: GUIs streamline workflows and improve productivity by automating repetitive tasks, providing shortcuts, and offering features like drag-and-drop functionality.
    - **Better User Experience**: A well-designed GUI enhances the overall user experience by offering responsiveness, feedback, and error handling. It can make users feel more engaged and satisfied with the application.

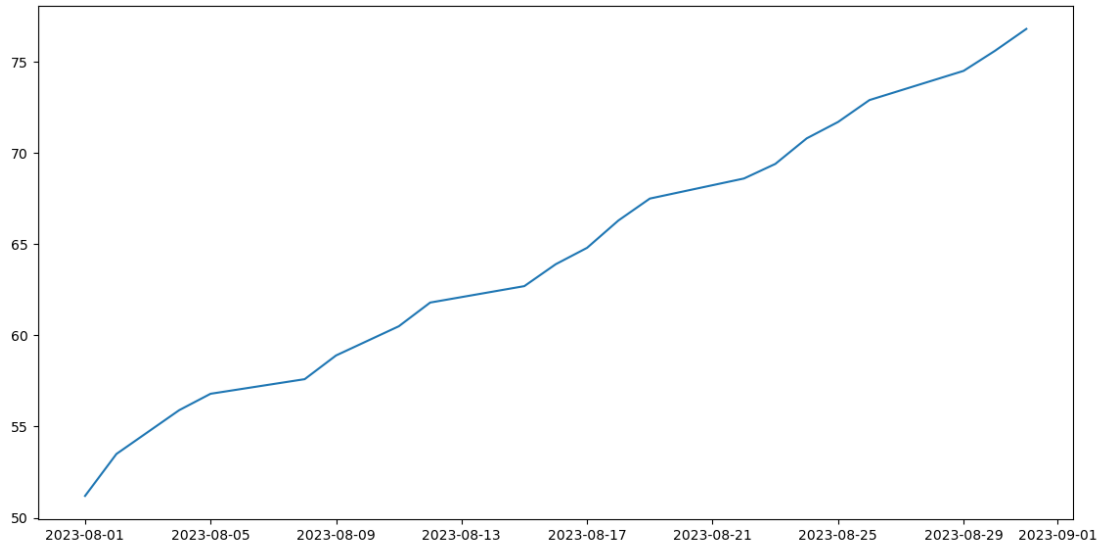
Now, regarding the inventory management system:

The inventory management system is developed using Python and Tkinter for the GUI. It allows users to manage their inventory efficiently by providing various functionalities:

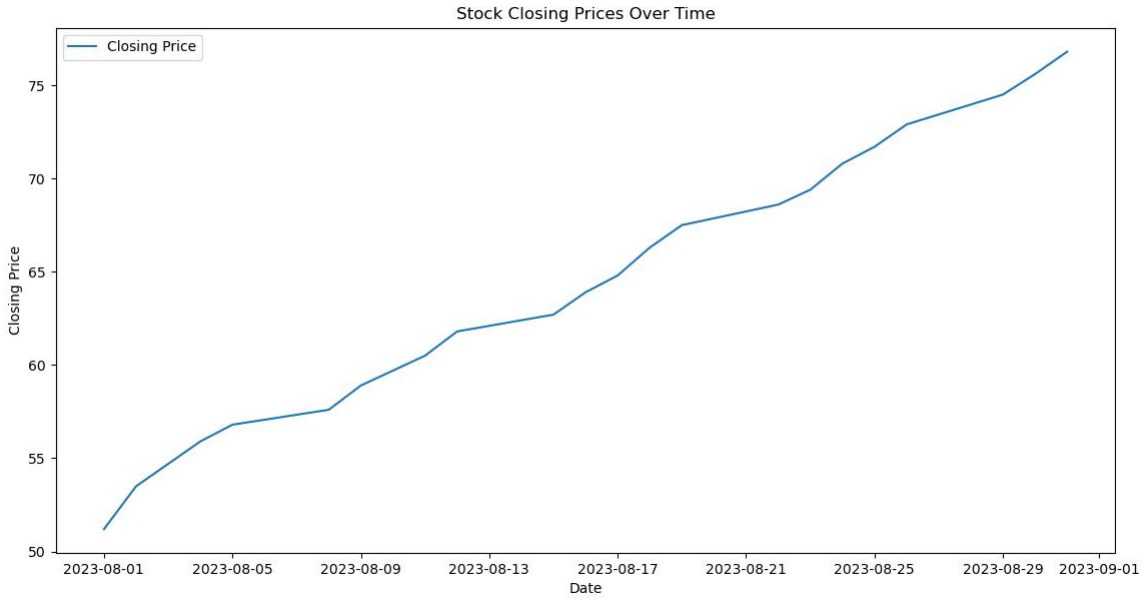
1. **User Authentication**: Users can log in securely to access the system, ensuring that only authorized personnel can manage the inventory.
2. **Product Management**: Users can add, update, and delete products in the inventory database.
    1. Add new Product: They can enter details of product includes name, quantity, price, and category to add a new product.
    2. Update Product: Users need to specify the ID of the product that they want to update and new details of the product.
    3. Delete Product: Users give the ID of the Product that they want to delete from inventory Management System.
3. **Transaction Recording**: The system records real-time purchases, sales, and returns. It automatically updates stock quantities based on these transactions to maintain accurate inventory levels.
4. **Search**: Users can quickly find specific products using the search option based on product name.
5. **Sales Reporting**: The system generates a comprehensive Sales report that includes the details of top-selling Products and their Sales and summarizes the Total revenue generated.
6. **Low Stock Alerts**: The system alerts users about low-stock items (whose sale quantity is less than 10) in the inventory, enabling timely restocking and preventing stockouts.
7. **Database Backup and Restore**: Users can create backups of the inventory database and restore data.

Task 1 Screenshots:

a)

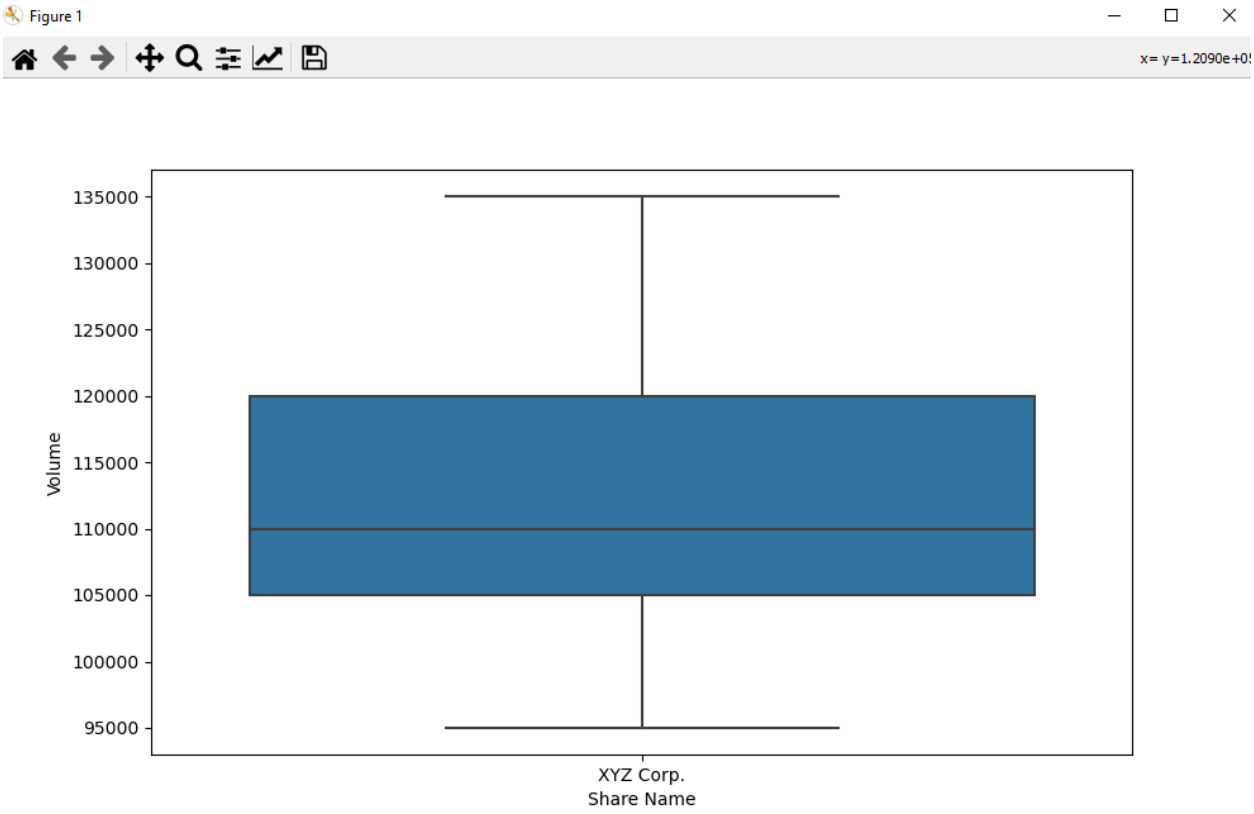

75
70
65
60
55
50
2023-08-01
2023-08-05
2023-08-09
2023-08-13
2023-08-17
2023-08-21
2023-08-25
2023-08-29
2023-09-01

b)

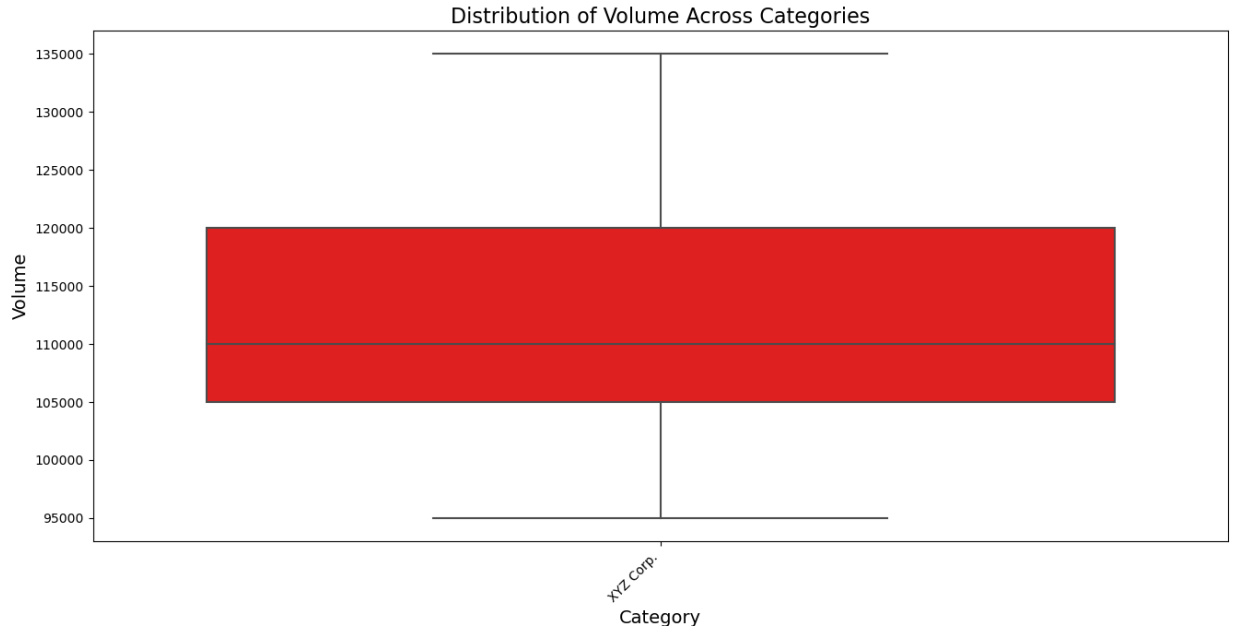

Stock Closing Prices Over Time
Closing Price
Closing Price
75
70
65
60
55
50
2023-08-01
2023-08-05
2023-08-09
2023-08-13
2023-08-17
2023-08-21
2023-08-25
2023-08-29
2023-09-01
Date

Task 2 Screenshots:

a)

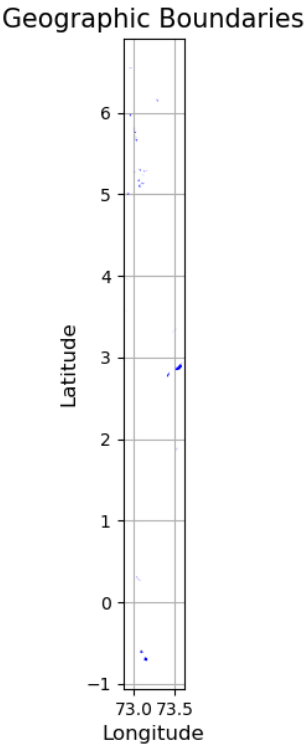


b)



Task 3 Screenshots:

a)



b)

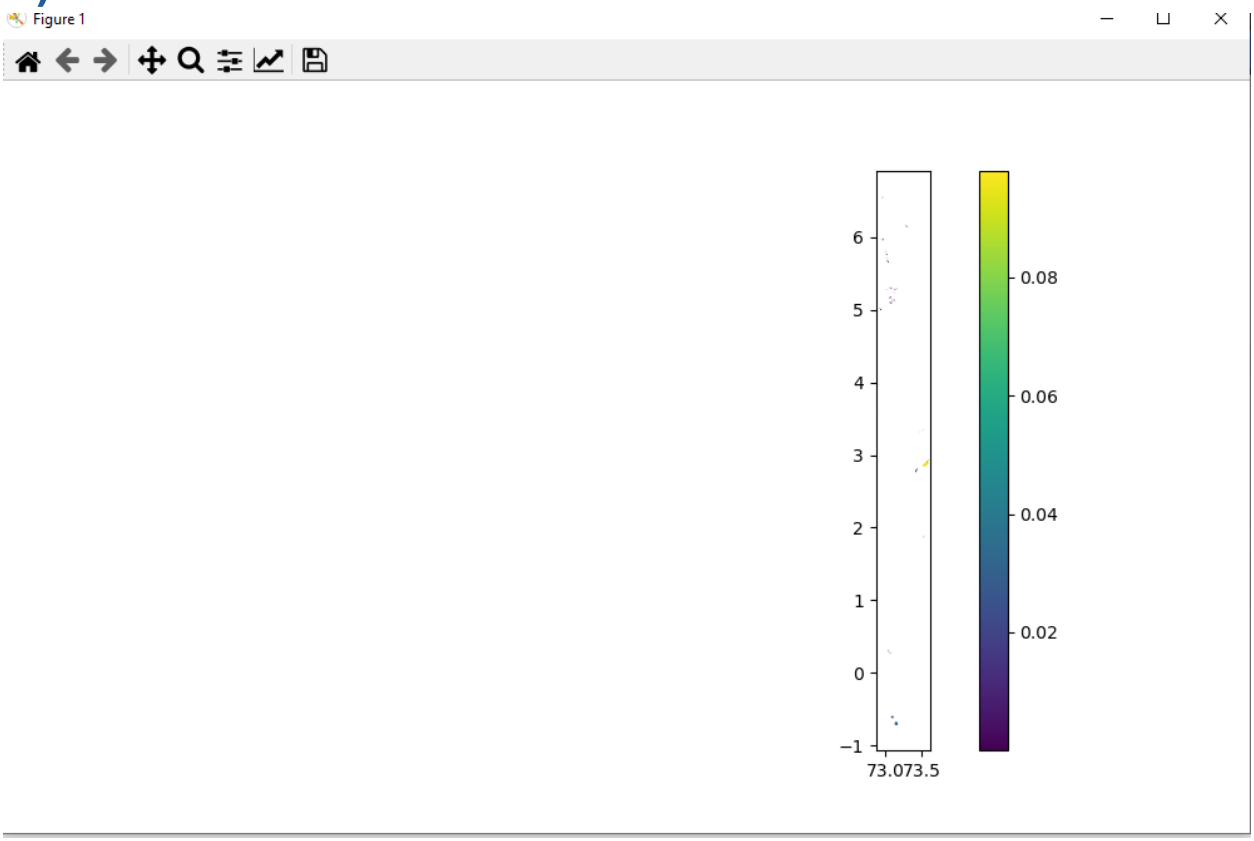


Figure 1
6
5
4
3
2
1
0
−1
73.073.5
0.08
0.06
0.04
0.02

c)

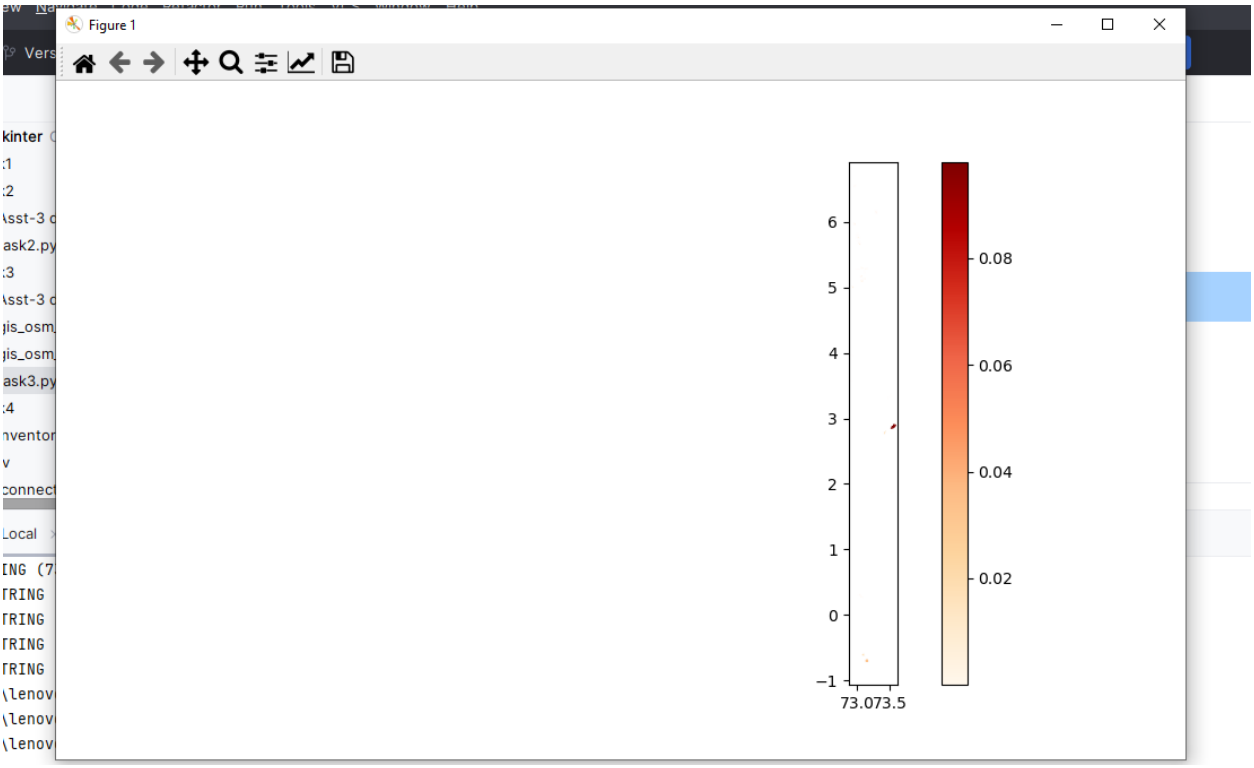
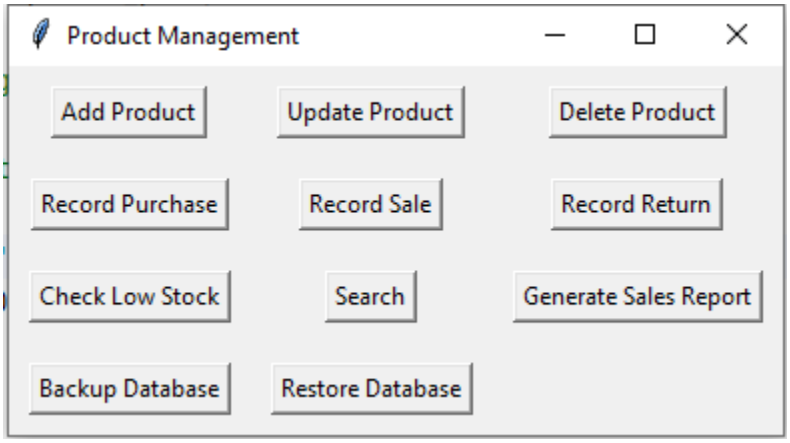
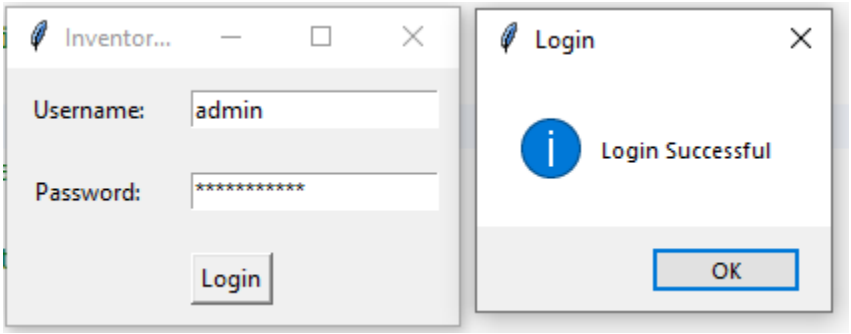


Figure 1
6
5
4
3
2
1
0
−1
73.073.5
0.08
0.06
0.04
0.02

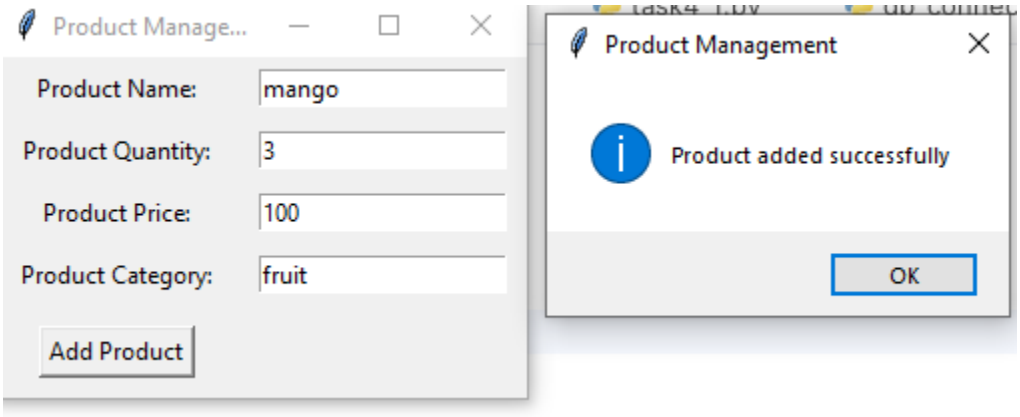
Task 4 Screenshots:



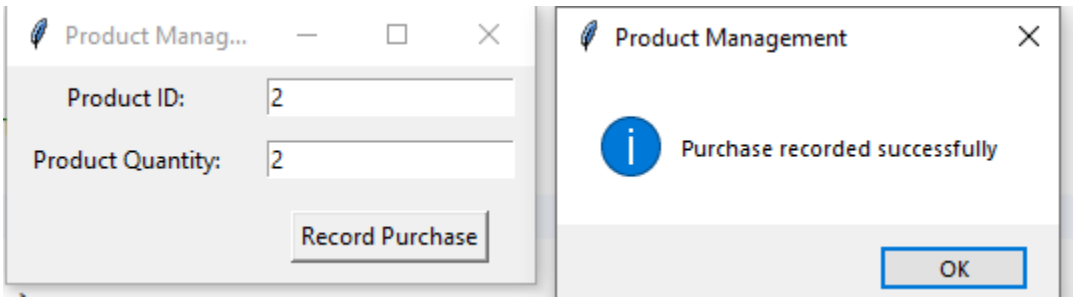
1)

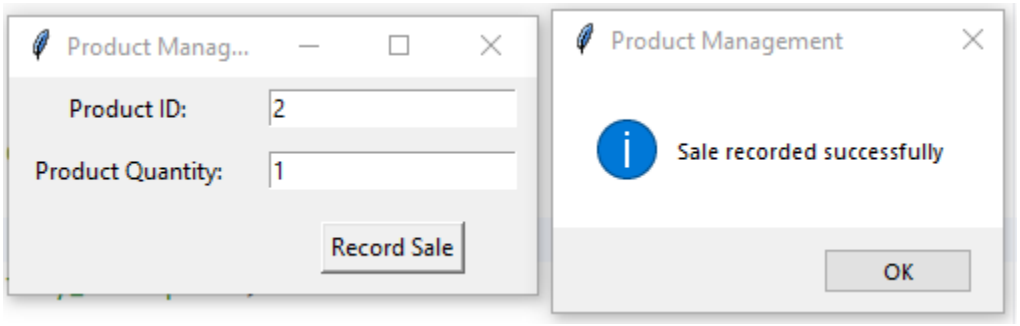


2)

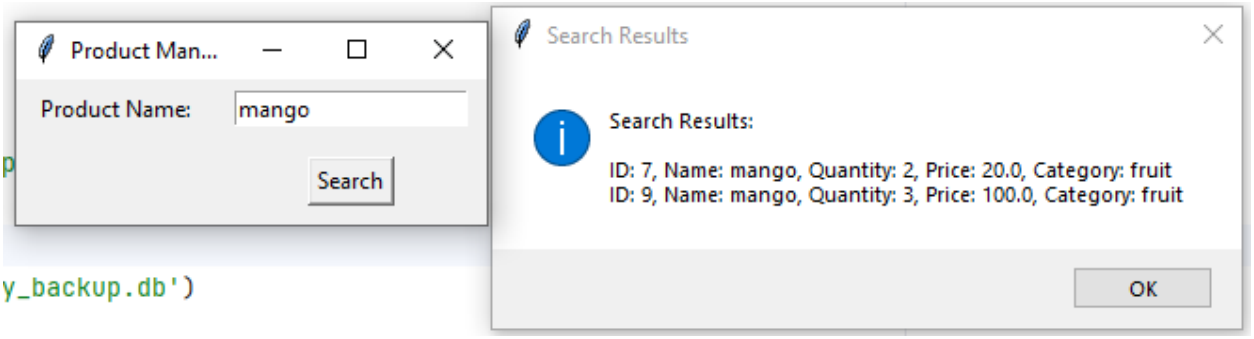

Product Manage...
Product Name:
mango
Product Quantity:
3
Product Price:
100
Product Category:
fruit
Add Product
Product Management
Product added successfully
OK

3)

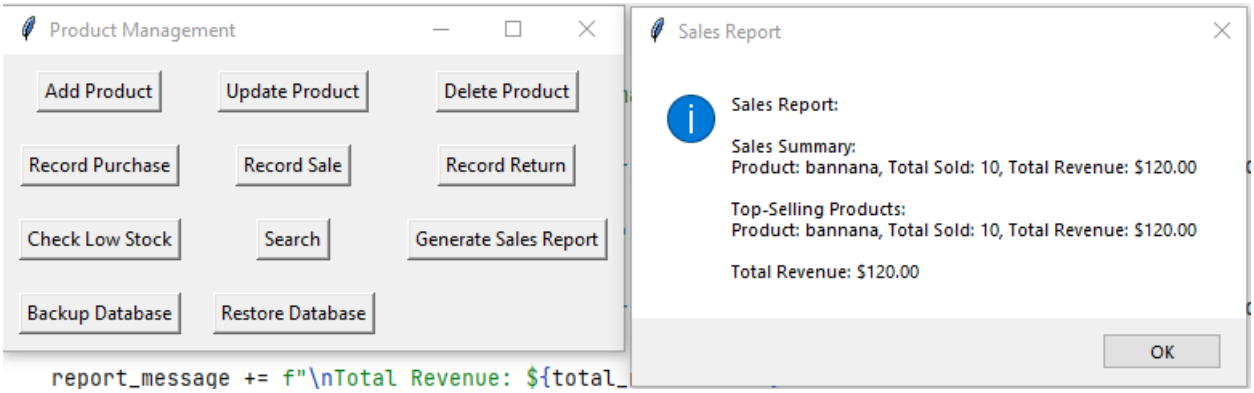

Product Manag...
Product ID:
2
Product Quantity:
2
Record Purchase
Product Management
Purchase recorded successfully
OK


Product Manag...
Product ID:
2
Product Quantity:
1
Record Sale
Product Management
Sale recorded successfully
OK

4)


Product Man...
Product Name:
mango
Search
Search Results
Search Results:
ID: 7, Name: mango, Quantity: 2, Price: 20.0, Category: fruit
ID: 9, Name: mango, Quantity: 3, Price: 100.0, Category: fruit
OK
y_backup.db')

5)

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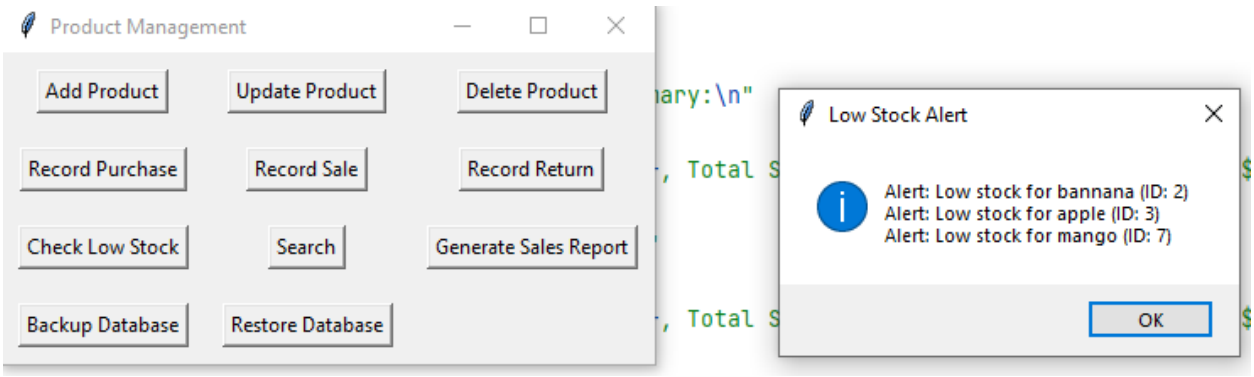
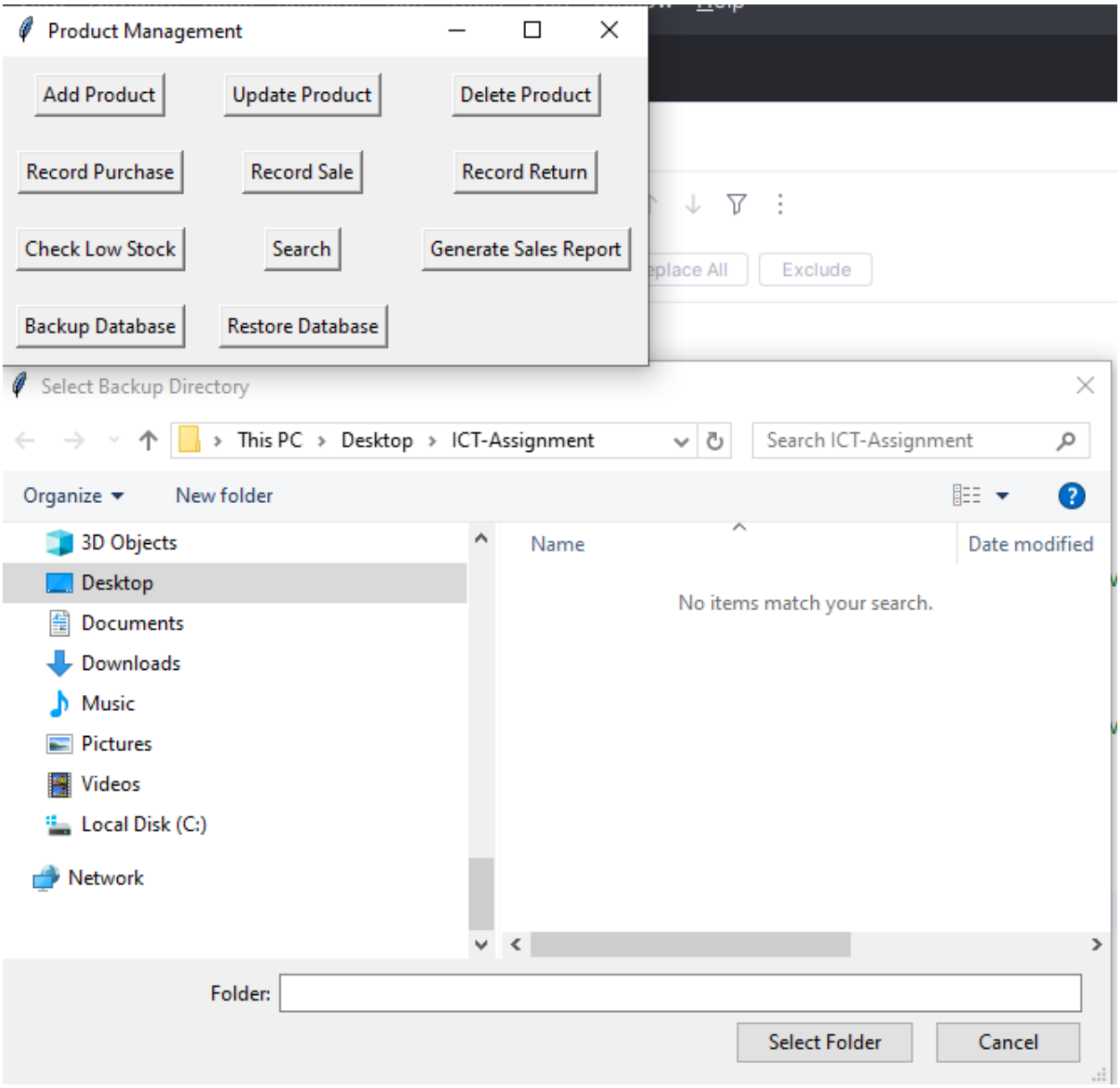
report_message += f"\nTotal Revenue: ${total_
```

6)



7)


Product Management
Add Product
Update Product
Delete Product
Record Purchase
Record Sale
Record Return
Check Low Stock
Search
Generate Sales Report
Backup Database
Restore Database
Select Backup Directory
This PC
Desktop
ICT-Assignment
Search ICT-Assignment
Organize
New folder
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Network
Name
Date modified
No items match your search.
Folder:
Select Folder
Cancel