SHSG Inventory Manager

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The Idea

- Creating a **self-explanatory** Inventory Application with **persistent data** that can be accessed by **multiple users**

  - Creating both a terminal and web application
  - Easy accessibility and readability of the program
  - Utilization of Python libraries
  - Usage of a databank for data persistence
  - Combining knowledge of the course with self-taught concepts

Development Process

The exiting part

Early development and planning

```python
class Storage:
    def __init__(self):
        self.items = []

    def add_item(self, name, expiry_date, department):
        print("Hello please enter the following requirements")
        print("---------------------------------")
        num_of_items = int(input("How many items do you want to enter in the registry?" ))

        while num_of_items < 0:
            print("You cannot enter numbers below 0")
            num_of_items = int(input("How many items do you want to enter in the registry? "))


        while num_of_items >= 0:
            name = input("Enter the name of the item: ")
            expiry_date = input("Enter the expiry date of the item: ")
            department = input("Enter the department of the item: ")
            item = {'name': name, 'expiry_date': expiry_date, "department": department}
            self.items.append(item)

            num_of_items -= 1

        print("Thank you")
        return 0

#CSV ////////////////////////////////////////////////////
def save_items(self):
    with open("inventory.csv", "a") as file_out:
        file_out.write("name,expiry_date,department\n")
        for item in self.items:
            line = item['name'] + "," + item['expiry_date'] + "," + item['department'] + "\n"
            file_out.write(line)

def delete_item(self, name):
    self.items = [item for item in self.items if item['name'] != name]
    self.save_items()
#CSV ////////////////////////////////////////////////////
```

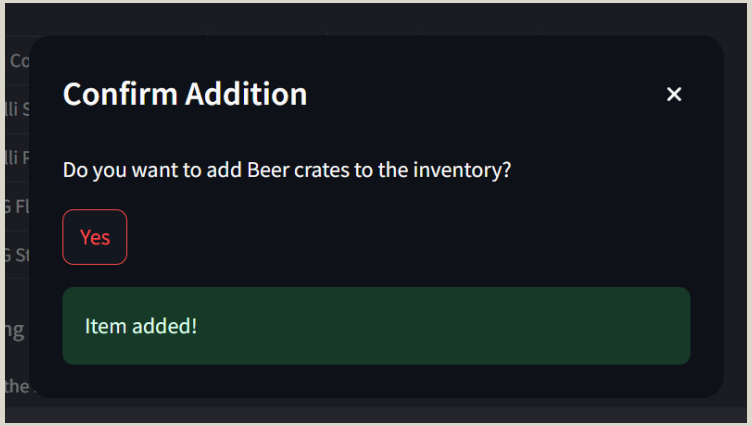
- Applying knowledge learned from the course
- Asking coaches for feedback
- Saving data in a .csv file

Developing

- Switching over from .csv files to SQLite database
- Finishing the terminal program
- Using Streamlit as webUI
- Improving the existing code with new knowledge
- Making application user-friendly, preventing user errors

Refinement and polishing

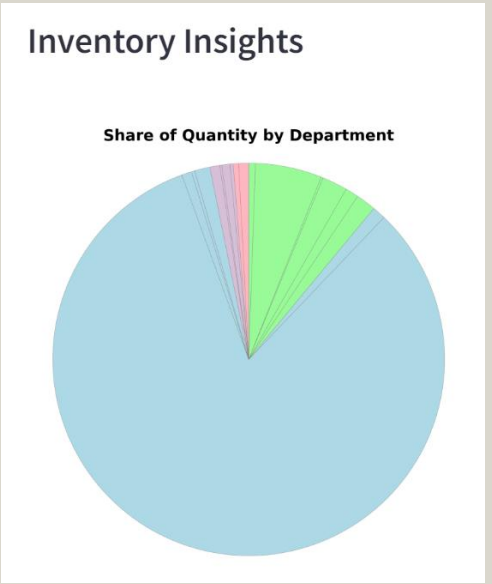
- Pop-up windows/dialogue for confirming a change in Streamlit
- Adding extra widgets to Streamlit for a better overview/visualisation of the list



Attention!

Some of your items will expire soon:

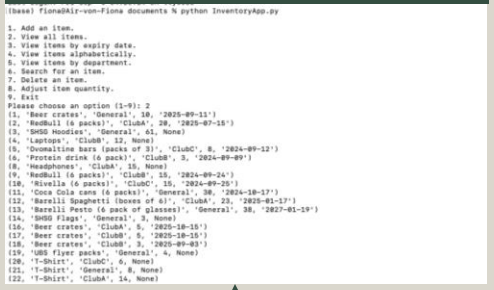
- **Protein drink (6 pack)** will expire in **4** days
- **RedBull (6 packs)** will expire in **19** days



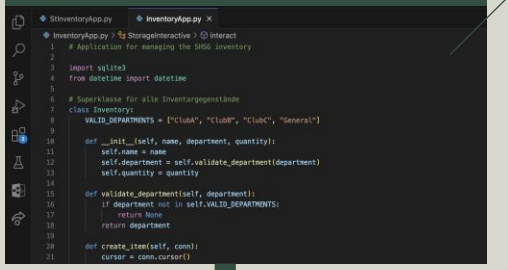
Architecture

Visualised using a model

Terminal



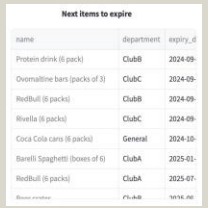
Python Script

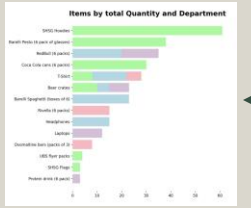


Superclass
(Non-Perishable)
- Name
- Department
- Quantity

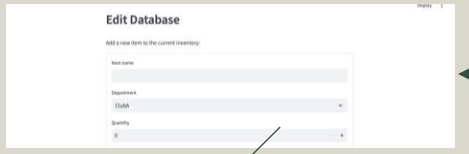
Subclass
(Perishables)
- Expiry Date

View Database
(Pandas Dataframe)

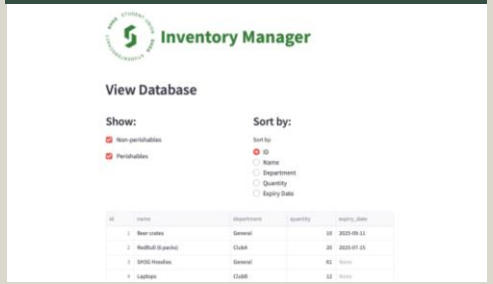




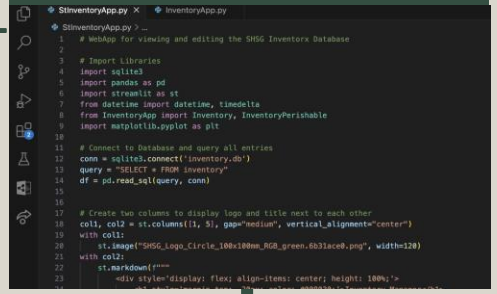
Edit Database



Streamlit App



Python Script



SQLite

Database

id	name	department	quantity	expiry_date
1	Beer crates	General	10	2025-09-11
2	RedBull (6 packs)	ClubA	20	2025-07-15
3	SHSG Hoodies	General	61	None
4	Laptops	ClubB	12	None
5	Ovomaltine bars (packs of 3)	ClubC	8	2024-09-12
6	Protein drink (6 pack)	ClubB	3	2024-09-09
8	Headphones	ClubA	15	None
9	RedBull (6 packs)	ClubB	15	2024-09-24
10	Rivella (6 packs)	ClubC	15	2024-09-25
11	Coca Cola cans (6 packs)	General	30	2024-10-17

Overview & Features

Abilities of the code

Tools used:

- SQLite — Database management system
- Streamlit — Library within Python, used for web applications
- Pandas — Library within Python, used for data manipulation
- Datetime — Library within Python, Getting current date to calculate time until expiry date
- Matplotlib.pyplot — Library within Python, used for advanced charts

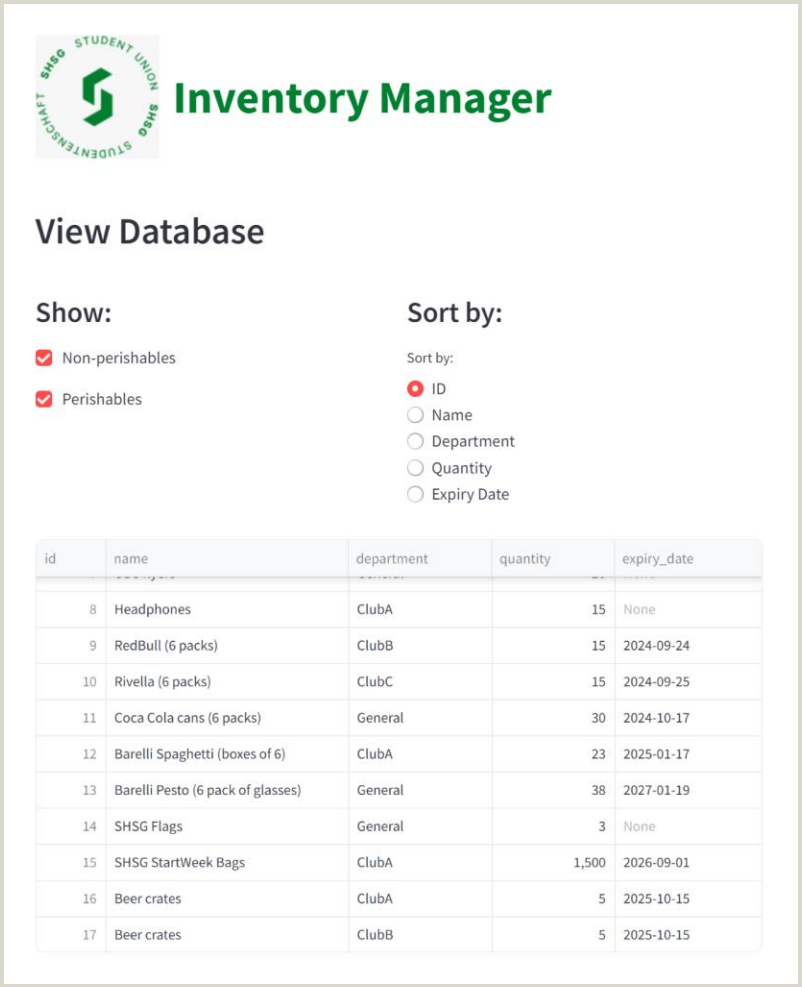
Live Demonstration

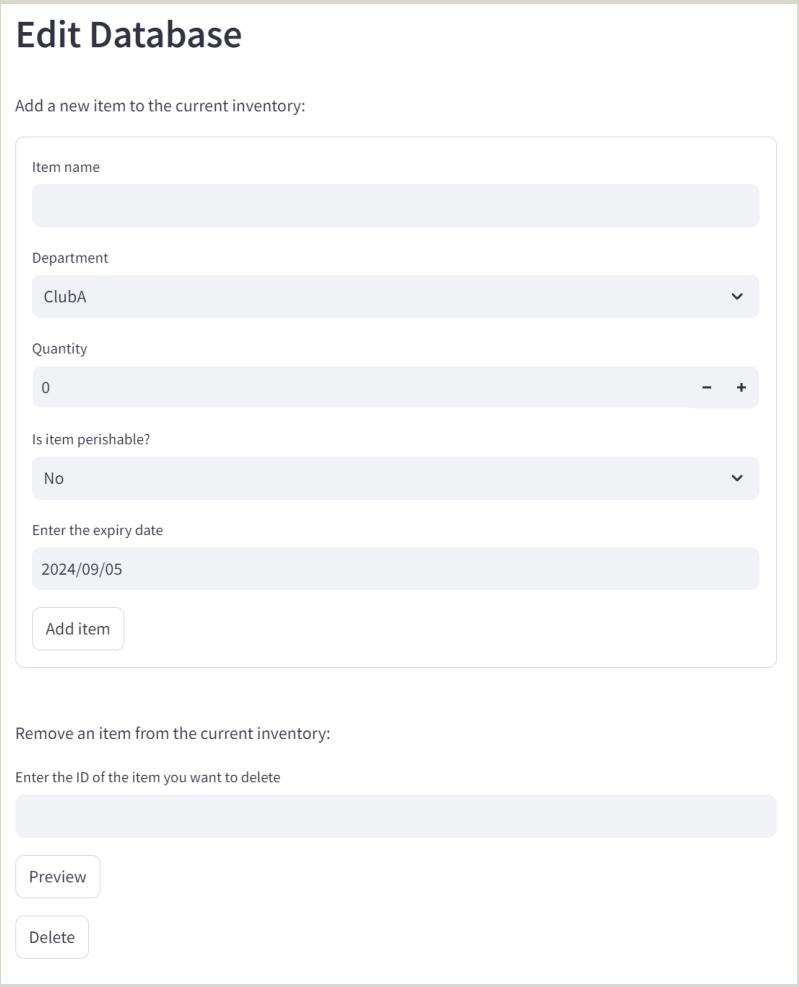
Python

```
1. Add an item.
2. View all items.
3. View items by expiry date.
4. View items alphabetically.
5. View items by department.
6. Search for an item.
7. Delete an item.
8. Adjust item quantity.
9. Exit
Please choose an option (1-9):
```

```
(1, 'Beer crates', 'General', 10, '2025-09-11')
(2, 'RedBull (6 packs)', 'ClubA', 20, '2025-07-15')
(3, 'SHSG Hoodies', 'General', 100, None)
(4, 'Laptops', 'ClubB', 12, None)
(5, 'Ovomaltine bars (packs of 3)', 'ClubC', 8, '2024-09-12')
(6, 'Protein drink (6 pack)', 'ClubB', 3, '2024-09-09')
(7, 'UBS flyers', 'General', 20, None)
(8, 'Headphones', 'ClubA', 15, None)
(9, 'RedBull (6 packs)', 'ClubB', 15, '2024-09-24')
(10, 'Rivella (6 packs)', 'ClubC', 15, '2024-09-25')
(11, 'Coca Cola cans (6 packs)', 'General', 30, '2024-10-17')
(12, 'Barelli Spaghetti (boxes of 6)', 'ClubA', 23, '2025-01-17')
(13, 'Barelli Pesto (6 pack of glasses)', 'General', 38, '2027-01-19')
(14, 'SHSG Flags', 'General', 3, None)
(15, 'SHSG StartWeek Bags', 'ClubA', 1500, '2026-09-01')
(16, 'Beer crates', 'ClubA', 5, '2025-10-15')
(17, 'Beer crates', 'ClubB', 5, '2025-10-15')
```

Streamlit


Inventory Manager
View Database
Show:
Non-perishables
Perishables
Sort by:
Sort by:
ID
Name
Department
Quantity
Expiry Date
id name department quantity expiry_date
8 Headphones ClubA 15 None
9 RedBull (6 packs) ClubB 15 2024-09-24
10 Rivella (6 packs) ClubC 15 2024-09-25
11 Coca Cola cans (6 packs) General 30 2024-10-17
12 Barelli Spaghetti (boxes of 6) ClubA 23 2025-01-17
13 Barelli Pesto (6 pack of glasses) General 38 2027-01-19
14 SHSG Flags General 3 None
15 SHSG StartWeek Bags ClubA 1,500 2026-09-01
16 Beer crates ClubA 5 2025-10-15
17 Beer crates ClubB 5 2025-10-15


Edit Database
Add a new item to the current inventory:
Item name
Department
ClubA
Quantity
0
Is item perishable?
No
Enter the expiry date
2024/09/05
Add item
Remove an item from the current inventory:
Enter the ID of the item you want to delete
Preview
Delete

Department Overview

General

6 Registered items:

-Beer crates:	10
-SHSG Hoodies:	100
-UBS flyers:	20
-Coca Cola cans (6 packs):	30
-Barelli Pesto (6 pack of glasses):	38
-SHSG Flags:	3

ClubA

5 Registered items:

-RedBull (6 packs):	20
-Headphones:	15
-Barelli Spaghetti (boxes of 6):	23
-SHSG StartWeek Bags:	1500
-Beer crates:	5

ClubB

4 Registered items:

-Laptops:	12
-Protein drink (6 pack):	3
-RedBull (6 packs):	15
-Beer crates:	5

🚨 **Attention!**

Some of your items will expire soon:

- **Protein drink (6 pack)** will expire in **4** days
- **RedBull (6 packs)** will expire in **19** days

ClubC

2 Registered items:

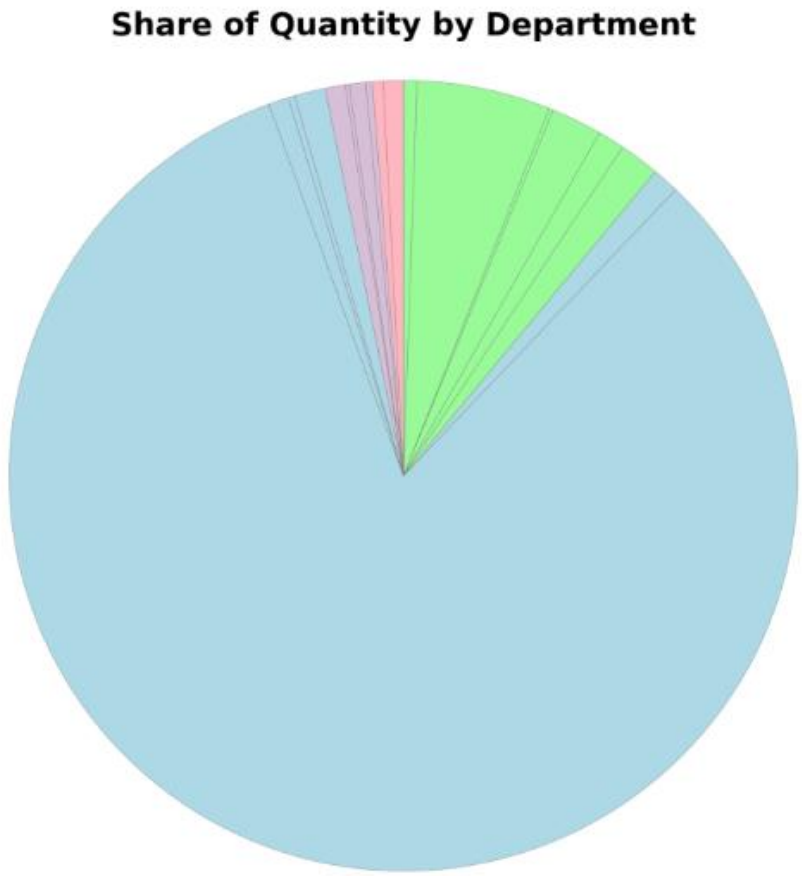
-Ovomaltine bars (packs of 3):	8
-Rivella (6 packs):	15

🚨 **Attention!**

Some of your items will expire soon:

- **Ovomaltine bars (packs of 3)** will expire in **7** days
- **Rivella (6 packs)** will expire in **20** days

Inventory Insights



Reflection & Challenges

Future opportunities

Main issues

Streamlit

- Editing Database
- Some ideas couldn’t be implemented due to the limitations of the programme

Python

- .csv file for storage was impractical

Reflection

- Insight into the world of coding and software engineering
- Acquisition of new knowledge on Streamlit, SQLite, Pandas
- Limit testing of ChatGPT

Thank you for listening

We are open to questions