

Mall Items Management System

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Project Overview

Concept

A Python-based console system designed to automate the manual processes of mall inventory management. It streamlines listing products, adding them to a shopping cart, and calculating final costs.

Technical Core

Built using robust Object-Oriented Programming (OOP) concepts such as inheritance, encapsulation, and modularization to ensure an efficient and scalable software solution.

The Challenge

// Manual handling of mall inventories leads to inefficiency, pricing errors, and billing record difficulties.

— Problem Statement

Objectives



System Design

To design an interactive, menu-driven system that effectively manages item listing and cart operations.



OOP Principles




To apply fundamental OOP concepts like classes, inheritance, and abstraction in a practical scenario.



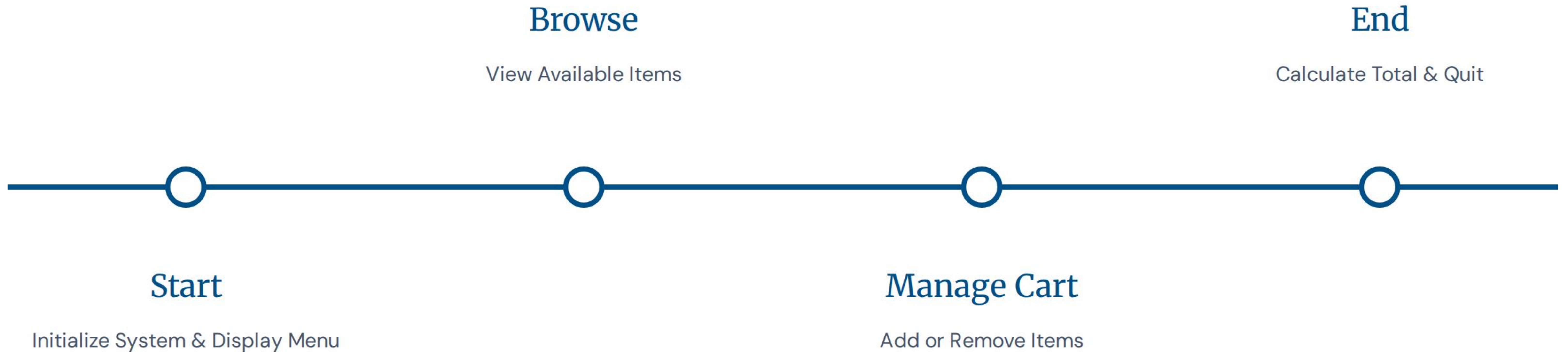
Automation

To develop a working Python program that automates tedious retail management tasks.

Tools & Technologies

-  **Python 3.8+:** The core programming language used for logic and implementation.
-  **Visual Studio Code:** The primary development environment for writing and debugging code.
-  **Git & GitHub:** Used for version control and hosting the project repository.

System Flowchart



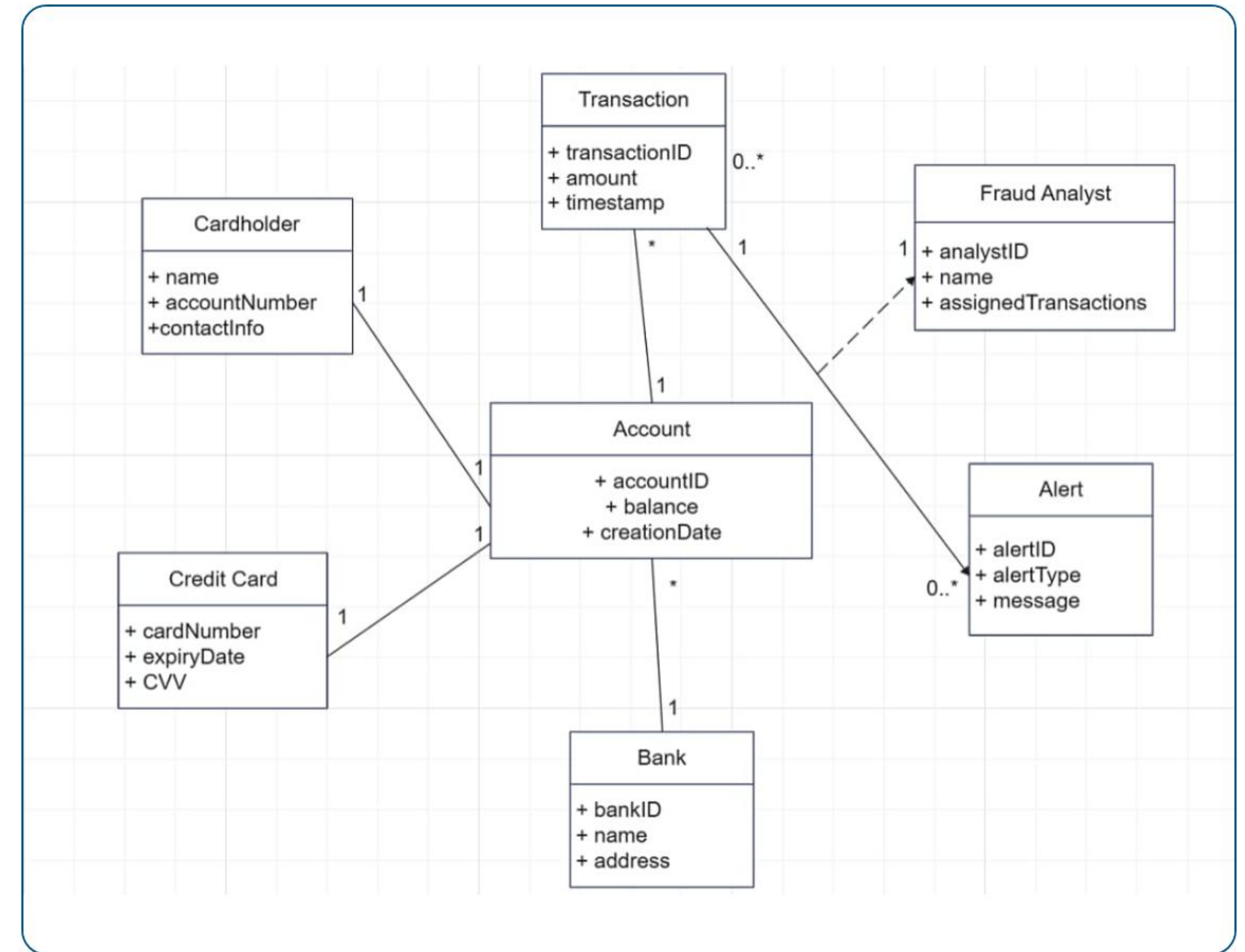
Class Architecture

- **Class Items:**

Handles product storage and listing functionality. It serves as the base data structure for the mall's inventory.

- **Class Cart:**

Inherits from *Items*. This class manages user specific actions such as tracking selections, modifying the cart, and computing the final total.



Implementation Logic

Modular Driver Function

The system is driven by a primary function, `run_shopping_mall()`. This function orchestrates the program's logic using a loop-based menu system.

It captures user choices (1-6) and executes the corresponding methods from the `Cart` class, ensuring a clean separation of concerns and maintainability.

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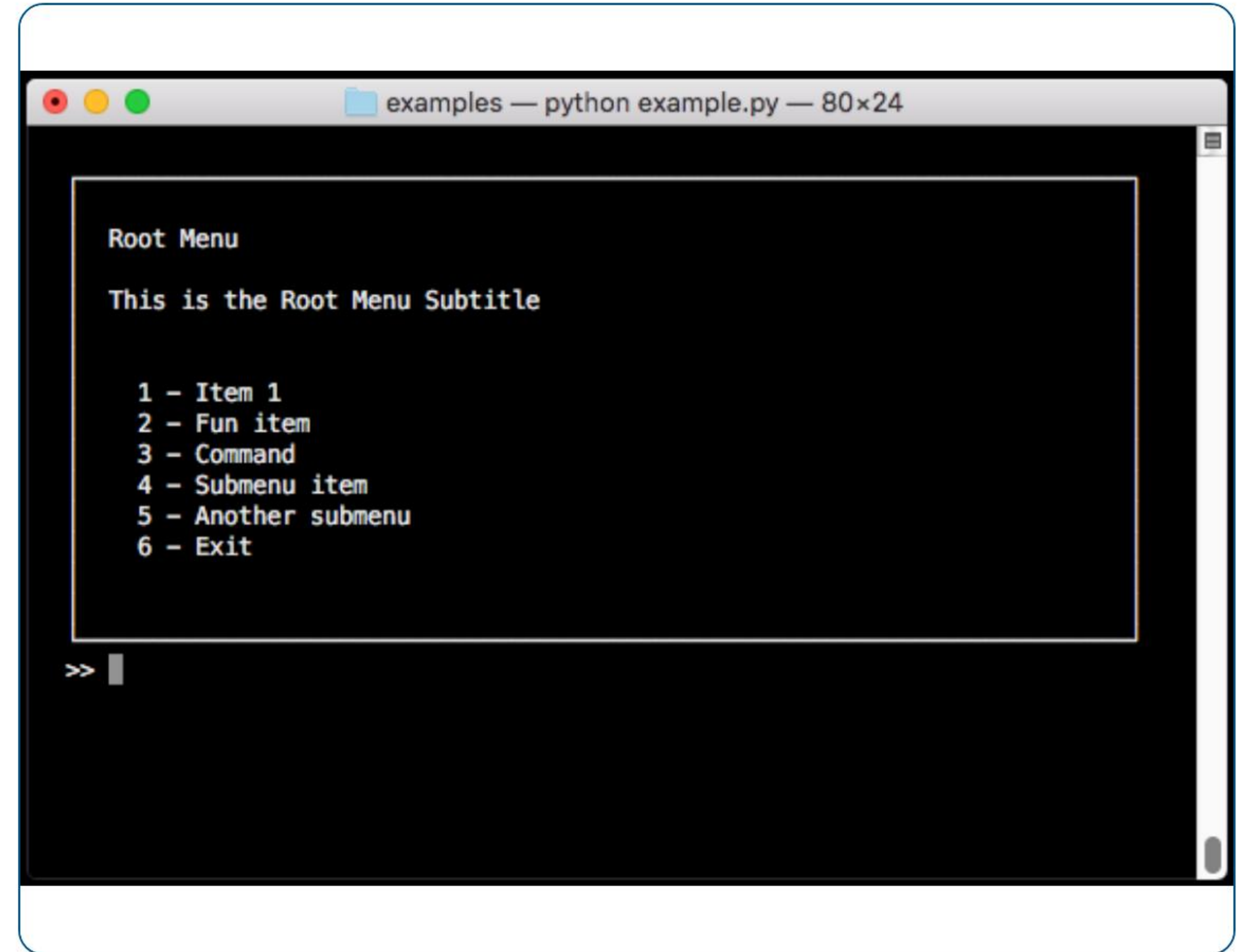


```
def compute_average(numbers):  
    if not numbers:  
        total = sum(numbers)  
        return total / len(numbers)  
  
data = [10, 74, 16, 44, 36]  
  
avg = compute_average(data)  
print(Moyenne: avg)
```


User Interface

Interactive Console

The console interface provides a clear, text-based menu for navigation. Users can easily view the catalog, manage their shopping cart, and see real-time updates of their total bill.



```
examples — python example.py — 80x24

Root Menu

This is the Root Menu Subtitle

1 - Item 1
2 - Fun item
3 - Command
4 - Submenu item
5 - Another submenu
6 - Exit

>> 
```

The image shows a screenshot of a Python interactive console window. The window title bar indicates the file is 'examples — python example.py' with dimensions of 80x24. The console output displays a menu structure. It starts with 'Root Menu' followed by a subtitle 'This is the Root Menu Subtitle'. Below this is a numbered list of six items: '1 - Item 1', '2 - Fun item', '3 - Command', '4 - Submenu item', '5 - Another submenu', and '6 - Exit'. At the bottom of the console, there is a prompt '>>' followed by a cursor, indicating the program is waiting for user input.

Key Results

2

Core Classes

6

Menu Options

100%

OOP Design

The project successfully demonstrates modular design, inheritance, and efficient state management.

Future Enhancements



GUI Integration

Transition from console to a graphical interface using Tkinter or Flask for better user experience.



Database

Implement persistent storage for items and sales data using SQL, replacing temporary memory.



Invoicing

Add functionality to generate and export digital invoices and sales reports.



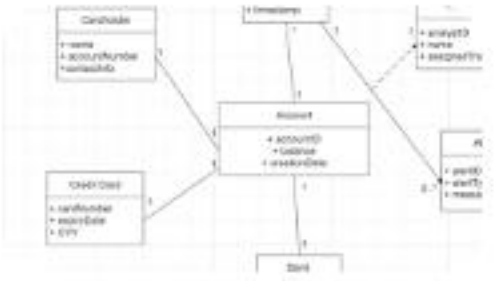
Conclusion

The Mall Items Management System effectively automates retail operations, showcasing the power of Python and OOP in solving real-world problems.

Questions?

Thank you for your attention.

Image Sources



<https://images.wondershare.com/edrawmax/articles2025/five-best-class-diagram/first-shop.png>

Source: [edrawmax.wondershare.com](https://www.edrawmax.com/)



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Source: datascientest.com



https://raw.githubusercontent.com/aegirhall/console-menu/develop/images/console-menu_screenshot1.png

Source: github.com



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