

# 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



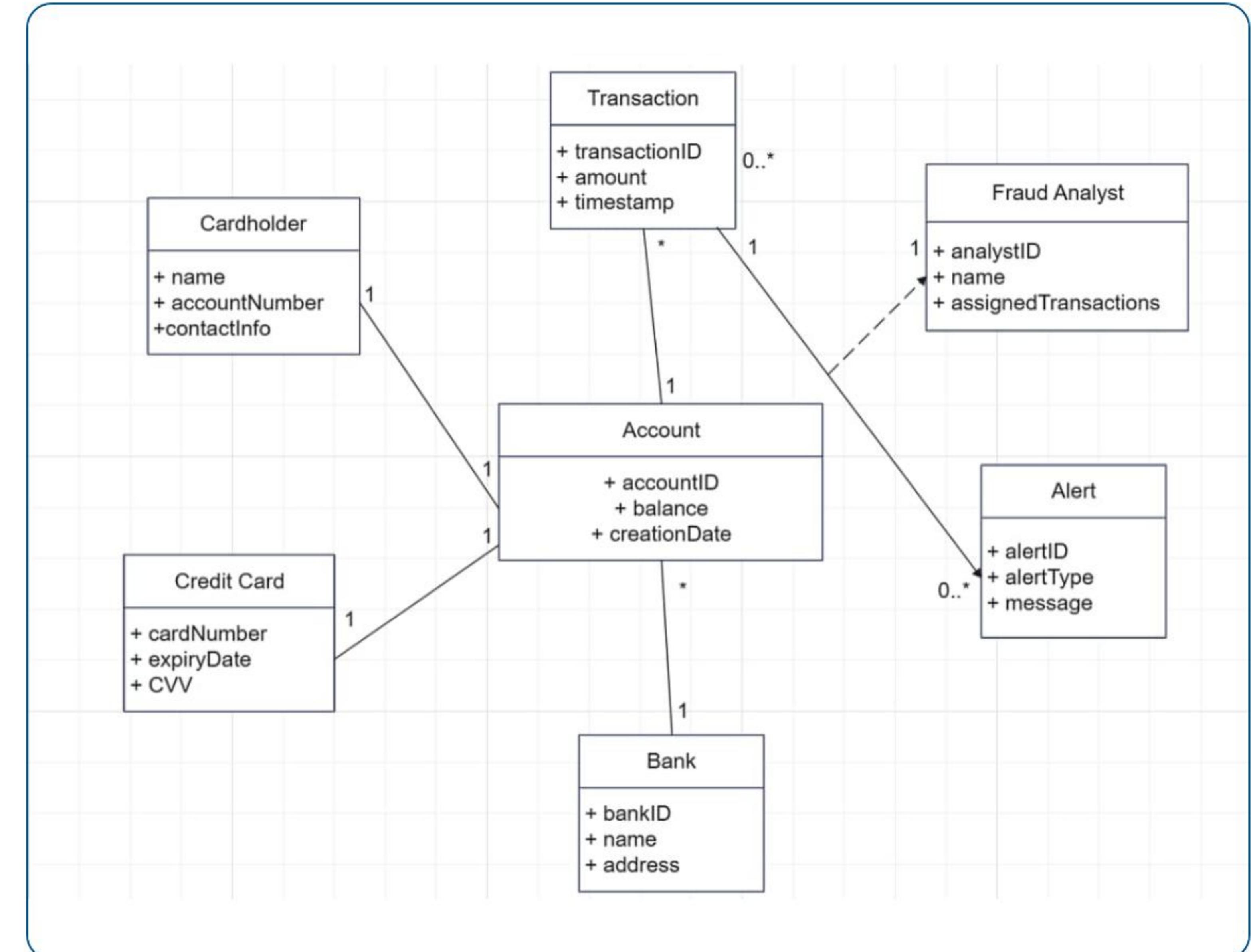
# Class Architecture

- **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.



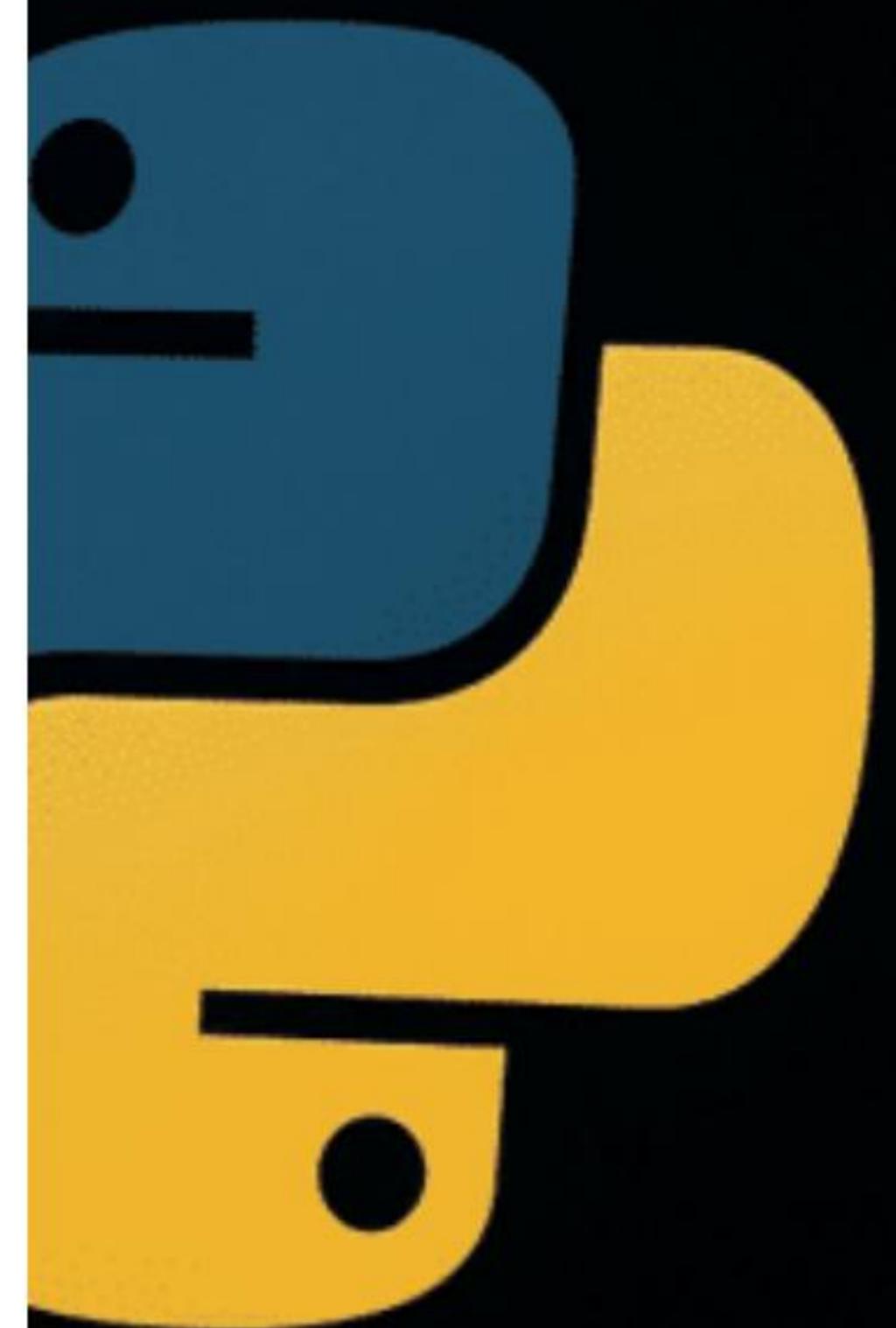
# Implementation Logic

## 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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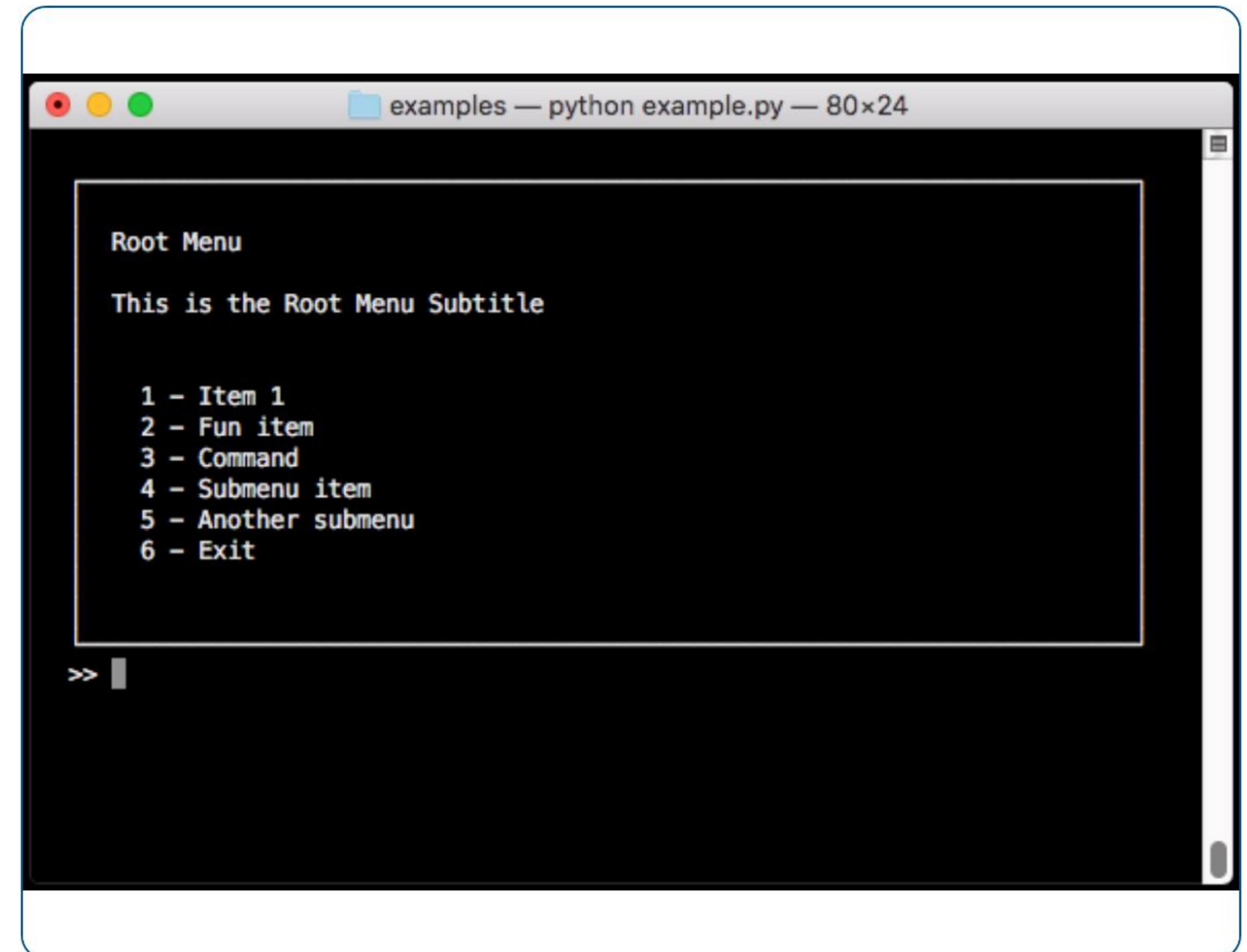
```
def compute_average(numbers):
    if not numbers:
        total = sum(numbers)
        return total / len(numbers)

data = [10, 74, 16, 44, 36]
avg = compute_average(data)
print("Moyenne : " + str(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.



# 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.

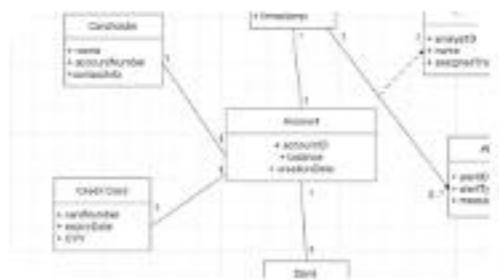
# Conclusion

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>

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