

Assignment 3

Bakir Šubić

Introduction:

The E-Commerce Profit Calculator is a Java application designed for Boring Inc.'s eComm web application. The purpose of this application is to calculate profit margins for customer orders based on a CSV file with order details, including customer name, shirt size, design preference, hoodie preference, and payment method.

Implementation Overview:

The application utilizes a multi-threaded approach, employing the Strategy pattern for payment processing. The code is organized into several classes, each responsible for specific functionalities.

1. Order Class:

The Order class represents individual customer orders, storing details such as customer name, shirt size, design preference, hoodie preference, and payment method. Orders are collected in an ArrayList.

2. PaymentFactory Class:

The PaymentFactory class employs the Factory pattern to create instances of TransactionMethod based on the payment type specified in the order. This promotes flexibility and extensibility for adding new payment methods.

3. ProfitCalculations Class:

The ProfitCalculations class manages total earnings, total profit, and a map of profit per shirt size. It uses static methods and maps to keep track of financial metrics.

4. TransactionMethod Interface and Implementations:

The TransactionMethod interface defines a method for calculating transaction fees. Implementations include WalletTransaction, CardTransaction, VisaTransaction, MastercardTransaction, and OtherTransaction. These classes encapsulate the logic for calculating transaction fees based on the payment method.

5. TransactionContext Class:

The TransactionContext class encapsulates the selected payment strategy and calculates the transaction fee using the respective TransactionMethod implementation.

6. ReportingTool Class:

The ReportingTool class is responsible for generating and saving reports using threads. It calculates and reports total revenue, total profit, and profit per shirt size.

Financial Metrics Calculation:

The application calculates the profit for each order based on the fixed price per shirt, additional costs for hoodie and design, and transaction fees according to the payment method. The profits are aggregated to provide total revenue, total profit, and profit per shirt size.

Reports Generated:

1. Total Revenue:

The application calculates and reports the total revenue of the eComm, considering all processed orders.

2. Total Profit:

The total profit is determined by subtracting total costs, including the base shirt price, additional costs for hoodie and design, and transaction fees.

3. Profit per Shirt Size:

The profit per shirt size report breaks down the total profit by different shirt sizes. It provides insights into the popularity and profitability of various sizes.

Conclusion:

The E-Commerce Profit Calculator successfully processes customer orders, calculates financial metrics, and generates insightful reports using multi-threading and the Strategy pattern for payment processing. This tool enhances Boring Inc.'s ability to analyze and optimize its eComm operations.