

Decorator Pattern Lab

LCSCI5202: Object Oriented Design Week 11

Dr. Waleed Iqbal

Activity

- Build a flexible report generation system for a business application. Reports can be generated in different formats and enhanced with various features like headers, footers, page numbers, timestamps, and watermarks.
- **Concrete Report Types:**
 - SalesReport - Contains sales data
 - InventoryReport - Contains inventory data
 - EmployeeReport - Contains employee data

Each Report should take input as long string. You can also use file handling to ingest data.

Activity

- **Report Enhancements (Decorators):**
 - HeaderDecorator - Adds company name and report title at the top
 - FooterDecorator - Adds company address and contact info at the bottom
 - PageNumberDecorator - Adds "[Page 1 of 1]" notation
 - TimestampDecorator - Adds "Generated on: [DateTime]"
 - WatermarkDecorator - Adds "CONFIDENTIAL" watermark
 - BorderDecorator - Wraps report in ASCII border (=====)
 - SummaryDecorator - Adds executive summary section
- Position of each decorator in report should be according to expected outcome.

Expected Outcomes

- Clean formatting with proper line breaks
- Decorators add content without breaking existing format
- Order of decoration produces logical output
- All decorators can be combined

Expected Outcome

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TECH SUPPLIES INC.
Inventory Report

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CONFIDENTIAL

Inventory Data:
Item A: 150 units
Item B: 200 units
Item C: 75 units
Total Items: 425 units

Generated on: 11/17/2025 3:45:00 PM

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