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Web-based
Enterprise
Application Design

Stuart Thiel

Review

SOEN 387 Web-based Enterprise Application Design

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Department of Computer & Software Engineering

Fall, 2014

Outline

Review

New Patterns: Transaction Script

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- Transaction Script
- "Organizes business logic by procedures where each procedure handles a single request from the presentation." Fowler 2003, p.110
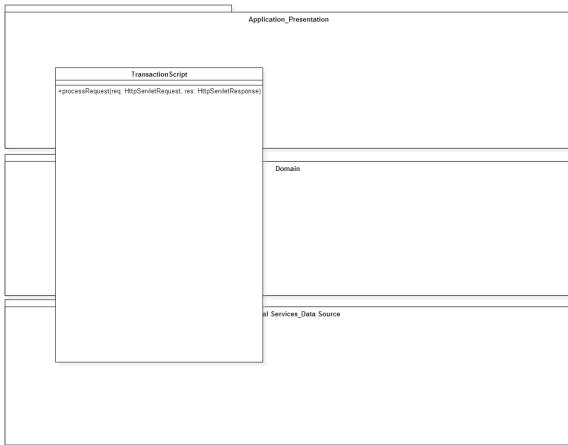
Transaction Script New Responsibilities

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- ▶ Transaction Script
    - ▶ Process Incoming Requests
    - ▶ Interact with Data Source
    - ▶ Do Domain Logic
    - ▶ Return Formatted Response

Transaction Script Diagram

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Application_Presentation

TransactionScript

+processRequest(req: HttpServletRequest, res: HttpServletResponse)

Domain

al Services_Data Source

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New Patterns: Row Data Gateway(RDG)

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- Row Data Gateway
- "An object that acts as a Gateway (466) to a single record in a data source. There is one instance per row." Fowler 2003, p.152
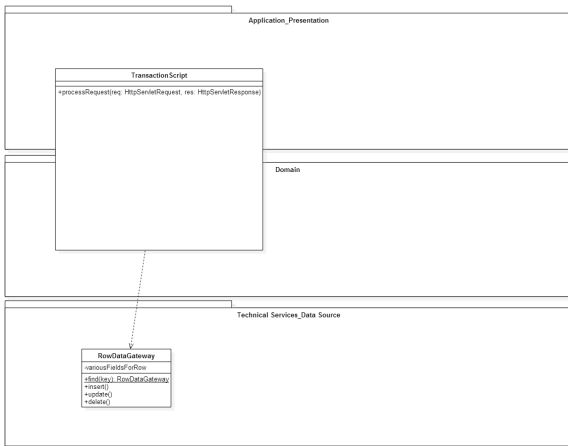
Row Data Gateway New Responsibilities

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- ▶ Interact with Data Source

Row Data Gateway Diagram

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New Patterns: Template View

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- Template View
- "Renders information into HTML by embedding markers in an HTML page" Fowler 2003, p.350

Template View New Responsibilities
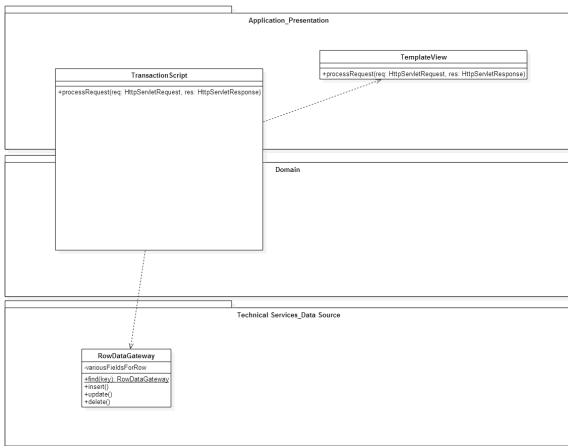
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- ▶ Return Formatted Response

Template View Diagram

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Application_Presentation

TransactionScript

+processRequest(req: HttpServletRequest, res: HttpServletResponse)

TemplateView

+processRequest(req: HttpServletRequest, res: HttpServletResponse)

Domain

Technical Services_Data Source

RowDataGateway

-variousFieldsForRow

+find(key): RowDataGateway
+insert()
+update()
+delete()

New Patterns: Page Controller

- Page Controller
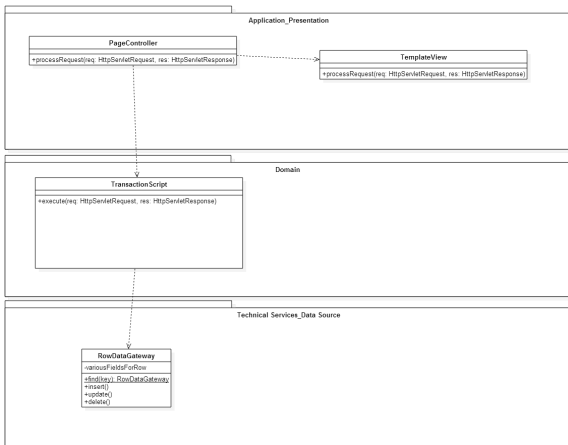- "An object that handles a request for a specific page or action on a Web site." Fowler 2003, p.333

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Page Controller and Transaction Script New Responsibilities

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- ▶ Page Controller
  - ▶ Process Incoming Requests: We now distinguish between the application-level logic of dealing with the fact that any request has come in from the web and the nuts and bolts specific to this type of request.
- ▶ Transaction Script
  - ▶ Extract Parameters: We now consider this separately from "Process Incoming Requests", as it is specific to the request.
  - ▶ Apply Domain Logic

Page Controller Diagram

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New Patterns: Page Controller

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- ▶ View Helper
- ▶ Ease access to the data for the Template View

View Helper New Responsibilities

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- ▶ View Helper
  - ▶ Ease access to the data for the Template View
  - ▶ . . . this isn't a real responsibility, but it introduces the idea of a helper to reduce some of the complexity of interacting between layers and the idea that what's good for interacting with the Data Source stuff may not be great for the Template View.

Helper Diagram

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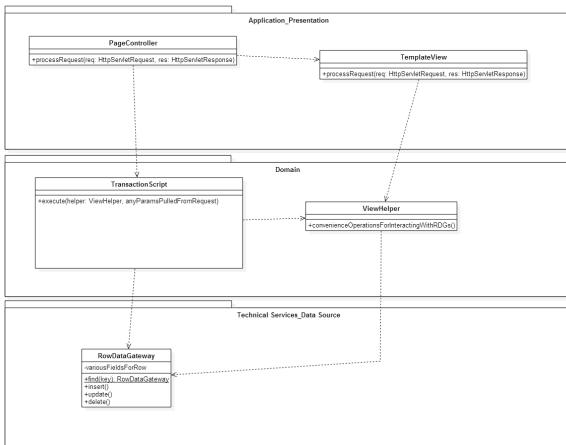
New Patterns: Identity Field, Optimistic Concurrency Management

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- ▶ Identity Field
- ▶ "Saves a database ID field in an object to maintain identity between an in-memory object and a database row. Fowler 2003, p.216
- ▶ Optimistic Offline Lock
- ▶ "Prevents conflicts between concurrent business transactions by detecting a conflict and rolling back the transaction." Fowler 2003, p.416

Identity Field and Optimistic Offline Lock Responsibilities

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- ▶ Identity Field
    - ▶ Not really a responsibility, but architecturally significant and smooths things over by allowing independent representation if identity
- ▶ Optimistic Offline Lock
    - ▶ Deal with Lost Updates
    - ▶ Not really a responsibility, but architecturally significant allows specifying identity in time

Identity Field and Optimistic Offline Lock Diagram

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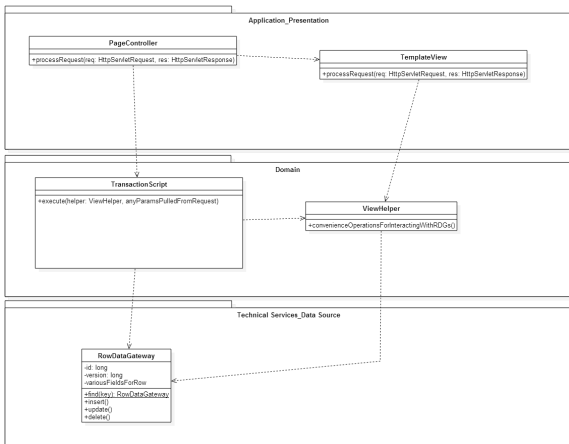
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Table Data Gateway(TDG), Data Mapper and Domain Object (or POJO) Patterns

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TDG, Data Mapper and Domain Object Diagram

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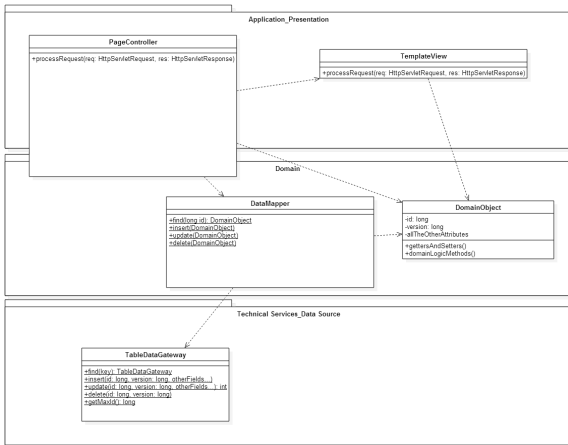
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Front Controller Patterns

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Front Controller Diagram

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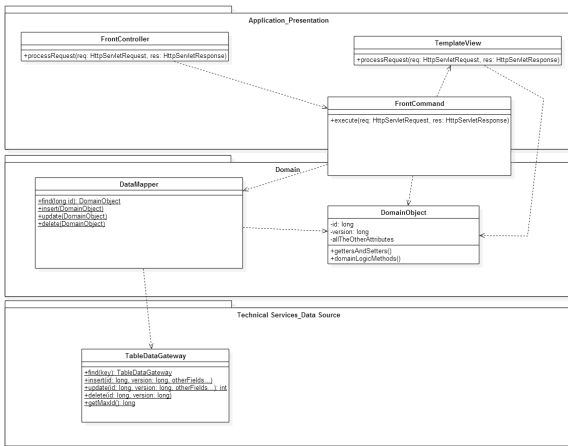
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Identity Map and Proxy Patterns

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Identity Map and Proxy Diagram

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Identity Map and Proxy Diagram

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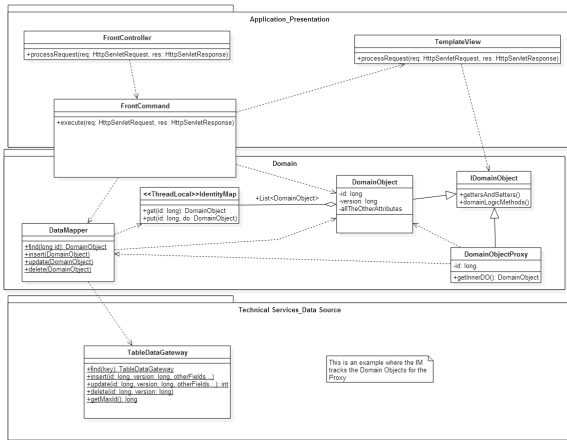
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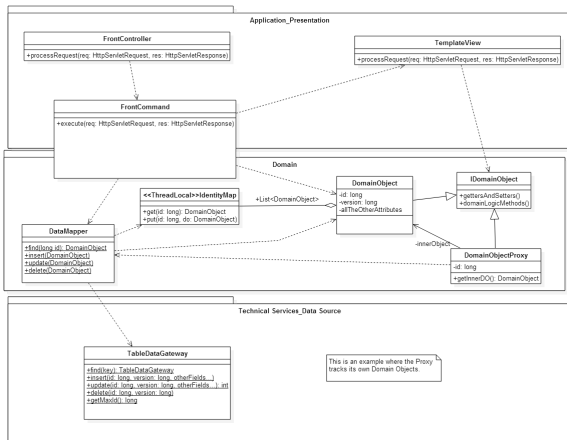
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Unit of Work (UoW) and Dependent Mapping Patterns

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UoW and Dependent Mapping Diagram
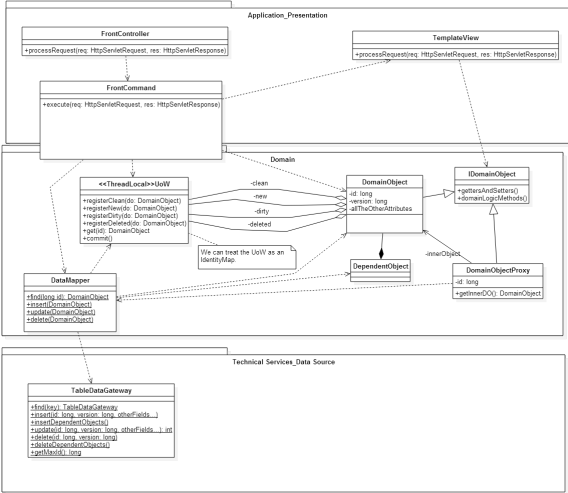
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Dispatcher Patterns

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Dispatcher Diagram

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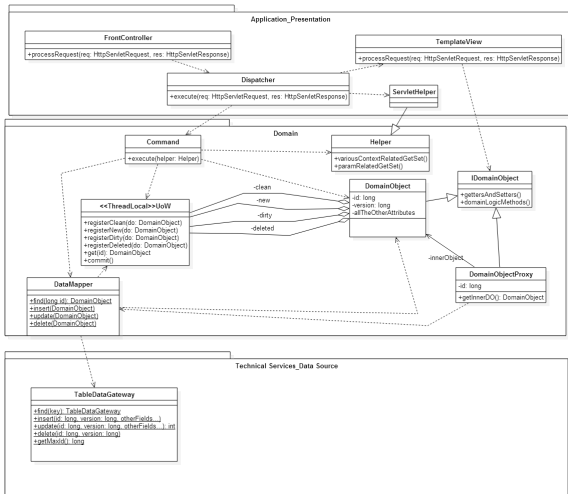
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Input/Output Mappers, Finders and TDGs Patterns

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Input/Output Mappers, Finders and TDG Diagram

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Factory Patterns

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Factory Diagram

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