

Core Java 8 and Development Tools

Lesson 17 : Introduction to
Layered Architecture





Lesson Objectives

After completing this lesson, participants will be able to

- Understand the concept of Layered Architecture
- Implement layers in Java applications



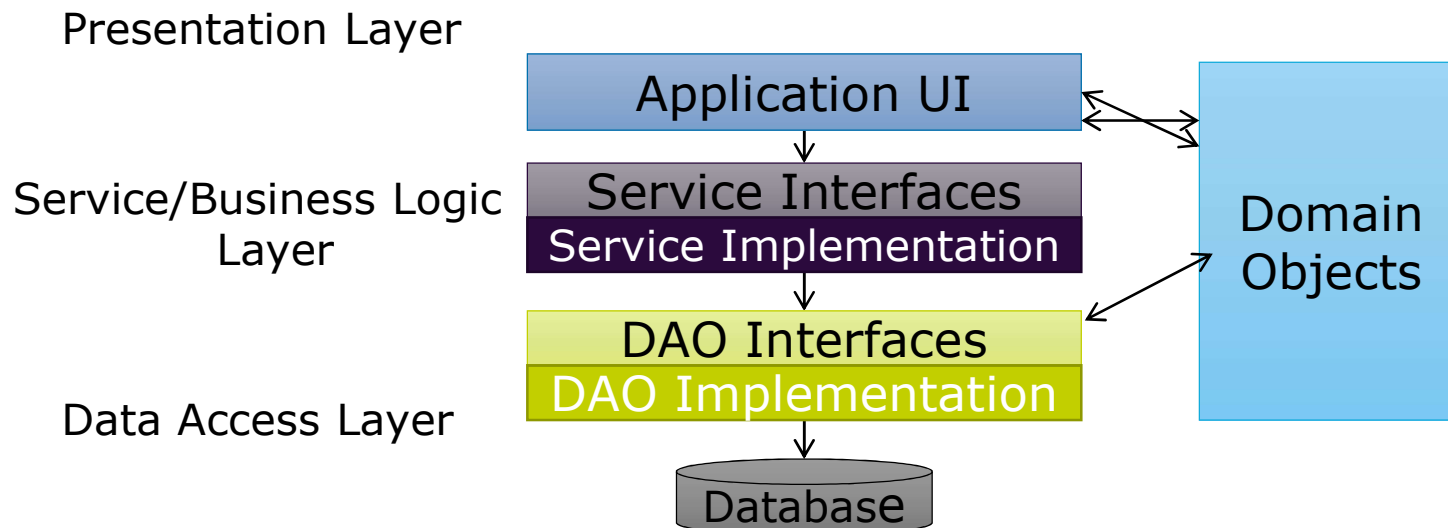
17.1: Introduction

What is Layered Architecture?

Layered architecture is one of the architectural pattern based on call-and-return style

In layered architecture, business rules, behavior, and data are obtained and manipulated, based on activity via the user interface.

Layered architecture provides a clean separation between the business implementation, presentation and data-access logic.



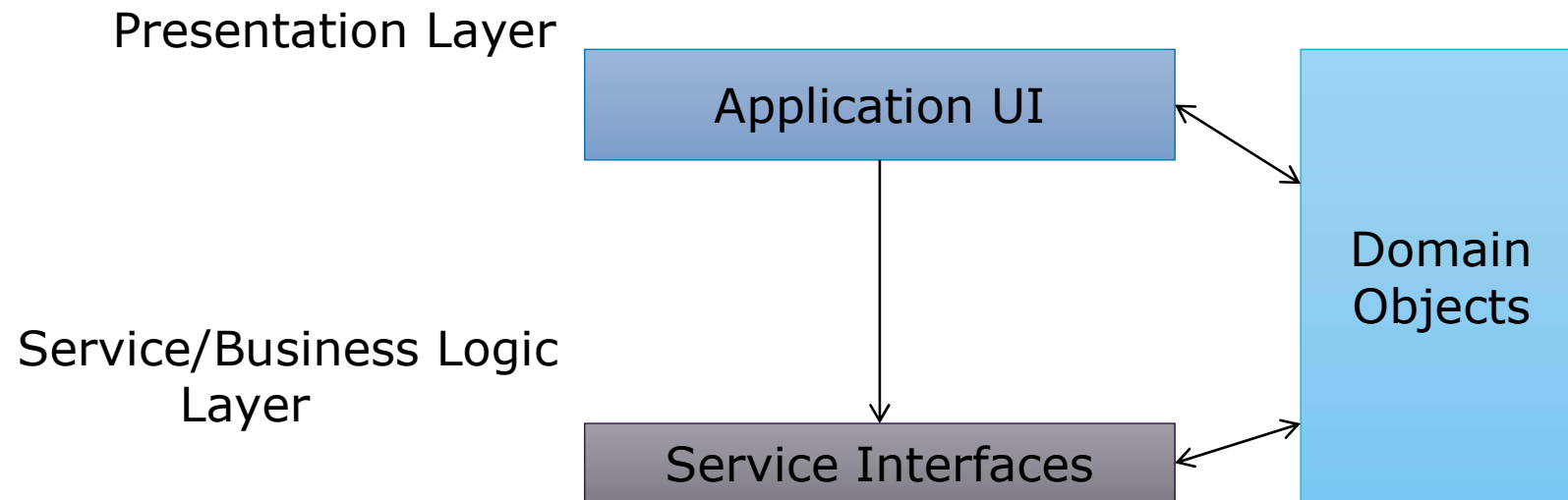


17.1: Introduction Presentation Layer

Presentation layer consists of objects defined to accept user input and to display application outputs

Exception handling is also an important responsibility of this layer.

Presentation-layer simply request service/business layer for required functionality by sending and receiving domain objects





17.1: Introduction

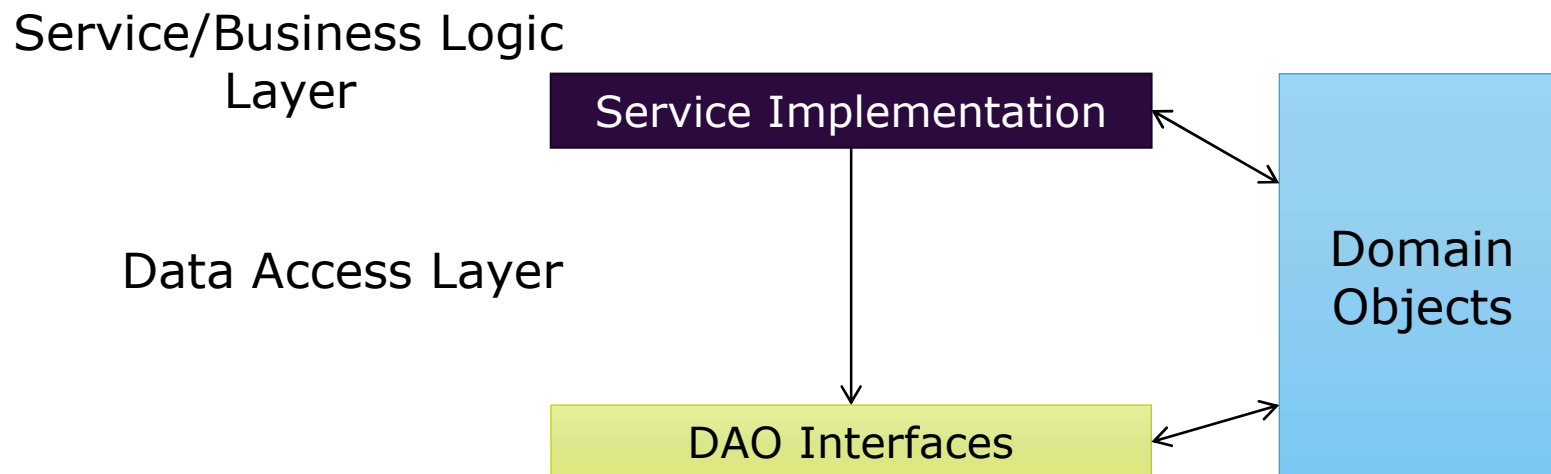
Business Logic/Service Layer

Business logic layer is concerned with the retrieval, processing, transformation and management of application data

This layer is responsible to implement business rules and policies

It also ensures data consistency and validity

Presentation layer passes data collected from UI to business layer and interact with business logic through abstract interfaces





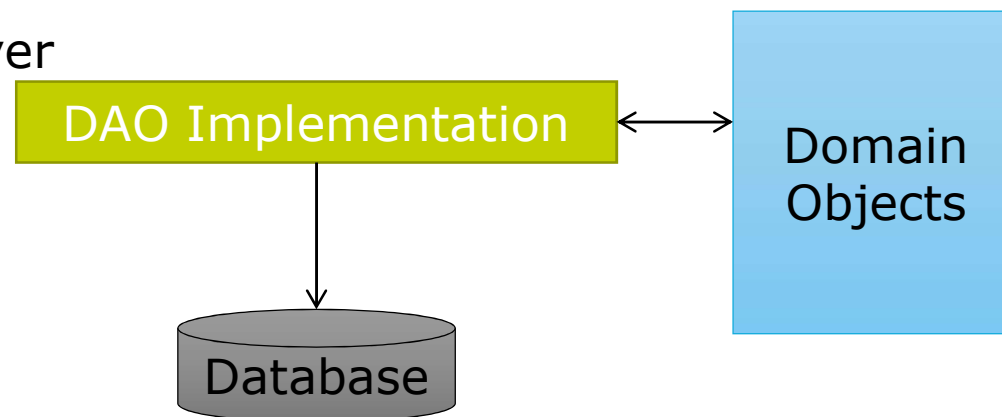
17.1: Introduction Data Access Layer

This layer abstract the logic required to access the underlying data stores
It centralize common data access functionality in order to make the application easier to configure and maintain.

This layer is responsible for managing connections, generating queries, and mapping application domain objects to data source structures

Business logic layer interacts to data access layer through abstract interfaces using application domain objects

Data Access Layer





17.1: Introduction Data Transfer Objects

Data transfer objects (DTO) or Value Objects (VO) encapsulates business data necessary to represent real world elements, such as Customers or Orders

These object are POJO's to store data values and expose them through properties

They contain and manage business data used by the entire application

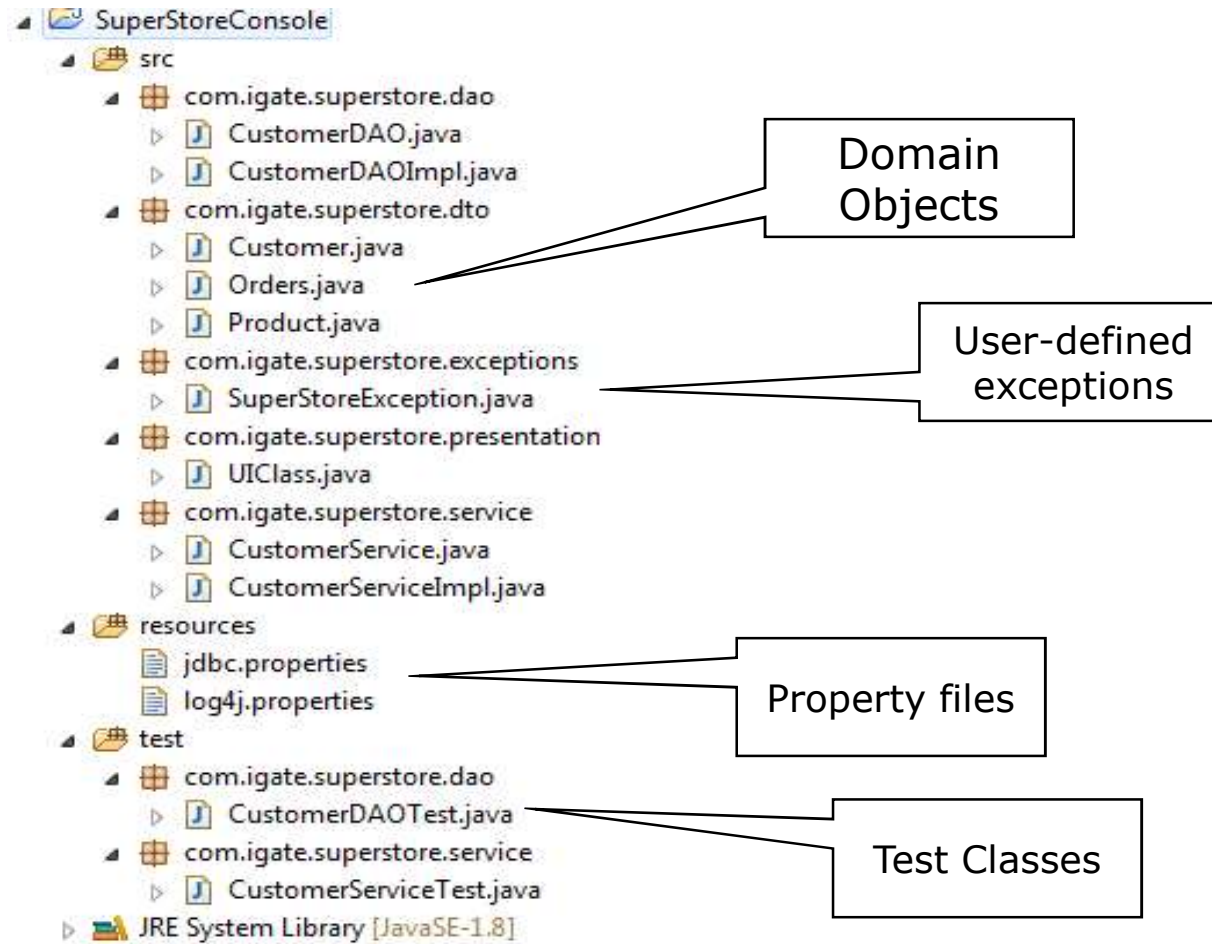


Data Transfer Objects



17.2: Layered Architecture

Sample Layered Application Structure





Lab

Lab 12: Introduction to Layered Architecture



Summary

In this lesson, you have learnt:

- Layered architecture for Java applications



Review Question

Question 1: _____ layer abstract the logic required to access the underlying data stores

- Option 1: Service
- Option 2: Data Access
- Option 3: Presentation

Question 2: Layered architecture is one of the architectural pattern based on call-wait-process pattern style

- True / False