Hibernate

Features and Architecture

Agenda

1. Hibernate Features

2. Hibernate Architecture

Hibernate Features

Hibernate Features

- Open-source, free (LGPL license)
- Based on modern OOP methodologies
- Transparently persists and retrieves POJO objects
- Stable, well established product

Hibernate Features

- Maps Java POJO classes to DB tables
- Maps Java data types to SQL data types
- Provides powerful data query and retrieval facilities (HQL queries, Criteria queries and pure SQL queries)
- Lazy loading
- Powerful caching
- Session and transaction management

Hibernate Features

- Removes all references to database connections, JDBC, SQL, etc.
- Makes your code database independent
- Makes your business objects cleaner
- Mappings
  - Table row maps to an object automatically

    E. g. 1 customer row maps to 1 Customer object
  - Set of rows maps to a collection automatically

    E. g. 20 customer orders map to 20 objects in the collection for that single customer

Hibernate Features

- Concurrency Management
- Automatically traces and detects changed objects when saving or updating DB
- Transactional write-behind
  - No database access until needed - this allows more efficiency in queries, etc.
  - Keeps transactions much smaller in time/scope - avoids long transactions models
- Caching - powerful caching mechanism

Hibernate Features

- Simplified navigation model
  - E. g. `customer.getOrders()` instead of SQL joins (Customers inner join Orders)
  - Navigate through child rows as nested collection of objects

- Code in your application is simpler

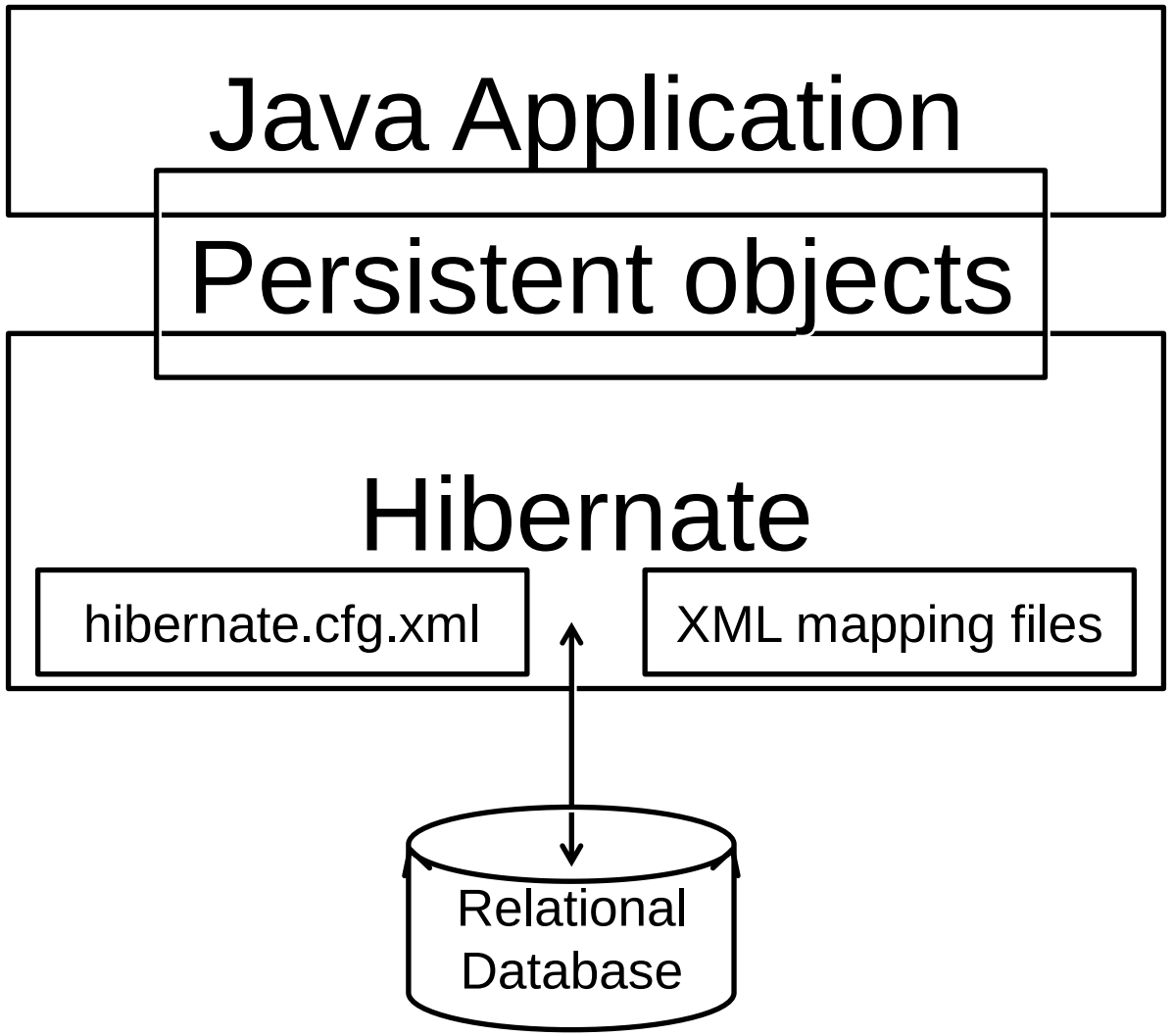
```
for (Order order : customer.getOrders()) {
      if (order.getItems().size() > 2) { … }
}
```

Hibernate Features

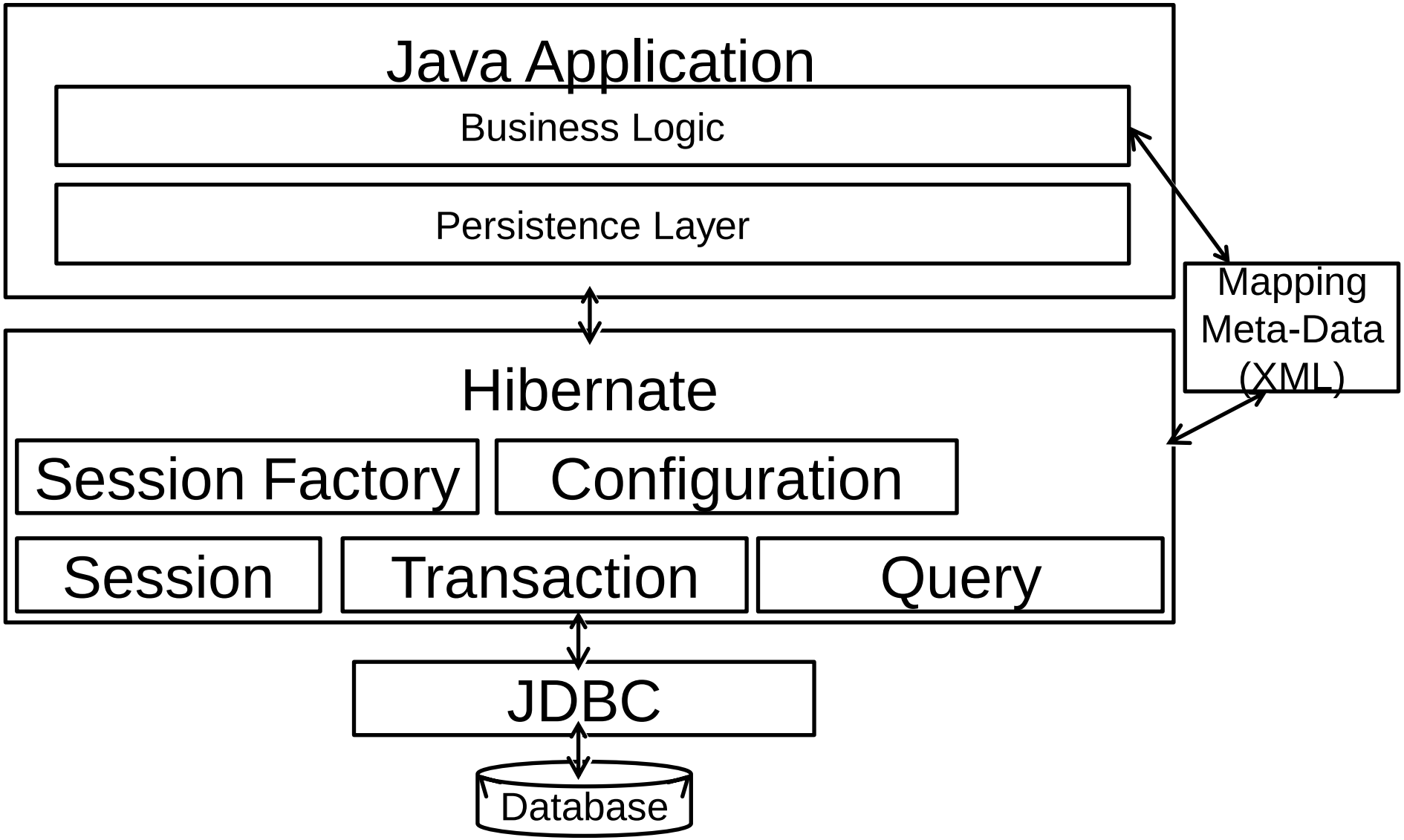
- Hibernate supports all popular databases:
  - Oracle
  - Microsoft SQL Server
  - DB2
  - PostgreSQL
  - MySQL
  - Interbase / Firebird
  - Informix
  - others

Hibernate Architecture

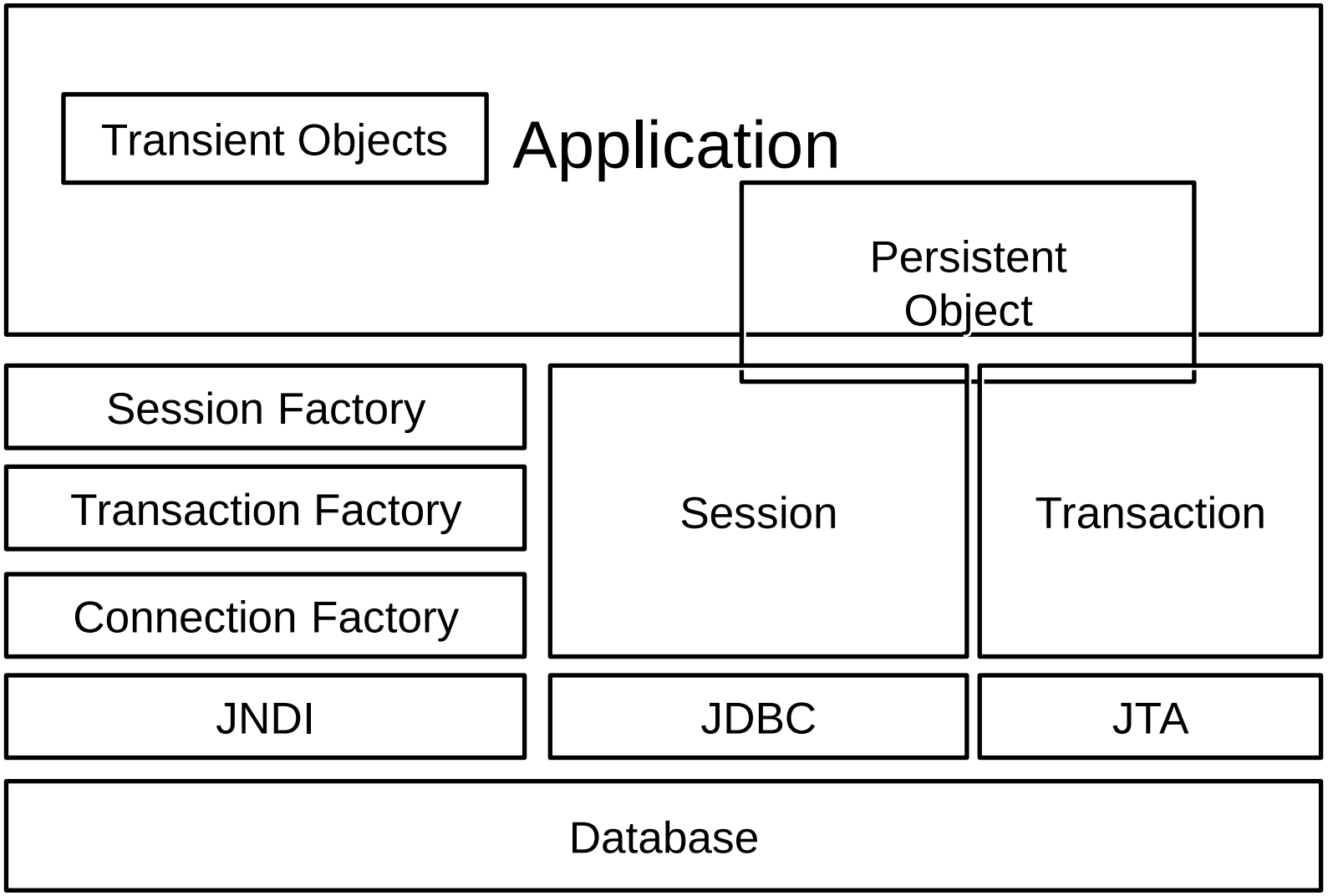
Hibernate Architecture



Hibernate Architecture



Hibernate Architecture



Questions?

Problems

1. What is Hibernate? When is it used?

2. What are the benefits using Hibernate?

3. What databases does Hibernate support?

4. Explain in brief the Hibernate architecture.