

Lecture 18: Hibernate Caching

Theory

Caching is a performance optimisation technique that stores frequently accessed data in memory to reduce database hits.

L1 Cache (First-Level Cache)

Characteristics:

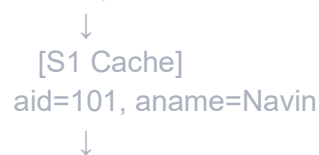
- **Session-scoped:** Available within a single session
- **Automatic:** Enabled by default
- **Mandatory:** Cannot be disabled

How It Works:

1. **First Query:** Data fetched from database and cached
2. **Subsequent Queries:** Data served from cache
3. **Session Ends:** Cache is cleared

Visual Representation:

Client Request (aid=101) → Hibernate Session → Query 1 → Database



Client Request (aid=101) → Hibernate Session → Cache Hit (No DB Query)

Benefits of L1 Cache:

- **Reduced Database Hits:** Same entity retrieved from cache
- **Improved Performance:** Faster data access
- **Automatic Management:** No manual configuration needed

Cache Behaviour Example:

// First call – hits database

```
Alien a1 = session.get(Alien.class, 101);
```

// Second call - served from cache

```
Alien a2 = session.get(Alien.class, 101);
```

// a1 == a2 (same object reference)