# Lab-4
# COMP-263

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# Architecture

**Step-1: App Requests Data From Redis**

Extraction

**Step-2:**
**Checks if Cache is present**
**If Cache is Hit: Returns Data**
**If Cache is Miss: Fetch From DB**

Transformation

**Step-3: Load the DB data into Redis**

Load
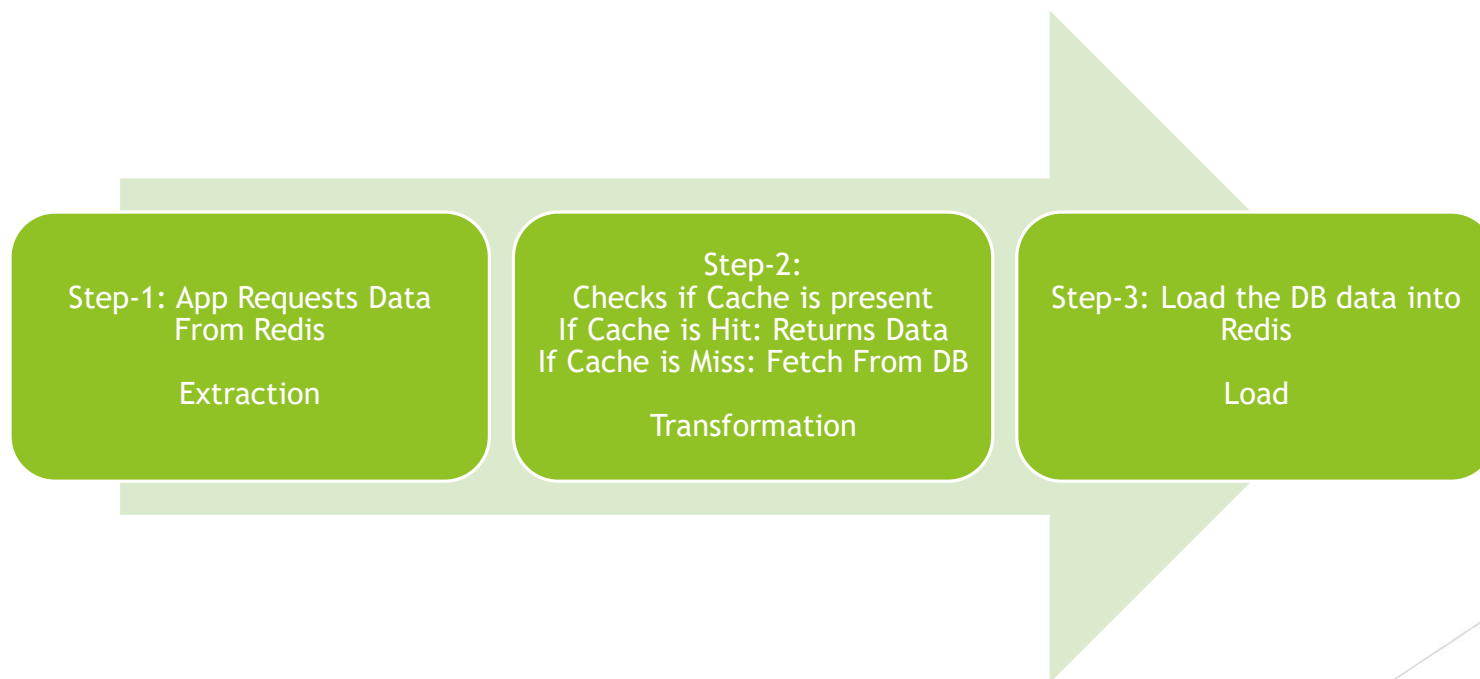
# Lessons Learnt

▶ Cache dramatically improves response time for repeated queries

▶ TTL/expiration ensures stale data doesn't persist too long

▶ Cache-Aside strategy works best when reads >> writes

▶ Monitoring cache hit/miss rates is crucial for performance tuning

# Challenges: What worked/didn't work

- **Worked Well:**
  - Response times improved for repeated queries
  - TTL and cache update logic kept data reasonably fresh
- **Did Not Work Well:**
  - Expired cache reload sometimes delayed first request
  - Handling high write-throughput required extra care
  - Debugging cache misses can be tricky