

System Design Collection

A comprehensive collection of System Design resources including High-Level Designs (HLD), Low-Level Designs (LLD), and general system design concepts.

Folder Structure

```
SYSTEM DESIGN/  
├── LLD/                # Low-Level Design (Implementation  
Code)  
├── HLD/                # High-Level Design (Architecture  
Documents)  
├── System-Design-Resources/ # General System Design Guides &  
Concepts  
└── README.md          # This file
```

LLD - Low-Level Design (18 Files)

Design Pattern Implementations - Complete Java implementations with multiple real-world examples:

Creational Patterns

- **BuilderPattern.java** - 6 examples (House, Computer, Meal, Report, SQL Query, User Profile builders)
- **FactoryPattern.java** - 5 examples (Database, Notification, Payment, Document, Vehicle factories)
- **SingletonPattern.java** - 6 examples (Connection Pool, Config Manager, Logger, Cache, Thread Pool)

Structural Patterns

- **CompositePattern.java** - 5 examples (File System, Organization, Menu, Graphics, Product Catalog)
- **DecoratorPattern.java** - 5 examples (Coffee Shop, Text Formatting, Pizza, Notifications, Car Features)

Behavioral Patterns

- **ObserverPattern.java** - 5 examples (Email, Stock Market, Weather Station, Social Media, Events)
- **ChainOfResponsibilityPattern.java** - 5 examples (Spam Filter, Support Tickets, Logging, ATM, Auth)
- **StrategyPattern.java** - 5 examples (Sorting, Payment, Compression, Routes, Pricing)

Complete System Implementations

- [ABTestingPlatform.java](#) - A/B testing platform with experiments and variants
- [ATMSystem.java](#) - ATM system with accounts, transactions, and state management
- [ElevatorSystem.java](#) - Elevator control system with scheduling
- [EmailSystem.java](#) - Email system with folders, attachments, and spam filtering
- [InstagramSystem.java](#) - Social media platform with posts, comments, follows
- [LoggingFramework.java](#) - Logging framework with multiple log levels and handlers
- [NotificationSystem.java](#) - Multi-channel notification system
- [OrderManagementDemo.java](#) - E-commerce order management system
- [ParkingLotSystem.java](#) - Parking lot management with multiple vehicle types
- [TwitterSystem.java](#) - Microblogging platform with tweets, follows, timeline

Total: 43+ Design Pattern Examples + 10 Complete System Implementations

HLD - High-Level Design (11 Systems)

Architecture and design documents for scalable distributed systems:

Social & Content Platforms

- [instagram-system-design-HLD.md/pdf](#) - Photo sharing platform architecture
- [twitter-system-design-HLD.md/pdf](#) - Microblogging platform with feed generation
- [netflix-video-streaming-system-design-HLD.md/pdf](#) - Video streaming at scale

Infrastructure & Storage

- [distributed-key-value-store-system-design-HLD.md/pdf](#) - Distributed KV store like Dynamo/Cassandra
- [google-drive-system-design-HLD.md/pdf](#) - Cloud file storage and sync
- [url-shortener-system-design-HLD.md/pdf](#) - URL shortening service like bit.ly