

System Design

 30-Day System Design Daily Task Plan (FAANG Level)

◆ WEEK 1 — Fundamentals (Foundation Strong করো)

● Day 1 — System Design mindset

- System Design আসলে কী
- FAANG interview structure বোঝা
- Terms: latency, throughput, SLA, availability

 Task:

- TinyURL system overview ভাবো (no details)

● Day 2 — Client–Server & APIs

- Client vs Server
- REST API basics
- HTTP methods + status codes

 Task:

- Login API flow diagram আঁকো

● Day 3 — Monolith vs Microservices

- Pros & Cons
- When to choose what

📌 Task:

- Food delivery app monolith vs microservices compare করো

● **Day 4 — Load Balancer**

- Why needed
- Types: Round-robin, Least connections

📌 Task:

- 1M user traffic flow diagram আঁকো

● **Day 5 — Caching (Core Topic)**

- Cache vs DB
- Redis, CDN
- Cache hit / miss

📌 Task:

- Instagram feed caching strategy ভাবো

● **Day 6 — Database Basics**

- SQL vs NoSQL
- CAP theorem
- ACID vs BASE

📌 Task:

- User table schema design করো

● Day 7 — Weekly Review

- Week 1 recap
- Notes revise

📌 Task:

- TinyURL system high-level design আঁকো
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◆ WEEK 2 — Scaling & Distributed Systems

● Day 8 — Horizontal vs Vertical Scaling

- Why horizontal scaling wins

📌 Task:

- E-commerce traffic scale plan লিখো

● Day 9 — Sharding

- Hash-based sharding
- Range sharding

📌 Task:

- User data shard strategy design করো

● Day 10 — Replication

- Master-slave

- Read replicas

📌 Task:

- Read-heavy app DB design

● Day 11 — Consistent Hashing

- Why normal hashing fails
- Ring concept

📌 Task:

- Cache server scaling diagram আঁকো

● Day 12 — Message Queue

- Kafka / RabbitMQ
- Async processing

📌 Task:

- Order processing async flow design করো

● Day 13 — Rate Limiting

- Token bucket
- Leaky bucket

📌 Task:

- API rate limiter design

Day 14 — Weekly Review

 Task:

- WhatsApp chat system high-level design
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◆ WEEK 3 — Reliability & Real Systems

Day 15 — Reliability

- Retry
- Timeout
- Circuit breaker

 Task:

- Payment failure handling design

Day 16 — Idempotency

- Why needed
- Real examples

 Task:

- Payment API idempotent design

Day 17 — Logging & Monitoring

- Metrics
- Alerts

 Task:

- System monitoring checklist বানাও

 **Day 18 — Notification System**

- Email
- SMS
- Push

 Task:

- Notification service architecture

 **Day 19 — Search System**

- Indexing
- ElasticSearch basics

 Task:

- Product search design

 **Day 20 — Feed System**

- Pull vs Push model
- Fan-out

 Task:

- Instagram feed design

● Day 21 — Weekly Review

📌 Task:

- YouTube high-level architecture
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◆ WEEK 4 — FAANG Interview Mode 🔥

● Day 22 — URL Shortener (Deep)

- Full design
- DB + cache
- Scale discussion

📌 Task:

- TinyURL complete design explain aloud

● Day 23 — Chat System (Deep)

- WebSocket
- Message delivery guarantee

📌 Task:

- WhatsApp deep design

● Day 24 — File Storage System

- Metadata
- Chunking
- Replication

📌 Task:

- Google Drive design

● **Day 25 — Ride Sharing System**

- Location tracking
- Matching logic

📌 Task:

- Uber system design

● **Day 26 — Trade-off Mastery**

- SQL vs NoSQL
- Sync vs Async
- Cache vs DB

📌 Task:

- 5 trade-off explain লিখে practice

● **Day 27 — Bottleneck Analysis**

- SPOF
- DB overload

📌 Task:

- Given system → bottleneck identify করো

● Day 28 — Mock Interview

- 45-minute timer
- Speak while designing

📌 Task:

- Self-mock record করো

● Day 29 — Weak Area Fix

📌 Task:

- নিজের worst 2 topic revise

● Day 30 — Final FAANG Simulation ⚪

📌 Task:

- Random problem pick
- Full interview flow follow

🏆 End Result (30 Days পরে)

তুমি পারবে:

- ✓ Any system break down করতে
- ✓ Scale explain করতে
- ✓ Trade-off justify করতে
- ✓ FAANG interviewer impress করতে