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## 🚀 Golden Rules for System Design Interviews 🚀

Cracking a System Design Interview requires knowledge and the right approach. Here are some golden rules to keep in mind:

- ✅ Read-heavy systems? Use a Cache
- ✅ Low-latency needs? Combine Cache & CDN
- ✅ Write-heavy systems? Implement a Message Queue for async processing
- ✅ ACID compliance? Choose RDBMS/SQL
- ✅ Unstructured data? Go for NoSQL
- ✅ Handling large files (videos, images)? Use Blob/Object Storage
- ✅ Complex pre-computation (e.g., news feed)? Combine Message Queue & Cache
- ✅ High-volume search? Implement Elasticsearch, Tries, or Search Indexing
- ✅ Scaling SQL databases? Consider Sharding
- ✅ High availability & performance? Use a Load Balancer
- ✅ Global data delivery? Leverage a CDN
- ✅ Graph-based relationships? Choose a Graph Database
- ✅ Scaling components? Implement Horizontal Scaling
- ✅ High-performance queries? Optimize with Database Indexes
- ✅ Bulk processing? Use Batch Processing & Message Queues
- ✅ Preventing DDoS attacks? Apply a Rate Limiter
- ✅ Microservices? Use an API Gateway
- ✅ Single point of failure? Implement Redundancy
- ✅ Fault tolerance? Ensure Data Replication
- ✅ Real-time communication? Use WebSockets
- ✅ Distributed failure detection? Implement Heartbeat
- ✅ Ensuring data integrity? Apply Checksum Algorithm
- ✅ Decentralized data transfer? Use Gossip Protocol
- ✅ Efficient server scaling? Implement Consistent Hashing

- ✅ Location-based features? Use Geohash or Quadtree
- ✅ High availability vs consistency? Eventual Consistency is key
- ✅ Handling large network requests? Implement Pagination
- ✅ Cache eviction? Use LRU (Least Recently Used)
- ✅ Handling traffic spikes? Implement Autoscaling
- ✅ Analytics & audit trails? Store in Data Lakes
- ✅ Large-scale connections? Optimize with Connection Pooling & Protobuf
- ✅ Preventing system overload? Use Token Bucket & Leaky Bucket algorithms
- ✅ Zero-downtime deployments? Apply Blue-Green Deployment

◆ These are just a few key takeaways from System Design Interviews that every developer should know!

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