# Components of System Design

A system design has 2 Components:-

## Logical Entities:

1. Database: Technology to store data that can be available to users in the future.
2. Application Layer: Code running on a machine that allows users to interact with the database.
3. Communication Protocols: Enables communication between different machines so the components can interact with each other.
4. Presentation Layer (optional): How the system is presented to the user (mobile apps, desktop apps, websites, etc.).

## Tangible Entities:

1. Databases: Options like MongoDB, MySQL, Cassandra, Redis, etc.
2. Application and Services: APIs, RPCs, etc. for code and communication between components.
3. Presentation Layer: Front-end applications built using frameworks like Amber, React, etc. for desktop apps, websites, and mobile apps have their own native codebases.
4. Security Mechanisms and Protocols: To secure the system and data and avoid attacks.
5. Instances: Physical computers provided by cloud providers (AWS, GCP, Azure, etc.) to house all these technologies.

## System Overview:

1. Presentation Layer: Where the system is presented to the user through desktop apps, websites, or mobile apps.
2. Applications: Interact with databases for the exchange of data.
3. Databases: Stores data for the system.
4. Instances: Physical computers that house applications and databases and interact with each other over the network.
5. Communication: Applications interact with each other through APIs and messages.
6. Infrastructure: All components housed inside a cloud provider (AWS, GCP, etc.).

Components of a System:

1. Applications
2. Databases
3. Caches
4. Load Balancers
5. Client Interfaces
6. Network Request
7. Security Layer
8. Infrastructure.