CAP theorem

In the event of a network failure on a distributed system, it is possible to provide consistency or availability, but not both.

- Consistency - all reads receive most recent write or an error.
- Availability - all reads contain data, but not necessarily most recent.
- Partition tolerance - system continues to operate despite network failures. In a distributed system, network failures will happen, so partition tolerance is a must.

- Examples of consistency requirement - bank account balance, text messages.
- Examples of availability requirement - e-commerce
- Examples of consistent databases - MongoDB, Redis, HBase.
- Examples of availability databases - Cassandra, DynamoDB, CosmosDB,