1.What is ACID

Atomicity:
All changes to data are performed as if they are a single operation.

Consistency
Data is in a consistent state when a transaction starts and when it ends.
For example, in an application that transfers funds from one account to another, the consistency property ensures that the total value of funds in both the accounts is the same at the start and end of each transaction.

Isolation
The intermediate state of a transaction is invisible to other transactions.
For example, in an application that transfers funds from one account to another, the isolation property ensures that another transaction sees the transferred funds in one account or the other, but not in both, nor in neither.

Durability
After a transaction successfully completes, changes to data persist and are not undone,even in the event of a system failure.

Transaction: account A -> accountB

```
read A
A = A - 100;
write A
read B
B = B +100
write B
```

A: shouldn’t take money from A without giving to B
C: A + B is the same, money isn’t lost or gained

I: other queries shouldn’t see A or B change until completion
D: the money doesn’t go back to A

2.vertical scaling vs horizontal scaling

Horizontal scaling means that you scale by adding more machines into your pool of resources whereas Vertical scaling means that you scale by adding more power (CPU, RAM) to an existing machine.

3.What is major categories of no-sql

1. Document datastore: **mongoDB**
2. Key value:**redis**
3. Graphs :Neo4j
4. Columnar:**cassandra**

4.What is CAP

C: consistency: all clients have the same view of the data
A: Availability : each client can always write and read data.
P: partition tolerance: the system work well despite physical network partition
DB in CHINA cannot visit DB in US

Databases can have only two of them.

CP:MongoDB, Redis
AP:DynamoDB