Data:

Structured rows and cols in sql relational model
Semi structured no rules no relational attributes and values,csv,xml,json(js object notation) files

Sources:ppt,updates on social media, online chats(human generated), traffic, weather report(machine generated)

Key value pair is json
Extensible markable lang:tags, complex data comma separated values, rows wise stored.
Unstructured
Satelite images, scientific research data, radar, sonar images.twitter,whatsapp,fb,chats like image transfer 80% data falls under unstructured.

Structured:
Msaccess,database,relations/table,msexcel
Unstructured:
Email,images,
Chats,
Fb
Semi structured:
Json,xml

Biodata:
High velocity(speed of generation of data), variety, volume, (size)varasity(trustworthiness)

Clustering computing(convert central server to small clustering servers)sql can't run for clustering env but for central server but nodal handles

Google:bigdata
Amazon:dynamo
Alternative technologies not using relational db

Nodal datamodels:

Key-values(one key to many values) model
Blob (stores values)
Ecommerce app(rust info, payment info, order info)
To store session info,

User profile and info
Shopping Cart data

When not:
Multi operation transactions because values can’t be reverted
Info based on data related
Operations on one key at a time
Operations by set
Query by data

Riak

Column family data model:
Key value and value is assigned to multiple columns eg base, fb Casandra

In Casandra:
Db:keyspace
Tables:column-family
Db instance:cluster

Associated with timestamp
In rdbms every row having same no of columns but not in col family
Can have mapping /super columns which have info of mapping cols
Casandra uses similar lang as sql

Used:
Event loggin(error info in execution of event)
Content mgmt sys, blogging platforms
Counters for webapp(count and categorize visitors)
Ecommerce app

Not used :
It does not support if it enforces acid properties
Can’t use aggregate functions
Complex transactions

Document data model:
Bill document
Json or xml formats
Mangoes,couchdb

Rdbms vs mongedb. Terminologies:

Table:collections
Join:db references
Row:document(_id)
Schema:db
Db instance:mongodbinstance

Graph database model:

Represent connection between two or more entities
In form of nodes and edges
Eg:fb fed connections
Transport link, routing, dispatch and location based services
Recommendation engines
Social networks

When not to use:
Updating all or subset of entities
At a time not on all nodes

Neo4j
create(node:label(key:value))
create(node-[r-relatname]->node2)
match(n)
Detach delete node
Remove for properties and labels
Remove node.property

Cap theory(we can’t achieve all three at a time)

Consistency,(each node will see the same data at any moment)
availability(sys always available)
Patience tolerence(sys should be working always)

Rdbms:consistency acid(atomicity, consistency, isolation and durability)

Nosql—availability

base(basically, available,soft state (inconsistent for some time because of network issue)eventually consistent)

Nosql prefers availability over consistency where as rdbms prefers consistency over availability

Block chain hash code
Cryptography
Peer to peer
Network
Consensus all to ensure blocks don’t get tempered

Apps of blockchain:
Cryptocurrency
Notary(stampd.io)
Digital voting
Smart contacts
Food industry

Consensus mechanism:
Validates contents in blockchain
Proof of work:
Bitcoin uses proof of work
Computational power to crack the problem
Called mining but lot of energy is wasted
Suitable for larger networks but not for small networks called 51%
Proof of stake:
More stakes is leader and can decide
Validator higher stakes
Eon and blackchin cryptocurrency
Less computational requirements
No energy is needed but nothing at stake problem
Proof of authority:
Group of trusted people selected and will decide
No need of sophisticated hardware
Improved transaction rates
Disadvantage:
Influenced by third party
Doesn’t protect censorship and blacklisting
Safety
Complete
Inclusive

equalitarian(equal votes for every node)

Diff between bitcoin and blockchain:

Blockchain. Vs bitcoin

Bc is distributed db bitcoin is cryptocurrency
Blockchain has numerous apps one is cryptocurrency
Bitcoin is powered by blockchain tech
Transparency :animality
Any type of transfer : only currency