



## MISSION

CHRIST is a nurturing ground for an individual's holistic development to make effective contribution to

## VISION

Excellence and Service

## CORE VALUES

Faith in God | Moral Uprightness  
Love of Fellow Beings

# Outline

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- Family of NoSQL DBs
- MongoDB profile
- Basic operations
- Company details

# The family of NoSQL DBs

- **Key-values Stores**

- Hash table where there is a unique key and a pointer to a particular item of data.
- Focus on scaling to huge amounts of data
- *E.g. Oracle BDB*

- **Column Family Stores**

- To store and process very large amounts of data distributed over many machines
- *E.g. Cassandra, HBase*

- **Document Databases**

- Collections of Key-Value collections
- The next level of Key/value, allowing nested values associated with each key.
- Appropriate for Web apps.
- *E.g. CouchDB, MongoDB*

- **Graph Databases**

- Bases on property-graph model
- Appropriate for Social networking, Recommendations
- *E.g. Neo4J, Infinite Graph*

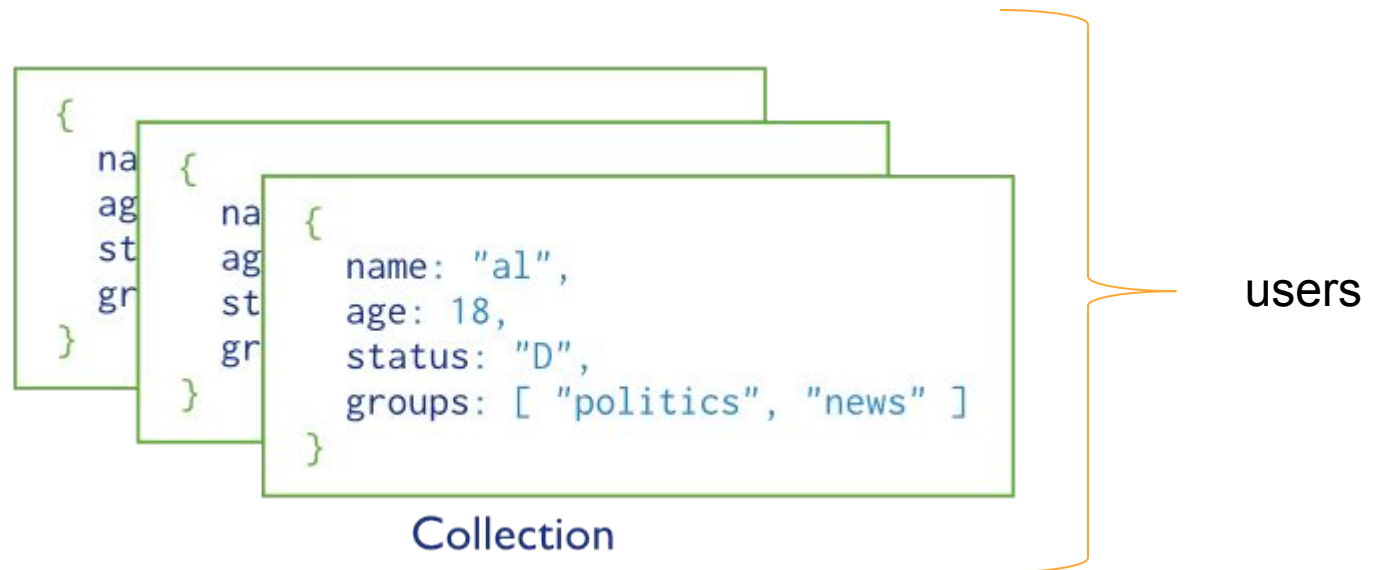
# MongoDB profile

- Document-oriented NoSQL database.
- Schema-free.
- Based on Binary JSON; BSON[2].
- Organized in Group of Documents □ Collections
  - Informal namespaces
- Auto-Sharding in order to scale horizontally.
- Simple query language. Rich, document-based queries.
- Map/Reduce support (See more at [7]).
- Open Source (GNU AGPL v3.0.)

# Basic operations

```
{  
  name: "sue",  
  age: 26,  
  status: "A",  
  groups: [ "news", "sports" ]  
}
```

← field: value  
← field: value  
← field: value  
← field: value



# CRUD operations - create

*Insert a new user.*

SQL

```
INSERT INTO users      ← table
      ( name, age, status ) ← columns
VALUES      ( "sue", 26, "A" ) ← values/row
```

MongoDB

```
db.users.insert ( ← collection
{
  name: "sue", ← field: value
  age: 26, ← field: value
  status: "A" ← field: value
} } document
)
```

# CRUD operations – create (cont'd)

Collection

Document

```
db.users.insert(
  {
    name: "sue",
    age: 26,
    status: "A",
    groups: [ "news", "sports" ]
  }
)
```

Document

```
{
  name: "sue",
  age: 26,
  status: "A",
  groups: [ "news", "sports" ]
}
```

insert

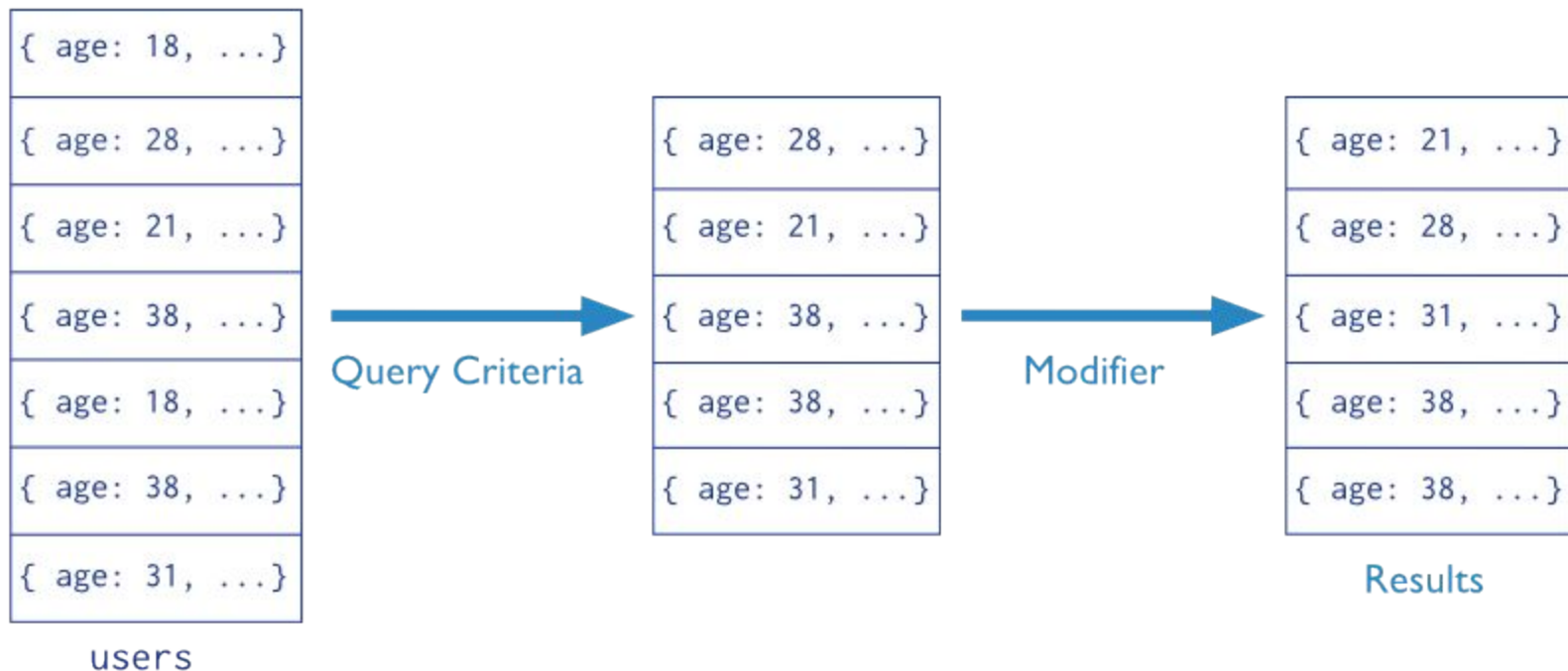
Collection

{ name: "al", age: 18, ... }
{ name: "lee", age: 28, ... }
{ name: "jan", age: 21, ... }
{ name: "kai", age: 38, ... }
{ name: "sam", age: 18, ... }
{ name: "mel", age: 38, ... }
{ name: "ryan", age: 31, ... }
{ name: "sue", age: 26, ... }

# CRUD operations - read

*Find the users of age greater than 18 and sort by age.*

Collection                      Query Criteria                      Modifier  
`db.users.find( { age: { $gt: 18 } } ).sort( {age: 1 } )`





# CRUD operations - update

*Update the users of age greater than 18 by setting the status field to A.*

## SQL

UPDATE	users	← table
SET	status = 'A'	← update action
WHERE	age > 18	← update criteria

## MongoDB

db.users.update(	← collection
{ age: { \$gt: 18 } },	← update criteria
{ \$set: { status: "A" } },	← update action
{ multi: true }	← update option
)	

# CRUD operations - delete

*Delete the users with status equal to D.*

## SQL

```
DELETE FROM users  ← table  
WHERE status = 'D' ← delete criteria
```

## MongoDB

```
db.users.remove(  ← collection  
  { status: "D" } ← remove criteria  
)
```

## Company details

*- MongoDB is funded by leading investment firms and technology companies, including Altimeter Capital, Fidelity Investments, Flybridge Capital Partners, In-Q-Tel, Intel Capital, NEA, Red Hat, Salesforce.com, Sequoia Capital, Union Square Ventures and T. Rowe Price. [5]*

# References

- [1] Mikayel Vardanyan, Picking the right NoSQL Database Tool:  
<http://blog.monitis.com/index.php/2011/05/22/picking-the-right-nosql-database-tool/>
- [2] BSON Specification: <http://bsonspec.org/>
- [3] MongoDB CRUD operations: <http://docs.mongodb.org/manual/crud/>
- [4] MongoDB Write operations: <http://docs.mongodb.org/manual/core/write-operations/>
- [5] MongoDB Investors: <http://www.mongodb.com/investors>
- [6] MongoDB Closes \$150 Million in Funding:  
<http://www.mongodb.com/press/mongodb-closes-150-million-funding>
- [7] MongoDB Aggregation introduction:  
<http://docs.mongodb.org/manual/core/aggregation-introduction/>
- [8] STI INNSBRUCK [www.sti-innsbruck.at](http://www.sti-innsbruck.at)