

SE ZG522: Big Data Systems

10 NoSQL Databases



Dr. Kamlesh Tiwari

Assistant Professor, Department of CSIS,
BITS Pilani, Pilani Campus, Rajasthan-333031 INDIA

April 23, 2022

ONLINE (WILP @ BITS-Pilani Jan-May 2022)

<http://ktiwari.in/bds>

Types

- **Column Oriented:**
Cassandra, Hbase
- **Document Based:**
MongoDB, CouchDB
- **Key Value:**
Memcached, Redis, Coherence
- **Graph based:**
Neo4J

NoSQL

- SQL and RDBMS
- ACID (Atomicity, Consistency, Isolation, Durability) context is transaction processing
- JSON (JavaScript Object Notation)
- All data in one block. RDBMS normalization can throw apart
- easy to insert and delete
- flexible schema
- Scalable (keyspace). Easy to add more data
- Issues with Frequent updates, Consistency (eventually consistent)
- Less read optimized, Relations are not explicit
- Joins are hard

Big Data Systems (SE ZG522)

Dr. Kamlesh Tiwari (BITS Pilani)

Lecture-10 (April 23, 2022)

2 / 6

mongoDB



- Document based - NoSQL Database
- *mongo* is command line shell to connect *mongod* the daemon hosting the database
- Key-value pair
{ name: "mohan ji", age: "18", address: "142/2 purani ghani, katnil, Gujrat" }
- collections (table), documents (row), and fields (column)

Big Data Systems (SE ZG522)

Dr. Kamlesh Tiwari (BITS Pilani)

Lecture-10 (April 23, 2022)

3 / 6

Commands

```
mongo
show dbs
[new db] use csBigDataSys
db
db.dropDatabase()
db.createCollections('std')
show collections
db.std.drop()
db.std.insert({'name': 'Mudit Wa', 'age': 25, 'batch': 'M.Tech.'})
db.std.insertMany([{'name': 'Adi Go', 'age': 21}, {'name': 'Sumit Da', 'age': 23}])
• Unique object_id
db.std.find()
db.std.find().pretty()
db...d().pretty().limit(2)
db.std.find().count()
db.std.find('age': 25)
db...d('age': {'$lt: 25})
db.std.findOne('age': 25)
db.std.sort('age': 1/-1)
db.std.update({'name': 'Adi Go', 'age': 22}, {'$set: true})
db.std.find().remove({'age: 25})
```

Big Data Systems (SE ZG522)

Dr. Kamlesh Tiwari (BITS Pilani)

Lecture-10 (April 23, 2022)

5 / 6

Thank You!

Thank you very much for your attention!

Queries ?

Big Data Systems (SE ZG522)

Dr. Kamlesh Tiwari (BITS Pilani)

Lecture-10 (April 23, 2022)

4 / 6

Big Data Systems (SE ZG522)

Dr. Kamlesh Tiwari (BITS Pilani)

Lecture-10 (April 23, 2022)

6 / 6