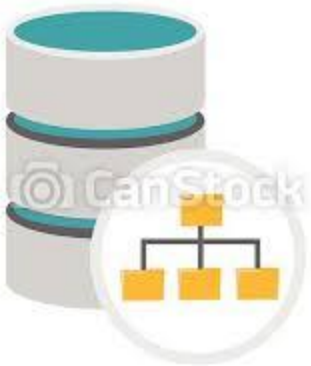
Database Laboratory

MySQL
Relational Database Management System(DBMS



MangoDB Document Based NoSQL Database

Grading

N	Activities	Percentages
1	Report/Research+20	20%
2	Presentation	20%
3	Written Exam	30%
4	Practical Exam	40%

Description:

- Report and Presentation : Topics are determined by the Lecturer .
- Written Exam : From the presentation topics and topics specified by the Lecturer
- Practical Exam : Designing and implementing a database on a DBMS

MySQL Topics

1) MySQL Cheat S
2) Table
3) View
4) Index
5) Temporary , Truncate Tables
6) Functions
7) Regex
8) Full-Text Search
9) Nested Query
10) Data Engines
11) JSON Concept
12) Backup and Restores
13) Trigger
14) Store Procedures
15) Transaction
16) Replication
17) Administration(Users, Roles and Privileges)
18) Maintaining(Analyze, Repair, Optimize, Check)

* All the mentioned items are intended for the written and practical exam.

MongoDB Topics

1) Collection
2) Projection
3) Indexing
4) Aggregation
5) Replication
6) Shading
7) Backup
8) Deployment
9) MapReduce
10) Text-Search
11) Regex
12) Capped Collection
13) RockMongo

* All the mentioned items are intended for the written and practical exam.

What are NewSQL Databases?

NewSQL databases are modern SQL databases that solve some of the major problems associated with traditional online transaction processing (OLTP) RDBMS. They seek to achieve the scalability and improved performance of NoSQL databases while maintaining the benefits of traditional database management systems.

In other words, NewSQL databases are relational database systems that combine the OLTP, high performance, and scalability of NoSQL. They maintain the ACID (Atomicity, Consistency, Isolation, and Durability) guarantees of traditional DBMS. ACID transactions ensure complete business processes, concurrent transactions, data survival in case of system failures or errors, and consistency before and after a transaction.

Partitioning/ Sharding **Replication** **Secondary Indexes**

Concurrency Control **Crash Recovery**

Report/ Presentation Topics :

1. Relational NewSQL Database , Cockroach DB
2. Elastic Search Search Engine
3. Graph Database, Neo4j DBMS
4. In-Memory Data Platform, Redis
5. Database Security
6. Concurrency
7. Postgres
8. Big Data
9. Streaming databases
10. ORM
11. NOSQL
12. Blockchain
13. Scientific databases
14. Parallel databases
15. Distributed transactions

Ref :

[1]https://www.ebooksworld.ir/label/index/80/%D9%BE%D8%A7%DB%8C%DA%AF%D8%A7%D9%87-%D8%AF%D8%A7%D8%AF%D9%87/database

[2]https://wallex.ir/blog/best-blockchain-book/

[3]https://www.mysqltutorial.org/

[4]https://www.predictiveanalyticstoday.com/newsql-databases/

[5]https://cs.lmu.edu/~ray/classes/db/

[6]https://ocw.mit.edu/courses/6-830-database-systems-fall-2010/pages/lecture-notes/