NoSQL Databases

Description

This course introduces the students to the concept of NoSQL databases and helps them understand the principles on which they are based as well as what they can bring, especially in a Big Data context. The idea is to have a better understanding of these databases but also to learn by doing: in order to get more confident with these tools, the students will practice on a MongoDB database.

Learning Objectives and Outcomes

- Understand the differences between NoSQL databases and RDBMS
- Be able to make requests in MongoDB
- Know how to create a replicaset
- Understand how to implement sharding
- Be able to create a cluster

Course Schedule and Contents

Session #1	▪ Define NoSQL ▪ Different families of NoSQL db ▪ RDBMS vs NoSQL ▪ Explain CAP theorem ▪ ACID vs BASE ▪ List PROS/CONS of NoSQL databases ▪ Horizontal scaling ▪ Concept of Replication ▪ CAP triangle ▪ Concept of Sharding
Session #2	▪ Installing MongoDB and Robo3t ▪ Queries (1/2)
Session #3	▪ Queries (2/2)
Session #4	▪ ReplicaSet ▪ Implementing sharding ▪ Creation of a cluster ▪ Project/Assignment

Grading

Course Project: 100%

Policies

- Any work submitted must be your own.
- I expect everyone to contribute equally to group assignments
- Attendance in every class is expected and class participation and discussion are strongly encouraged.
- Late work will not be accepted unless prior arrangements have been made directly with me.
- Cases will be decided on an individual basis.

Good Luck!