UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Advanced Data Base Systems

2324-3-E3101Q115

Aims

The course will be provided in Italian and it will allow students to have a wide and up-to-date overview of the main storage systems (relational, nosql and newSQL) and architectures (including commercial ones) . Students will be also able to understand transaction and its properties. For rdf and NoSQL the underlining data models, query languages and architecture will be also explained as well as the architectural solutions of newSQL systems.

Contents

Relational dbms architecture, transaction and ACID properties, Main issue on security of centralized rdbms and description of architectures of most adopted commercial RDBMS. Non relational dbms: NoSQL and newSQL; architetures and query languages

Detailed program

1 introduction and physical access structure

2 query optimization

3 concurrency control

4 security

5 architecture of commercial DBMS

6 reliability manager

7 NoSQL, models, query language and architectures

8 NewSQL available architectures and their use

Prerequisites

Database

Teaching form

lectures with slides, exercises and practical exercise on most important storage management system

Textbook and teaching resource

P. Atzeni, S. Ceri, P. Fraternali, S. Paraboschi, R. Torlone Basi di dati: architetture e linee di evoluzione McGraw-Hill Italia,

Semester

second semster

Assessment method

Two are the alternative way to assess students:

1) a written exam followed by a smal project. The written part is composed by a set of query related to theoretical issues explain in the course and a set of exercise related to algorithm, protocols, model, and query languages explained in the course. The small project wants to veriy the capabiliy of a given student to execute typical database administrator activities or modelling and quering NoSQL database systems

2) a project realted to one of the topic related to the course.

Office hours

Thursday 10-11 building U14 room 2062

Sustainable Development Goals

QUALITY EDUCATION | INDUSTRY, INNOVATION AND INFRASTRUCTURE