UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Advanced Data Base Systems

2526-3-E3101Q115

Aims

The course, delivered in Italian, will allow students to have an updated overview of the main storage systems currently available (relational, newSQL) and the architectures (including commercial) currently available. Students will also learn the concept of transaction and its properties. The main software frameworks for accessing regional databases and the main Python libraries and tools for accessing relational or tabular data will be presented. Introduction to NoSQL systems

Contents

Knowledge of the internal structure of a relational DBMS, query optimization, the concept of transaction and its properties, recovery systems for relational databases. Java and Python software frameworks for data access, cloud databases, NewSQL and NoSQL systems

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 software frameworks for data access

8 NewSQL available architectures and their use

9 NoSQL systems: document based and graph

Prerequisites

Database

Teaching form

The course includes 76 hours organized as follows:
32 hours of lessons in synchronous presence
20 hours of practice in synchronous presence
24 hours of exercises in synchronous presence

All hours will be taught in interactive mode with a limited portion of purely educational lessons

The lessons, exercises and laboratories will be supported by slides

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

The course provides two alternative methods for verifying the student's evaluation

1. a written and planned text. The paper will focus on open questions on the theoretical topics related to the contents of the course and a series of modeling exercises, i.e. interrogation or sizing of data structures or finally applications of the algorithms seen in class. The little project is related to the creation of a small administrator database activity

2. discussion of an application paper on topics related to the course topics. the essay must be agreed with the teacher.

Office hours

send an email to the teacher specifying the name of the course,

Sustainable Development Goals

QUALITY EDUCATION | INDUSTRY, INNOVATION AND INFRASTRUCTURE