esade

Course presentation

Introduction to Databases
Pre-Programme in Data Science

Germán Sánchez Hernández, PhD

Do Good. Do Better.

01

Personal Introduction

Personal Introduction

Germán Sánchez-Hernández

ESADE:

Academic Collaborator

Department of Operations, Innovation and Data Sciences

AIS Group (ais-int.com):

Head of the Marketing Analytics department

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Profile: Main Features

- Computer Scientist, Barcelona Tech (UPC)
- PhD Artificial Intelligence, Barcelona Tech

ESADE Teaching

- Almost 15 years of experience
- Multiple programs:
  BBA, MBA, BITLASI, MRes, MSc, MiBA
- Technical topics
  - Mathematics, Statistics
  - SQL, R, Python, Excel
  - Artificial Intelligence,
    Machine Learning

Business training

- Financial customers
  - CaixaBank
  - Cofidis
- Insurance
  - DKV
  - Liberty
- Topics:
  - Artificial Intelligence
  - Machine Learning

Research and areas of interest

Research

- Automatic Learning
- Fuzzy and Qualitative Reasoning
- Multi-criteria decision making
- Natural language processing

- 7 papers in indexed journals
- More than 20 conferences
- Talks

Private business (AIS Group)

- Geographic Information Systems
- Data Fusion
- Automated Valuation Model (properties, vehicles)
- Data visualisation

What is the course about?

Main topics

Databases are an essential tool to store and retrieve data

This introductory course provides a general awareness about databases and their different types.

Moreover, the course provides hands-on sessions to learn how to retrieve information from a relational database (MySQL).

01- Introduction

02- Fundamentals of databases

- SQL vs NoSQL

03- Managing information: SQL

- Basic SQL
- Advanced SQL

**- Other complements: NoSQL

Skills and objectives

- Understanding the benefits and scope of databases in a **data-driven** world
- Broad understanding of **databases** basics
- How to think **algorithmically** and solve queries efficiently
- Understanding **data structures** to access big data databases or to use it for data science processes
- Familiarity in the most important **language** for accessing data

Evaluation

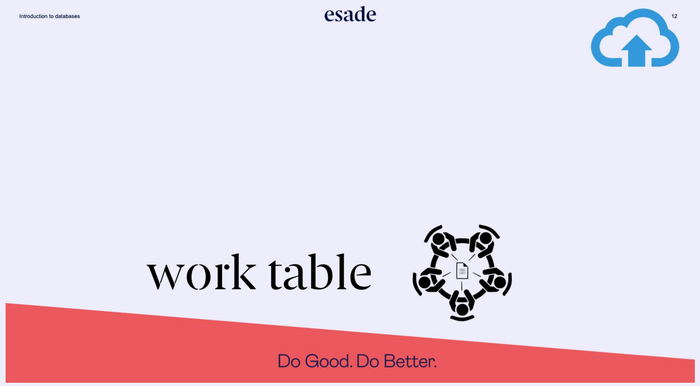
- Class participation: 60%
  - Exercises proposed in work tables
    (By teams, created randomly every session)
  - Mid-term and Final tests
    (Individual)
- Group exercise: 40%
  - Data manipulation in a real-world project

Schedule

Session 1 (Mon 2nd Sep):	Course presentation
	Introduction to databases
	Basic SQL I
Session 2 (Tue 3rd Sep):	Basic SQL II
Session 3 (Wed 4th Sep):	Advanced SQL

Dynamics and Important dates

- Attendance is mandatory to the three sessions (justifications through Program Management)
- Small "**Master pills**" in the main room
- Several **work tables** (between 10 and 30 minutes):
  - Random teams per session. Teams are maintained throughout the session but not among sessions.
  - Some activities are graded (and the answer, one per team, will have to be uploaded to the corresponding place on eCampus).
  - Deadline: three days after every session.
- **Individual tests** (at 2nd and 3rd sessions)
- **Team work**:
  - 3 or 4 people per team
  - Deadline: 1 week after the last session (Thu 12th Sep, 23:59)



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