CAIM: Cerca i Anàlisi d’Informació Massiva
FIB, Grau en Enginyeria Informàtica

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0. Presentation
Instructors

- Ramon Ferrer-i-Cancho (lectures + exercises 10; lab 11)
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- Ignasi Gómez (lab 12)
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- Albert Calvo (labs 13 & 14)
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Class Logistics

- Mondays, 16–18.
  - Theory and exercises. Often, exercises will be proposed in advance.

- Lab sessions: Wednesdays and Fridays.
  - Guided lab activities; expected to be complemented with an average estimate of 2 additional hours per session of autonomous work.
  - Lab sessions will finish by handing in a short written report; these count towards the evaluation of the course.
Lab work - important rules

- Lab is done in pairs. Exceptions must have prior permission
- Do not exchange information with others, other than general ideas; that will be considered plagiarism
Exercises

- In class, we will solve only a part of the exercises proposed.
- You are strongly encouraged to try and solve the rest of the exercises.
- Self-study: One or more small topics will not be explained in class. They will appear in the exam.
Evaluation

- Evaluation: as per “Guia Docent”
- Parcial 1 (P1): November 2 10:30-12:30 (during week for partial exams), Parcial 2 (P2): 18/01/2022 15:00-18:00
- On the day of Parcial 2 you may choose to do instead a final exam (F) on the whole course
- 40 % Lab + max(30 % P1 + 30 % P2, 60 % F)
Contents I

First half (until midterm):

- Core Information Retrieval:
  - Introduction: Concept. The IR process
  - Information Retrieval Models
  - Indexing and Searching, Implementation
  - Information Retrieval Evaluation, Feedback Models

- Web Search:
  - Link analysis: Page Rank
  - Crawling the web
  - Architecture of a Web search system
Contents II

Second half:

▶ The “Big Data” Slogan
  ▶ Architecture of large-scale web search systems
  ▶ The Map-Reduce paradigm
  ▶ Introduction to NoSQL databases
  ▶ The Apache ecosystem for web search.

▶ Social Network Analysis:
  ▶ Characterizing of real complex networks
  ▶ Communities, influence, information diffusion

▶ Clustering and Locality Sensitive Hashing

▶ Recommender Systems
Bibliography

- Russell, Matthew, Mining the Social Web: Analyzing Data from Facebook, Twitter, LinkedIn, and Other Social Media Site. O’Reilly, 2011
- ... There’s a whole web out there