Course logistics

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Agenda

Motivation for studying databases

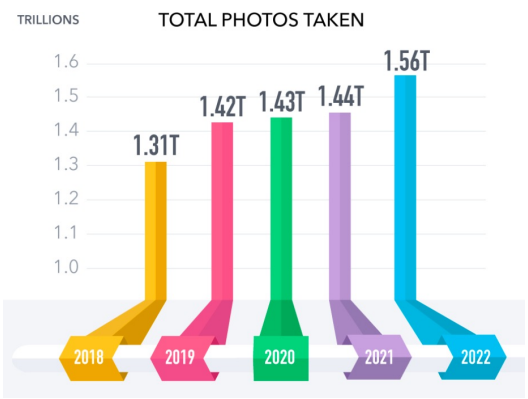
Administrative structure

Course logistics

Overview of lecture coverage

Data growth statistics

40k search queries every second on Google [1]



Total photos taken [2]

Characteristic	Amount per minute
Videos watched by TikTok users	167,000,000
Views received by Facebook Live	44,000,000
Messages sent on iMessage	12,000,000
People shopping online	6,000,000
Google searches conducted	5,700,000
Snapchat messages sent	2,000,000
Hours streamed by YouTube users	694,000
Messages sent on Discord	668,000
Tweets posted by Twitter users	575,000
Hours streamed by Netflix users	452,000
USD spent by Amazon customers	283,000
Photos shared by Facebook users	240,000
Messages sent on Slack	148,000

Media usage in an internet minute as of August 2021 [3]

What this course is (and is not)

Discuss **fundamentals of data management**

- How to design databases, query databases.
- How to debug them when they go wrong!
- Not how to be a DBA or how to tune a database management system.

We'll cover **how database management systems work**

But not **the principles of how to build** them ☹

Faculty

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Communication with faculty

Moodle forum

The goal is to get you to answer each other's questions so you can benefit and learn from each other.

Email

By appointment

Moodle

https://moodle.up.pt/course/view.php?id=4003

Resources

Suggested readings

Forums

Group arrangements

Practical assignments submissions

Exams

Remote classes

Links to remote sessions

	Monday	Tuesday	Wednesday	Thursday	Friday
14h - 14h30					
14h30 - 15h					
15h - 15h30	BDAD (T) (LEIC1-8)			BDAD (T) (LEIC9-16)	
15h30 - 16h	zoom			zoom	
16h - 16h30					
16h30 - 17h	BDAD (T) (LEIC9-16)				
17h - 17h30	zoom				
17h30 - 18h					
18h - 18h30					
18h30 - 19h					
19h - 19h30				BDAD (T) (LEIC1-8)	
19h30 - 20h				zoom	

Links to remote sessions in the *Informação Geral* topic in moodle
shorturl.at/elqMS

Assessment

Project (35%)

- Groups of 3 students
- Minimum grade: 8 out of 20

- Classification can be improved in the following year

Final Exam (65%)

- Max #absences in the lab classes: 25% * #classes
- Minimum grade: 8 out of 20

Class participation

We will be using kahoot!

- Your nickname should be your student id (e.g.: 201503316)

- Always choose a proper nickname

In lectures we will present multiple-choice questions

- Each student submits their answers using an electronic device
- For each student, the best 50% of the answers will be considered

Bonus in the distributed evaluation

Let's see how kahoot! Works: 1st quiz

Project

Groups [October, 31th]

Theme [November, 7th]

- Proposed by the group but has to be approved by the lab class's faculty

1st submission [November, 21th]

- Conceptual model
- 25% of the project grade

2nd submission [December, 12th]

- Relational scheme + DDL + load
- 25% of the project grade

3rd submission [January, 30th]

- DML
- 50% of the project grade

What is expected from you

Attend lectures

If you don't, it's at your own peril

Be active and think critically

Ask questions, post comments on forums

Do the exercises of the practical classes and the project

Start early and be honest

Study for the final exam

Lectures

Data Models

- Relational Databases [CTL]

Database Design

- Unified Modeling Language [CTL]
- Relational Design Theory [MCPF]

Creating Relational Databases [MCPF]

- SQL
- Constraints and Triggers

Querying Relational Databases [CTL]

- Relational algebra
- SQL

Advanced features

- Indexes and Transactions [MCPF]
- Views [MCPF]
- NoSQL systems [CTL]

Lecture Plan in the *Informação Geral* topic in moodle

Main bibliography

Ullman Jeffrey D.; **A First course in database systems**. ISBN: 978-0-13-600-637-4

Raghu Ramakrishnan, Johannes Gehrke; **Database management systems**. ISBN: 0-07-116898-2

References

[1] http://www.internetlivestats.com/google-search-statistics/

[2] https://focus.mylio.com/tech-today/how-many-photos-will-be-taken-in-2020

[3] https://www.statista.com/statistics/195140/new-user-generated-content-uploaded-by-users-per-minute/