Course logistics

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Bases de Dados

Mestrado Integrado em Engenharia Informática e Computação, FEUP

Agenda

Motivation for studying databases

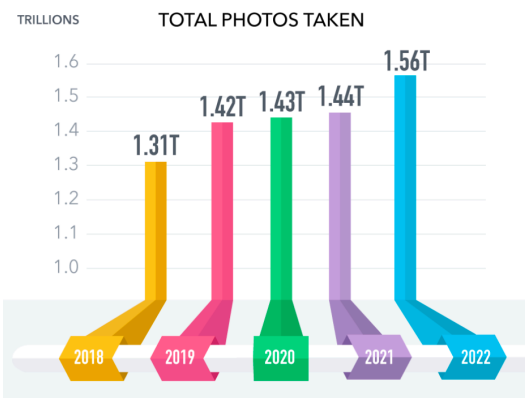
Administrative structure

Course logistics

Overview of lecture coverage

Data growth statistics

40k search queries every second on Google [1]



Total photos taken [2]

	Amount per minute
Messages shared by WhatsApp users	41,666,667
Voice or video calls	1,388,889
Amount spent online by consumers	1,000,000
People engaging with Reddit content	479,452
Hours streamed by Netflix users	404,444
Stories posted by Instagram users	347,222
Amount worth of payments sent by Venmo users	239,196
Participants hosted in Zoom meetings	208,333
Messages shared by Facebook users	150,000
Photos uploaded by Facebook users	147,000
Clicks on business profile ads on Instagram	138,889
Jobs applied to by LinkedIn users	69,444
Users connected by Microsoft Teams	52,083
Packages shipped by Amazon	6,659
Amount spent on mobile apps	3,805
TikTok installs	2,704
Meals ordered by Doordash diners	555
Hours of video uploaded by YouTube users	500
New users signed up to Twitter	319
Tracks added to Spotify's music library	28

Media usage in an internet minute as of August 2020 [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=1513

Resources

Suggested readings

Forums

Group arrangements

Practical assignments submissions

Exams

Remote classes

Links to remote sessions

	Monday	Tuesday		Wednesday	Thursday	Friday	
14h - 14h30	BDAD (T)	BDAD (TP)				BDAD (TP)	BDAD (TP)
14h30 - 15h	zoom	COMP_1461				2MIEIC04	2MIEIC02
15h - 15h30		GFLCG			BDAD (T)	JPAO	CTL
15h30 - 16h		zoom			zoom		zoom
16h - 16h30		BDAD (TP)	BDAD (TP)			BDAD (TP)	BDAD (TP)
16h30 - 17h		2MIEIC03	2MIEIC05			2MIEIC06	2MIEIC01
17h - 17h30		GFLCG	NMCLF			JPAO	CTL
17h30 - 18h		zoom					zoom

Ligações para sessões remotas in the *Informação Geral* topic in moodle
shorturl.at/iGKTU

Assessment

Distributed Assessment (40%)

Collaborative creation of multiple-choice questions (10%)

Project (30%)

Groups of 3 students

Final Exam (60%)

Max #absences in the lab classes: 25% * #classes

Minimum grade: 8 out of 20

% can still be adjusted

Special assessment

Distributed Assessment (30%)

Project (30%)

Groups of 3 students

Minimum grade: 8 out of 20

Classification can be improved in the following year

Final Exam (70%)

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 I 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 [February, 14th]

Theme [February, 24th]

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

1st submission [March, 7th]

- Conceptual model
- 25% of the project grade

2nd submission [April, 11th]

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

3rd submission [May, 23th]

- DML
- 50% of the project grade

Dates can still be adjusted!

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

Database Design

- Unified Modeling Language
- Relational Design Theory

Creating Relational Databases

- SQL
- Constraints and Triggers

Querying Relational Databases

- Relational algebra
- SQL

Advanced features

- Indexes and Transactions
- Views
- Data Warehouses and On-Line Analytical Processing
- NoSQL systems

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/