



ADVANCED DATABASE SYSTEM

Course introduction

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PRELIMINARY TOPICS

- Intro & course overview. How SQL is executed - query plans, anatomy of an index, single-column indices, CBO/RBO, sorting
- Multi-column indices, joins, indexing group by
- GIS/PostGIS
- Recursion in SQL
- Advanced data structures: arrays, JSON, XML
- Fulltext search in SQL. Intro to fulltext, using fulltext in PostgreSQL
- SQL/NoSQL tradeoffs
- Elasticsearch: concepts, text analysis
- Elasticsearch: advanced queries, facets
- Elasticsearch: distributed search, cluster
- In-memory databases, Redis
- Combining databases, Case-study

REQUIREMENTS

- 1 project = 30pt. (+ optional 5pt. bonus)
- lab notes = 20pt. (+ optional 5pt. bonus)
- 25pt. minimum + project and all lab notes submitted and within minimum quality level to be allowed to take an exam
- 50pt. exam

PROJECT

- Roughly:
 - Download publicly available GIS data
 - Build a useful application over that data
 - Cover 1-2 scenarios
 - See past projects for inspiration <https://github.com/fit-pdt/assignment-gis/network/members>
- Start thinking about your project topic now, consult it with your TA

LAB NOTES

- Each lab will consist of one or more mini-assignments
- You must submit solutions or a written report
 - within 2 weeks = no penalisation
 - > 2 weeks = 50% pt. penalisation
- You must submit all lab notes at least 2 weeks after the last lab

DEADLINES

- week 4. - project assignment formulated and approved by TA
- week 10. - project submission deadline
- 2 weeks after last lab - all lab notes submitted

CLASSROOM INVITATION LINKS

- Assignments: <https://classroom.github.com/a/8F8xIaVp>
- Lab Notes: https://classroom.github.com/a/vTT_0OWD
- Labs:
 - <https://github.com/fit-pdt-2019/labs>
- Lectures:
 - <https://github.com/fit-pdt-2019/lectures>