# LBAW Presentation, 23/24 Edition

Databases and Web Applications Laboratory (LBAW)
Bachelor in Informatics Engineering and Computation (L.EIC)

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# Lecture #1 Plan

- Course presentation
  - Topics, materials, evaluation, project, groups, overall dynamics, caveats.
- Requirements specification
  - Actors, user stories, supplementary requirements.

# LBAW Team, 23/24 Edition

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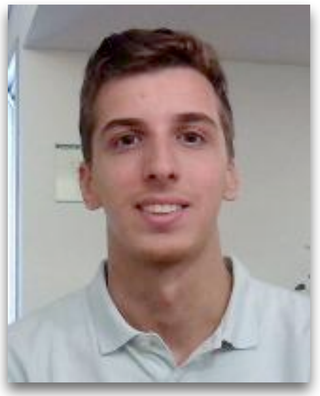


Pedro Moás

# LBAW @ L.EIC

- Third edition of LBAW in the new L.EIC cycle of studies.

- A significant increase in the number of students (again!) (+ 1 class; ~380 students).
- A large teaching teach (~9 teachers).

- Lecture classes organized in shifts (Wednesday morning at 8h30 and at 10h30).
- 8h30 in Portuguese; 10h30 in English.
- 2h lab classes throughout the week (before and after the lecture).

# LBAW Objectives

- Learn how to…
  - design
  - and develop
  - web-based
  - information systems
  - backed by database management systems.
- Build upon the learning outcomes of two previous courses in
  - **databases** (BDAD) and
  - **web languages and technologies** (LTW)

# Databases

- Prior knowledge expected:
  - data modeling, relational model, SQL (construction, querying, management)
- What's new?
  - Client-server model
  - Scale, integration
  - Indices
  - Triggers, Transactions
  - PostgreSQL
  - + Information Retrieval

# Web technologies

- Prior knowledge expected:
  - URL, HTTP, HTML, CSS, JavaScript, PHP
- What's new?
  - Server-side frameworks
  - Client-side libraries
  - Scale, integration
  - Performance
  - Laravel

# Additional learning outcomes

- Structured development of a medium sized project.
- Writing technical documentation to support development.
- Working in teams (4 students per group).
- Docker to support container-based development.

# Evaluation

- Final grade =
  - 80% project grade +
  - 20% individual grade (test)

- Project grade =
  - 10% requirements specification +
  - 25% database specification +
  - 25% web architecture specification +
  - 40% product and presentation

- Individual grades within each group may vary in more or less 3 grade points, depending on the opinion of the professors and on the self- and hetero-evaluation carried out internally.
- The final individual classification cannot exceed in 5 more grade points the classification obtained in the test.

- Minimum grade of 50% in each project component.
- Minimum grade of 40% in the test.

# Working in Groups

- Obtaining approval in the project
  - **requires the participation of each student in all phases of the project,**
  - namely in the selection of technologies, in identifying and characterizing the problem, in designing and implementing the solution, in writing the final report, and in the final presentation.

- **Groups are randomly set up.**
  - A more realistic setting.
  - Contribute to the development of your soft skills.

# Test

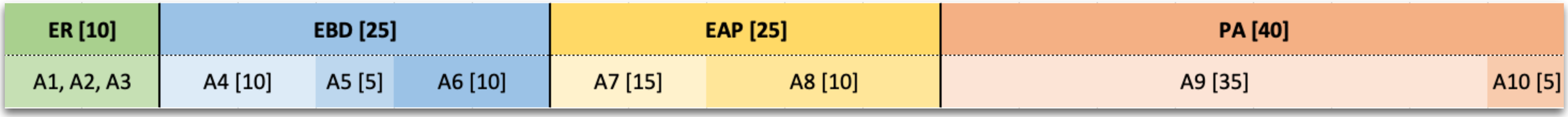
- The individual test is a multiple-choice assessment, organized during the semester (date to be defined).

- Questions address the concepts applied during the semester in the development of the artifacts.

# Project Themes

- The project theme is chosen from a list of proposals.
  - 1. Collaborative News
  - 2. Social Network
  - 3. Online Shop
  - 4. Event Management
  - 5. Collaborative Q&A
  - 6. Online Auctions
  - 7. Project Management
- Each proposal describes a list of functional requirements. Plus, a set of common functional requirements are established for all themes (0. Common Requirements).
- Groups are expect to develop upon the initial list of functional requirements and propose an original project to be developed during the semester. Mandatory requirements contribute to 90% of the project evaluation (18), the remaining 10% (2) are for your ideas and innovation.
- Project themes must be unique per class.

# Components + Artifacts




- **ER: Requirements Specification [10%]**
  - A1: Project presentation [2]
  - A2: Actors and User Stories [4]
  - A3: Information Architecture [4]
- **EBD: Database Specification [25%]**
  - A4: Conceptual Data Model [10]
  - A5: Relational Schema [5]
  - A6: Implemented Database [10] (constraints, indices, transactions)
- **EAP: Application Architecture and Prototype [25%]**
  - A7: Application Architecture [10]
  - A8: Vertical Prototype [15]
- **PA: Product and Presentation [40%]**
  - A9: Product [35]
  - A10: Presentation [5]

# Weekly Workflow

- For each component you will have access to:
  - Artifact descriptions;
  - MediaLibrary examples;
  - GitLab templates;
  - Checklists for Components and Artifacts.

- Development workflow:
  - Collaboratively develop the component using GitLab;
  - Discuss each artifact in lab class together with the checklist filled;
  - Artifacts can be improved until the submission of the components;
  - Export the component to PDF and submit in Moodle (deadline: previous day, before 12h00 - midday).

- *Note that there is a limit to the number of lab classes you can miss (25% / 3 classes).*

# Semester Calendar

- Tentative.
- Changes will be highlighted in the schedule (in Moodle).

| # | Week | Lecture (2 x 2h) (Wednesday) | Lab | Artifact in Focus | Delivery | Notes |
|---|---|---|---|---|---|---|
| 1 | **11 Sep** | LBAW Presentation.<br>Projects and Themes.<br>Requirements Specification. | *No lab classes on first week.* | — | | Indicar restrições pessoais nesta coluna. |
| 2 | **18 Sep** | Information Architecture. | Student groups setup.<br>Project presentation (A1).<br>Actors and user stories (A2). | A1 + A2 | | |
| 3 | **25 Sep** | Conceptual Data Model. | Information Architecture (A3) | A2 + A3 | | |
| 4 | **2 Oct** | Relational Schema.<br>PostgreSQL. | Conceptual Data Model (A4) | A4 | **ER (A1 + A2 + A3)** | Feriado a 5 de Outubro (5a-feira) |
| 5 | **9 Oct** | Database Indexes.<br>Triggers. | Relational Schema (A5) | A5 | | |
| 6 | **16 Oct** | Web Applications Architecture.<br>Web Resources Specification. | Indexes, Triggers and Database (A6) | A6 | | |
| 7 | **23 Oct** | Web Development Frameworks.<br>Laravel. | Web Resources (A7)<br><br>Laravel Setup | A7 | **EBD (A4 + A5 + A6)** | |
| | 30 Oct | *FEUP Week* | *FEUP Week* | | | |
| 8 | **6 Nov** | Prototype. | Vertical Prototype (A8) | A8 | | |
| 9 | **13 Nov** | Server-side Web Technologies. | Vertical Prototype (A8) | A8 | | JPP: WebSummit |
| 10 | **20 Nov** | Client-side Web Technologies. | Vertical Prototype Presentation<br><br>Product (A9) | A9 | **EAP (A7 + A8)** | |
| 11 | **27 Nov** | Web Usability and Accessibility. | Product (A9) | A9 | **Individual Test** | Feriado 1 Dez (6a-feira) |
| 12 | **4 Dec** | Information Retrival. | Product (A9) + Presentation (A10) | A9 + A10 | | Feriado 8 Dez (6a-feira) |
| 13 | **11 Dec** | NOSQL | Final Product Presentation | — | **PA (A9 + A10)** | Same delivery date for all groups.<br><br>Presentation/Interview to teacher in class. |
| | | | ... | | | |
| | **2-5 Jan** | | | | **Public Presentations** | *Exam preparation week.* |

# Materials

- Moodle is the central information hub.
  - For each lecture and lab class, an information page is available
- Moodle is used for:
  - Announcements and discussion (post your questions!)
  - Submission of materials
- Slack:
  - Last minute warnings (rare)
  - In-group communication
- GitLab is used for:
  - Collaborative artifact development
  - Code repository
- Each group has access to a Google Spreadsheet shared with the teachers for recording the checklist evaluation and self-evaluation.

# Monitor Support

- Fábio Sá is the monitor for this edition of LBAW.
- Available in Moodle and Slack, plus a weekly session.
- Help you during the semester, mostly with the technologies we will be using.
- Weekly schedule to be defined.

# Generative AI Survey

- New technologies on the block.
- Understanding and being proficient in these tools is an emerging skill.
- But we also need to have clear expectations to avoid misunderstandings.

- Short survey to understand how it is being used and your perspective on it.

# Generative AI Policy

- Use of Generative AI (ChatGPT, Github Copilot, …) technologies
  - is permitted in specific contexts
  - and with clear acknowledgements.
- Possible uses in the context of LBAW:
  - Brainstorm project ideas
  - Improve text (not write text from scratch)
  - Improve or debug code
  - Generate tests
  - Other? *When in doubt ask in Moodle.*
- In the end, what you submit must be of your authorship.
- If you use these tools, add section to your component reports describing how you have used them, namely the services and prompts used.

# Next steps

- Answer the ‘LBAW Survey' (if you haven't done so).
- Read the project rules.
- Set up a Google U.Porto Account.
- Prepare for the first lab class (only starts next week!):
  - review the topics and identify your preferences;
  - wait for the groups to be set up.
- First delivery in three weeks (October 2nd week) - Requirement Specifications Component.

## Questions or comments?

*Your questions help in understating what needs more attention.*
*What requires more details.*

# Questions

- Grades will be published for each component during the semester?
- Component grades can be improved?
- Can different project themes be proposed?
- Can we use a different technologies?