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Full Stack Developer

Module: Final Project

Requirements

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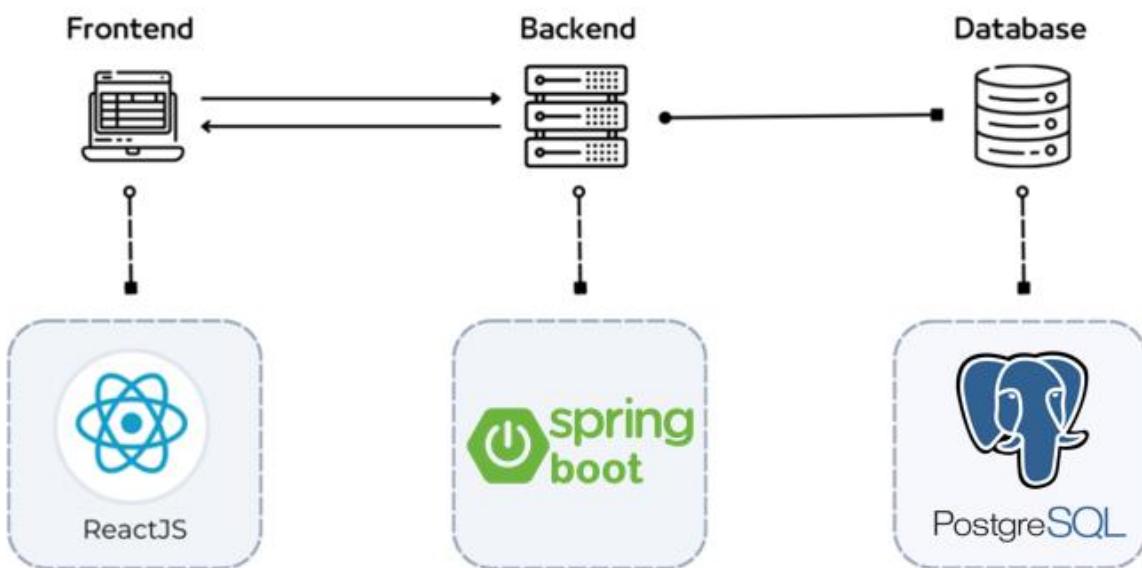
1 Project Overview

Build a full-stack application, demonstrating proficiency in both backend and frontend development, database design, API integration, and deployment.

2 Source Control

- **Use Git for version control**
 - Use branches and git workflow by following best practices
 - Don't remove feature branches after merge (keep old branches)
 - Do several commits in a daily basis
 - Add teacher with "Reporter role" to your project.

3 Technical Requirements



3.1 Backend Development

3.1.1 Core Requirements

- Build RESTful API endpoints using Spring boot
- Implement proper error handling and data validation
- Follow Springboot best practices and conventions



3.1.2 Database Requirements

- PostgreSQL database implementation
- One One-to-Many relationship
- One Many-to-Many relationship



3.1.3 Authentication & Authorization

- Implement user authentication
- Secure password handling (hashed password in db...)
- Role-based access control

3.2 Frontend Development

Frontend with ReactJS

- Build a responsive design web app
- Implement proper state management
- Include form validation



Note: Frontend design should follow best practices on UX Design!

3.3 Optional: External API Integration

- Consume & integrate a **third-party API**,
in order to use and process third-party data.





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4 Project Deliverables

4.1.1 Source Code

- Well-organized (using branches) repository (GitLab or GitHub)
- README.md with setup instructions

4.1.2 Documentation

- Swagger API documentation
- Database schema

5 Project Individual Evaluation Criteria

5.1 Functionality (40%)

- All required features working
- Error handling

5.2 Code Quality (25%)

- Clean, well-organized code
- Proper commenting
- Best practices followed

5.3 Database Design (15%)

- Proper relationships
- Minimal table relationships requirements
- CRUD operations

5.4 User Interface (10%)

- Responsive design
- User experience

5.5 Documentation & Presentation (10%)

- Clarity
- Technical accuracy
- Git branches, commits, workflow

Grade Scale - Mention

- **54-60 points (90-100%):** Excellent
- **48-53 points (80-89%):** Very Good
- **42-47 points (70-79%):** Good
- **36-41 points (60-69%):** Satisfactory
- **Below 36 points (<60%):** Fail



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6 Suggested Project Topics (Examples)

Note: Due to the 5-day timeline, focus on Simplicity. Do not try to build a real-world commercial application. Build a functional prototype that demonstrates CRUD operations and data flow.

Travel Wishlist (Simplified Travel Agency)

- **Scope:** build a "Travel Wishlist" manager.
- **Core Features:**
 - **Admin:** Create "Destinations".
 - **User:** Browse destinations and add them to a "My Wishlist".
- **Optional AI Integration:** A "Suggest Me" button. User enters "Beach, Cheap", and the AI returns a text suggestion of a country.

Event Board (Simplified Event Management)

- **Scope:** A simple bulletin board for company events.
- **Core Features:**
 - **Admin:** Post new events (Date, Title, Location).
 - **User:** Click "Attend" on an event (adds user to the participant list).

Office Gear Rental (Simplified Rental)

- **Scope:** Manage borrowing internal office equipment (laptops, adapters)
- **Core Features:**
 - **Inventory:** List items with a status (Available / Borrowed).
 - **Action:** User clicks "Borrow" -> Item status changes to "Borrowed" and links to that User.

IT Service Desk

- **Scope:** A simple ticketing system for reporting bugs.
- **Core Features:**
 - **User:** Create a Ticket (Subject, Description, Urgency).
 - **Admin:** View list of tickets and change status (Open -> Solved).
- **Optional AI Integration:** "Sentiment Detector." AI analyses the ticket text. If the user sounds angry, it automatically flags the urgency as "High" or a sentiment score.

Custom Topic

- Any other topic is allowed but must be validated by the trainer before starting.



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7 Key dates

- **Tuesday, 20/01 or Wednesday, 21/01/2026:**
 - Progress Review (1-on-1 with Trainer)
- **Thursday, 22/01/2026**
 - Submission Deadline : by end of day
- **Friday, 23/01/2026:**
 - Final Project Assessment (30 mins – By appointment)

8 Submission Instructions

Submit your work by end of **Thursday the 22/01/2026**.

- Ensure Github or Gitlab repository is public OR share with read access to:
 - André Silva (GitHub: **souan**)
 - Nelson Ferreira (GitHub: **nels-ferr**)
- Submit repository link via [email or teams]

9 Questions?

See André Silva (andre.silva@education.lu) or Nelson Ferreira (nelson.ferreira@education.lu) during class hours.

Good luck with your projects!