Copenhagen Business School
Department of Digitalization

Final Exam Project – Applied Programming

Overview

- This exam assesses the candidate's proficiency in developing a full-stack web application using Angular for the front end, C# Web API for the backend, and postgreSQL database for data persistence.
- Candidates will demonstrate their ability to integrate these technologies into a cohesive and functional application.
- The scope of the project is to develop a small application that integrates the front end, backend, and database.
- The application should perform a meaningful task demonstrating CRUD (create, read, update, and delete) operations and user interaction.
- The grading will be based on the learning objectives of the course.
- The accomplishments will be assessed on submitting an application that works as intended, has a clean, maintainable, and well-organized code structure, has a valid database design, and has comprehensive and precise documentation.

Application Modules

Database (postgreSQL)

Objective: Design and implement a simple relational database to store application data.

Requirements:
- Design a database schema with several related tables.
- Implement Primary keys and foreign key constraints to maintain referential integrity.
- Insert at least 10 records in the database to test the application.

Backend (C# Web API)

Objective: Create a RESTful API to handle front-end requests and interact with the database.

Requirements:
- Implement CRUD operations for at least two entities.
- Ensure proper use of HTTP methods (GET, POST, PUT, DELETE).

Frontend (Angular)

Objective: Develop a decent user interface that interacts with the backend API.

Requirements:
- Implement at least four Angular components to manage different UI segments.
- Utilize Angular services to communicate with the backend.
- Implement form and demonstrate two-ways data binding.
- Implement basic validation for the input of form fields.

Submission requirements

- You are required to submit a 10-page written report that showcases the complete process of developing your application.
- The report should include the idea, design, implementation, and testing phases of the application. It should consist of an abstract, introduction, and design choices for the frontend, backend, and database. Additionally, you should include a section on project management and testing. Reflect on your coding and provide at least one example.
- You must submit the complete code (including any SQL code or scripts for the database) from all the projects as a zip file.

Note: There will also be an individual Oral Exam. During the 20-minute Oral Exam, you will defend your project, as well as discuss all the topics covered in the course. You must be prepared to be able to demo the working version of the application during your oral exam.