IZMIR UNIVERSITY OF ECONOMICS

DEPARTMENT OF SOFTWARE ENGINEERING

SE 360 PROJECT REPORT

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**SE 360 Project Report**

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# INTRODUCTION

This project provides a desktop application to ease the process for university lecturers to prepare exams and monitor students' performance.

The application provides tools for creating question banks with specific learning outcomes, generating exams tailored to these outcomes, and tracking students' success in the course material. By automating these tasks, the system saves time and enhances the accuracy and relevance of assessments.

With this application, lecturers can make decisions to improve their teaching strategies and ensure that students achieve the intended learning outcomes.

# TECHNICAL DETAILS

This application was developed using Java Swing for the graphical user interface, providing an interactive environment for users to manage exams and questions.

Data was handled using an SQLite database, which ensures storage and retrieval of exam-related information such as questions, learning outcomes, and exam details, as well as lecturers, students and their grade information. To facilitate updates for different client socket programming is used, enabling synchronization of data to manage and display data dynamically in Swing components.

Data exchange between the server and client utilizes JSON for structured data serialization, ensuring compatibility. Also, the application uses Java’s standard I/O streams for data transfer over sockets. String operations and regular expressions help process text-based data.

# FUNCTIONALITY

In this section, we will go over the core functionalities of the application, which include some panels.

## Login/Sign-Up Panel

This panel provides a user interface logging in and signing up, utilizing Java Swing’s Panel. Initially, the login screen is displayed, where users can enter their username and password to log in. If the inputs match an existing account in database, the user is authenticated, and their name and faculty are saved.

If login fails, an error message prompts to sign up. “Sign Up” button switches to the sign-up screen, where users can create an account by entering a username, password, and selecting a faculty. The system validates the passwords and stores the new account in the database. After successful sign-up, the user is prompted to log in again.

## Right Panel

The left panel includes some elements for managing the user's profile and courses. It shows user information such as name and faculty, along with a list of courses the user is teaching. Additionally, the left panel provides options to add or remove courses, allowing instructors to manage their course list directly.

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