

Brainsprint Project

05/03/2025



E-LEARNING



OVERVIEW

WE WORKED ON ALL PARTS OF THE PROJECT THIS WEEK.



STRUCTURE:

We used a 3-tier architecture to separate data, logic, and presentation, making the project more scalable and easier to maintain.



DATA ACCESS

We created the Data Access layer to separate database operations and keep the code organized and maintainable.



MODELS

We built Models to represent the data we work with, such as users, courses, and course progress.



SERVICES

We implemented the Services layer to handle the business logic and communicate between the Data Access layer and the UI.



UTILITY

We added Utility classes to store shared tools and helper functions used across the project.



UI

We designed the User Interface (UI) to be simple and clear for both students and instructors, with an attractive display of progress.

MODELS:

We designed an Entity-Relationship Diagram (ERD) that includes all the required features and components of the system. After finalizing the ERD, we translated it into data models to be used in the implementation phase.



COURSES SYSTEM

We built a system to manage courses, where students can enroll, watch content, and track their progress.



TRACKS SYSTEM

We added a tracks system to group related courses together, helping students follow a clear learning path.



EXAMS SYSTEM

We implemented an exams system that allows students to take quizzes and get instant feedback on their performance.



LEADERBOARD

We implemented a leaderboard to allow students to track their performance against others, promoting healthy competition and motivation.

IDENTITY:

We implemented an identity system to allow all types of users to register using different methods, such as Google, email, and others.



MULTIPLE REGISTRATION METHODS

We implemented multiple ways for users to register, such as email signup or social login.



USER SETTINGS PAGE

We created a settings page where each user can update their personal information, password, and preferences.



TWO-FACTOR AUTHENTICATION

We added Two-Factor Authentication to improve account security by requiring an extra verification step at login.

REPOSITORIES:

We implemented an identity system to allow all types of users to register using different methods, such as Google, email, and others.



APPLYING SOLID PRINCIPLES

We applied SOLID principles in our repositories to make the code more modular, maintainable, and easy to extend.



REDUCING CODE DUPLICATION

We designed our repositories to avoid repeated code by centralizing common data operations.



CREATING INTERFACES FOR EACH MODEL

We created a dedicated interface for each model to define clear contracts and improve code flexibility and testability.

AREAS:

We divided the user interface (UI) into four types based on user types, with each type having its own dedicated section tailored to its specific needs.



ADMIN AREA

We built the admin area to manage users, courses, tracks, and monitor system activities.



IDENTITY AREA

The identity area handles user registration, login, roles, permissions, and account security features.



CUSTOMER AREA

In the customer area, students can browse courses, enroll, track progress, and take exams.



INSTRUCTOR AREA

We designed the instructor area for course creation, managing enrolled students, and monitoring their progress.



Sama Mohammed

Developer



Abdelwahab shandy

Developer



Abdelrhman gamal

Developer

TEAM

THANK
YOU

*Thank
You*