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IDEAN Neurosciences Education Platform

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Abstract

The objective of this project is the development and integration of the IDEAN Platform, an online educational platform that provides personalized education in Integrative Neuroscience at the secondary and tertiary levels of education, both undergraduate and postgraduate. The platform encompasses a large volume of information related to the aforementioned knowledge domain, with English as the base language. Dissemination of the information is achieved through a variety of cutting-edge online audiovisual media and a range of educational approaches and tools. The aim of the project is to facilitate the learning of these fields using a modern and interactive approach, enabling users to acquire theoretical and practical knowledge in the available areas of study.

1 Introduction

The IDEAN Platform represents a modern and comprehensive e-learning system designed to facilitate the provision of educational content and resources to users. This application has been implemented using Moodle, a popular open source platform for managing the educational process. The configuration of the application has been tailored to adapt to the needs and requirements of the IDEAN Platform.

2 Platform Functionalities

User authentication is based on the rights assigned to each user within the IDEAN Platform. The administrator of the platform has the authority to add or remove users. All users are defined by the administrator, who assigns them appropriate privileges. User registration does not occur through self-registration instead, individuals must be verified by an administrator. Otherwise, they have only guest privileges, allowing them to have a preview of the available courses without access to their content. Types of users include Administrator, Professor, Student & Guest.

Course Organization. The IDEAN Platform offers courses in Neural Networks and Neurosciences. The platform administrator oversees course creation and instructor assignment for new users. These courses

aim to provide in-depth coverage of each chapter, offering ample subject-related material. Additionally, they incorporate interactive elements to engage students effectively. The course material is developed and provided by the assigned instructor. Each course offers video presentations with subtitles and voice-over for accessibility, quizzes based on each chapter, adapted levels based on quiz performance (Beginners, Intermediate, Expert), and live point tracking and grading for student engagement and progress. The ranking of students is visible to all based on their grades. In order to achieve the above, the platform utilizes a vast array of plugins such as: Custom Certificate, Open Forum, Adaptable Theme, Advanced Notifications, Level Up XP – Gamification and Boost Navigation Fumbling.

Forum & Chat. The Open Forum activity facilitates the exchange of ideas between students and instructors by posting comments as part of a "thread." Students access the forum by clicking on the icon and have the ability to create a new discussion topic. Instructors have three additional dots on the right side of the "Enroll" option, allowing them to pin, star, or lock discussions. When responding to a post, instructors can optionally send a Private Reply that is visible only to the specific student. Students cannot reply to this private reply. On the other hand, the Chat feature enables participants to engage in real-time conversations.

3 Platform Design and Architecture

The central platform architecture is entirely based on cloud computing services to ensure platform availability and scalability. This approach allows the platform to dynamically allocate additional resources as needed, ensuring smooth system operation and releasing them when no longer required. This approach offers cost savings, efficient resource management, and scalable flexibility through cloud services, reducing capital expenditure and enabling seamless adaptation to growing needs. Furthermore, no initial hardware purchase is required as the platform utilizes cloud provider services. Also, costs are tied to the resources utilized, enabling effective management of financial resources. Finally, the platform can automatically adapt and scale to meet growing needs.

The main dashboard of the platform (Fig.1) shares similarities with the preview available to regular users. The key differences lie in the accessibility of courses, where students can enter the visible ones, while visitors do not have this capability. Additionally, the platform's forums are visible, allowing students to exchange opinions, seek assistance, and communicate with instructors. Lastly, the live status of other users/students is displayed.

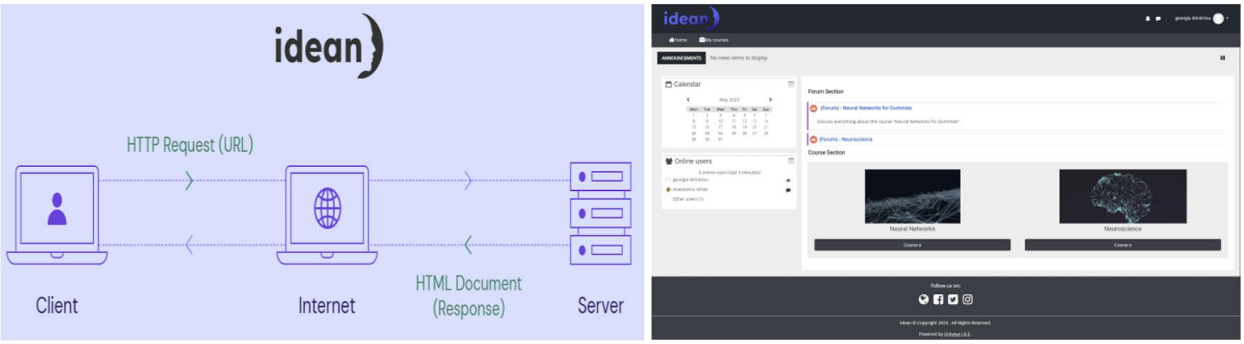

Figure 1. (a) Cloud Architecture, and (b) Application's Interface.

4 Discussion

The IDEAN Platform is an online educational platform that focuses on Integrative Neuroscience education at the secondary and tertiary levels. It offers personalized learning experiences using cutting-edge online audiovisual media and a variety of educational approaches and tools. The platform incorporates gamification to create a modern and interactive learning environment for Integrative Neuroscience education. By including gamification elements such as quizzes, challenges, and rewards, the IDEAN Platform aims to engage learners and enhance their overall learning experience. Its comprehensive range of resources, functionalities, and gamified components work together to facilitate learning and knowledge acquisition in the field of Integrative Neuroscience.

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