INSTITUTO POLITÉCNICO DE BRAGANÇA

# Redesign of the Quizzito administration console

**Faycal Hennani**

Thesis presented to the School of Technology and Management in the scope of the Master in Informatics.

Supervisors:
Prof. Rui Pedro Sanches de Castro Lopes

Bragança
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# Dedication

I dedicate this project to my parents, brothers, and sisters who have always supported me, as well as my UHBC and IPB teachers, and all my friends who helped me with their encouragement—Mr. Rui Pedro, Mr. Abdellah Noui, and also my sweet Sia. Additionally, I extend my gratitude to the final Fujitsu team for their unwavering support throughout this journey. Your contribution has been a guiding light that helped me accomplish this project.

Your support has been instrumental in shaping this project and making it a reality. I am grateful for your presence, and I hope that this project serves as a small token of my gratitude. Thank you for being a constant source of motivation and for sharing this moment with me.

With heartfelt gratitude,
Fayçal.

# Abstract

In the context of the competitive online educational landscape, we sought to deliver a platform that would not only meet but surpass the evolving expectations of users, providing them with a seamless and rewarding learning experience. Our project showcases how innovative design, effective user testing, and the deployment of modern development technologies can transform an educational platform to better serve the needs of its users and facilitate their growth and learning journeys.

Our project aimed to address the challenges faced by the existing educational platform, Quizzito, which seeks to make learning an engaging and rewarding experience. By redesigning the user interface and enhancing the overall user experience, we aspired to not only retain current users but also attract new ones. The development process was carefully guided by the feedback collected during the mock-up phase, ensuring that user expectations were met and exceeded. Using modern technologies like Vue.js for the front end and Laravel for the back end, we streamlined the platform's functionality while also optimizing performance and responsiveness. Data storage, a critical component of any educational platform, was handled efficiently through SQL.

**Keywords:** Educative platform, Quizzito, interface remake

# Resumo

No contexto do competitivo cenário educacional on-line, procuramos fornecer uma plataforma que não apenas atendesse, mas superasse as expectativas em evolução dos usuários, proporcionando-lhes uma experiência de aprendizagem contínua e gratificante. Nosso projeto mostra como o design inovador, os testes de usuário eficazes e a implantação de tecnologias modernas de desenvolvimento podem transformar uma plataforma educacional para melhor atender às necessidades de seus usuários e facilitar seu crescimento e jornadas de aprendizagem.

Nosso projeto teve como objetivo enfrentar os desafios enfrentados pela plataforma educacional existente, Quizzito, que busca tornar o aprendizado uma experiência envolvente e gratificante. Ao redesenhar a interface do usuário e melhorar a experiência geral do usuário, aspiramos não apenas reter os usuários atuais, mas também atrair novos. O processo de desenvolvimento foi cuidadosamente orientado pelo feedback recolhido durante a fase de maquete, garantindo que as expectativas dos utilizadores fossem satisfeitas e superadas. Usando tecnologias modernas como Vue.js para front-end e Laravel para back-end, simplificamos a funcionalidade da plataforma e ao mesmo tempo otimizamos o desempenho e a capacidade de resposta. O armazenamento de dados, um componente crítico de qualquer plataforma educacional, foi gerenciado de forma eficiente por meio de SQL.

**Palavras-chave:** Plataforma educativa, Quizzito, remake de interface.

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# Chapter 1

# Introduction

In a world full of digital distractions, Quizzito Family is proving to be a beacon of educational innovation. It's not just an app, but a holistic platform that promotes your child's cognitive skills and personality development through the enchanting world of books.

At the heart of Quizzito Family is an extensive library with an impressive collection of over 7000 books, carefully selected to cover different areas of knowledge. From the fascinating stories of history to the exploration of ethics, from insights into different professions to the promotion of core values, and from captivating stories that foster imagination to those that boost self-confidence and general culture, – Quizzito Family covers it all.

What really sets Quizzito apart is its commitment to quality content. Every book, every word is hand-picked and reviewed by experienced teachers and reading experts to ensure that your child's learning experience isn't only engaging, but also scientifically sound.

The library is a treasure trove of books and videos that make learning a multi-sensory experience. Quizzito Family crosses language barriers and offers content in three major languages: Arabic, English, and French. This linguistic diversity broadens your child's horizons and makes learning accessible and inclusive.

Now, the question you may be asking yourself, "Is my child the right age for Quizzito Family?" The answer is pretty broad – the programme targets young people ages 5 to 14, covering a wide range of developmental stages. Whether your child is just starting to read or is already well versed in literature, Quizzito Family adapts to provide appropriate content and challenges. But here's where Quizzito Family really shines – personalization. When you set up your child's profile, you answer five simple questions about their age, interests, and behavior. This seemingly small step opens up a world of customized learning. Quizzito Family puts together a unique program based on your child's individual needs and developmental milestones, ensuring that learning isn't only productive, but fun.

Quizzito Family isn't limited to reading, however. After each book, the child can embark on an exciting journey through quizzes. These quizzes serve a dual purpose: they strengthen memory and allow parents to check their child's understanding. It's a tool that bridges the gap between reading and comprehension.

Parents also play an active role in this educational journey. Quizzito Family provides valuable information on how to instill a love of reading in today's digital-savvy children. It's a resource that enables parents to foster a lifelong reading habit. To add an element of fun and motivation, Quizzito Family introduces "family rewards" Parents can motivate their children by offering rewards – such as a piece of chocolate or other small treat – in exchange for engaged reading and successful quizzes. This playful approach ensures that learning becomes an exciting adventure.

But there's a delightful change of pace for young learners. Quizzito Family rewards kids, too! They have the chance to win up to five great rewards delivered right to their door. These surprises are a tangible testament to their achievements and reinforce the joy of learning.

Quizzito Family isn't just an app, but a gateway to knowledge, growth and endless possibilities. It's a platform where reading becomes an adventure, learning is personalized, and success is celebrated. Start your child's journey with Quizzito Family today and watch them become a lifelong learner [1].

The decision to embark on this project and establish contact with the owner of the platform was driven by a strategic alignment of objectives. Initially, my pursuit of internship opportunities stemmed from the belief that hands-on experience within a professional setting would greatly contribute to my professional development. During this quest, I discussed my aspirations with my father, who coincidentally had a connection with the owner of Quizzito through a mutual acquaintance. Subsequent conversations with the owner revealed a shared vision, wherein I would undertake the redesign of Quizzito, a venture that promised mutual benefits. As part of this collaboration, I would receive guidance from the owner's team to ensure the success of the redesign. Subsequently, I presented this collaborative initiative to my supervisor, who endorsed and welcomed the proposal, laying the foundation for a collaborative and mutually beneficial project.

# Chapter 2

# State of the art

In this chapter, the state of the art is presented in relation to three different topics that will support the development of the web dashboard for the management of a quizzes platform. Section 2.1 presents some recent platforms on quizzes and educative websites for children. Section 2.2 presents the four most commonly used front-end frameworks and describes each of them in terms of main goals, data binding, and business applicability. Section 2.3 shows the five most popular back-end frameworks according to GitHub and Stack Overflow ratings and a small description about each of them. Given the presented frameworks, Section 2.4 deals with the definition of the development tools and technologies. Therefore, the database, front-end framework and back-end framework for developing the web application have been defined, namely MySQL, vue.js 6 and laravel.

## 2.1 Quizzes and educative websites and platforms

Educational games have a rich history that dates back centuries, and they have evolved significantly with the advancement of technology. Here is an overview of the history of educational games, along with references to websites and resources for further exploration:

### 2.1.1 Ancient Educational Games

Ancient educational games are games, puzzles, and activities that were employed in ancient societies to facilitate learning, skill development, and cultural transmission. These games were designed to engage participants in a playful and interactive manner while conveying specific lessons or fostering cognitive, physical, or social development. They were often used as a pedagogical tool to educate individuals, particularly children, in various aspects of life, including mathematics, strategy, morality, and social norms [2].

Examples of ancient educational games include board games like Senet in ancient Egypt, which was not only a form of recreation but also incorporated religious and moral themes. Such games were instrumental in teaching players about the afterlife and ethical conduct. Similarly, the ancient Chinese game of Go served as a strategic and philosophical pursuit, promoting critical thinking and abstract reasoning [2].

These ancient games were part of a broader cultural tradition that valued learning through play and interaction. They reflect the historical context and societal values of their time while showcasing the enduring human desire to combine education with entertainment.

### 2.1.2 Early Educational Board Games

Early educational board games are tabletop games that were developed, primarily during the 18th and 19th centuries and later, to serve as tools for teaching and learning. These games incorporated educational content, such as mathematics, geography, history, language, or moral values, into their gameplay mechanics. They were intended to promote cognitive development, enhance knowledge, and impart specific skills to players, particularly children. Educational Content: These games featured educational content aligned with specific subject areas or learning objectives. For example, games like “The Game of the Goose” included historical and moral lessons, while others focused on mathematics or geography [3].

- Interactive Learning: Early educational board games emphasized interactive learning through gameplay. Players were required to answer questions, solve problems, or make decisions based on their knowledge of the subject matter.

- Entertainment Value: While education was a primary goal, these games were designed to be entertaining and engaging, making learning enjoyable for players [3].

- Age-Appropriate: Many of these games were targeted at children, with content and complexity tailored to the age group they were intended for [3].

- Physical Components: Early educational board games typically included physical game boards, cards, dice, and playing pieces to facilitate gameplay[3].

Notable examples of early educational board games include “The Game of the Goose,” “Chutes and Ladders” (originally known as “Snakes and Ladders”), and “Spell-O-Matic,” each focusing on different aspects of education and learning. These early educational board games represent a historical approach to combining fun and learning, and they laid the foundation for the development of modern educational games and interactive learning tools.

### 2.1.3 Emergence of Educational Software

The emergence of educational software represents the development, proliferation, and integration of digital technology into the field of education. Educational software encompasses a diverse array of computer programs, apps, and digital resources that are intentionally designed to support and enhance the teaching and learning processes. This software is created to provide educational content, engage learners, and promote effective instruction [4].

Key characteristics of the emergence of educational software include:

- Digital Learning Resources: Educational software includes a variety of digital learning materials, such as interactive tutorials, simulations, multimedia presentations, e-books, and online courses.

- Customization and Adaptation: Many educational software applications offer personalized and adaptive learning experiences, tailoring content and difficulty levels to individual learner needs and abilities.

- Engagement and Interactivity: Educational software often incorporates interactive elements, such as quizzes, games, and simulations, to engage learners and promote active participation.

- Accessibility: Digital educational resources are accessible on various devices, including computers, tablets, and smartphones, allowing learners to access educational content anytime and anywhere.

- Data and Analytics: Educational software frequently provides data analytics and assessment tools, enabling educators to track learner progress, identify areas for improvement, and make data-informed decisions.

- Multimedia and Rich Content: Modern educational software leverages multimedia elements, such as videos, animations, and graphics, to enhance the presentation of educational concepts.

- Subject and Age Diversity: Educational software covers a broad spectrum of subjects, from mathematics and science to languages and the humanities, and is suitable for learners of different ages, from preschoolers to adults.

The emergence of educational software has transformed traditional educational approaches by offering flexible and dynamic learning opportunities. It has expanded access to education, promoted individualized learning paths, and provided educators with valuable tools to facilitate instruction and assess student performance. This evolution continues to shape the field of education, with ongoing developments in technology, pedagogy, and digital resources.

### 2.1.4 Rise of Educational Websites and Apps

The rise of educational websites and apps signifies the widespread adoption and utilization of digital technology to facilitate and enhance learning. These digital platforms and applications are developed with the primary aim of delivering educational content, fostering skill development, and providing interactive learning experiences through web browsers or mobile devices [4].

The following examples represent emergence of educational softwares:

- FunBrain: Founded in 1997, FunBrain offers a variety of educational games and activities for children [5].
- ABCmouse: Launched in 2010, ABCmouse is an interactive learning platform for children ages 2-8 [6].
- PBS Kids: PBS Kids provides educational games and videos for children [7].

The rise of educational websites and apps has transformed the way people access, consume, and engage with educational content. It has democratized education by providing flexible, on-demand learning opportunities and has empowered learners to take control of their educational journeys. This trend continues to evolve with ongoing advancements in technology, the development of new learning tools, and the integration of digital resources into traditional educational settings.

### 2.1.5 Modern Educational Game Platforms

Modern educational game platforms are online or software-based ecosystems that offer a collection of educational games, simulations, and interactive activities designed to support learning and skill development. These platforms combine the engaging elements of video games with educational content, making learning more enjoyable and effective. The following examples represent some Modern Educational Game Platforms:

- Kahoot!: Kahoot! is a popular platform for creating and playing educational quizzes and games in classrooms and online [8].

- Prodigy is an online math game that adapts to students' skill levels [7].
- Duolingo is a language-learning platform that gamifies the process of learning new languages [9].

Modern educational game platforms are used in various educational settings, including schools, homeschooling environments, and informal learning contexts. They serve as valuable tools for reinforcing classroom lessons, providing additional practice, and fostering a love of learning. These platforms continue to evolve with advancements in technology and pedagogical research, enhancing their effectiveness as educational resources.

### 2.1.6 Alternative Platforms

After some research we found several platforms that follow the same concept but in a different way for example we have the following platforms:

- Raz-Kids: Raz-Kids is an acclaimed educational tool providing a rich collection of leveled reading materials for students. With a diverse range of eBooks spanning 29 reading difficulty levels, tailored content is easily accessible for every student. Through an interactive learning portal, children engage with their leveled texts, available online and on mobile devices, allowing them to listen, read independently, and record their readings. Subsequently, students take eQuizzes, assessing comprehension and guiding future instructional needs. Upon completing ten or more leveled eBooks with corresponding eQuizzes, students progress to the next reading level, gaining access to more challenging texts [10].
- Scholastic BookFlix : Scholastic BookFlix is an online literacy resource designed for young readers. Owned by Scholastic Inc., a renowned publishing and education company, BookFlix was created to promote reading comprehension and engagement in children. The platform pairs classic fictional storybooks with related nonfiction eBooks to create a dynamic and interactive reading experience. Each pair includes an animated book and an informative nonfiction eBook, accompanied by educational

games and activities. This multimedia approach is designed to enhance literacy skills and foster a love for reading in children [11].

- Book Adventure : Book Adventure is an online reading motivation program designed to foster independent reading among children. The platform offers a variety of features, including reading quizzes that allow children to test their comprehension after completing a book. Through these quizzes, children earn points that can be used to redeem prizes or incentives, creating a rewarding reading experience. The platform also provides a searchable database of books, enabling children to find titles that match their interests and reading levels. Additionally, Book Adventure may include educational games and activities related to literacy. Parents and teachers can access resources for progress tracking and reporting, contributing to a comprehensive reading support system. It's advisable to check the official Book Adventure website for the most up-to-date information on its offerings [12].

All these platforms share a common goal, which is to educate children, but the distinction lies in their approaches to education, encompassing aspects such as design and interactive features. What sets Quizzito apart from others is its targeted focus on the Arabic market, particularly the Algerian market, while also offering content in multiple languages, including French and English. This strategic differentiation caters to a specific linguistic and cultural audience, aligning Quizzito with the educational needs and preferences of the Arab-speaking population, thereby contributing to its unique value proposition in the educational technology landscape.

## 2.2 Front-end frameworks

Front-end development revolves around crafting the user interface, the part of a website or application that users directly interact with. Its primary aim is to build engaging and visually appealing elements using an array of programming languages, frameworks, and design tools. Proficiency in HTML, CSS, and JavaScript is essential for creating a user-friendly web experience [13].

HTML serves as the foundation, defining the structure and content of web pages. With HTML, you can introduce various elements like buttons, links, images, and more to your webpage. CSS steps in to add style and color, elevating the aesthetics of your site. HTML and CSS collaborate to finesse the appearance of elements, ensuring an attractive website [13].

JavaScript, a versatile language, plays a pivotal role by enabling the development of interactive features. It empowers you to implement animations, dynamic content updates, and form validation, enhancing user engagement and functionality. In summary, front-end development brings together these key technologies to shape the look, feel, and interactivity of a website, ultimately delivering a seamless user experience [13].

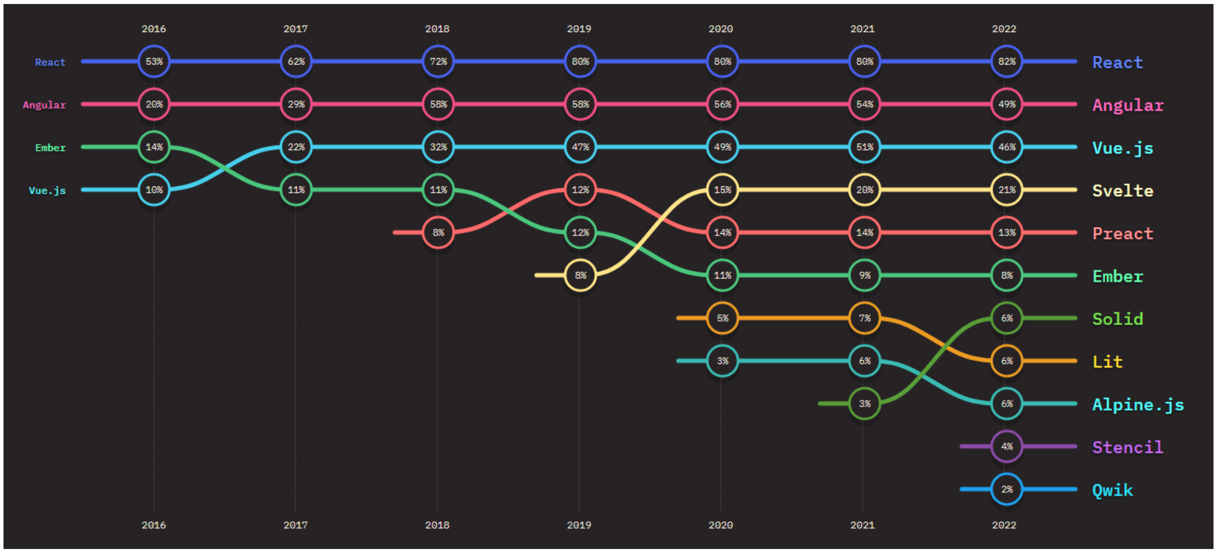


Figure 2.1: Front-end frameworks [14].

Front-end web development is constantly evolving, driven by a desire for better user experiences and increased functionality. Some of the latest technologies in use in our-days is Java Script frameworks React, Angular and Vue see the figure 2.1.

### Angular

Web development has undergone a paradigm change because to the new open-source framework and platform known as Angular. This powerful toolkit, designed with care and powered by TypeScript, is the creation of Google. Although it started out as the beloved AngularJS's replacement, it quickly established itself as a stand-alone entity [15]. Angular ushers in a new age of web development, distinguished by its break from backward compatibility and its obvious update route from AngularJS to Angular 2. The MIT license, which emphasizes accessibility and cooperation, underpins its capabilities [15]. The figure 2.2 represent the architecture of angular to better understand the previous explanation:

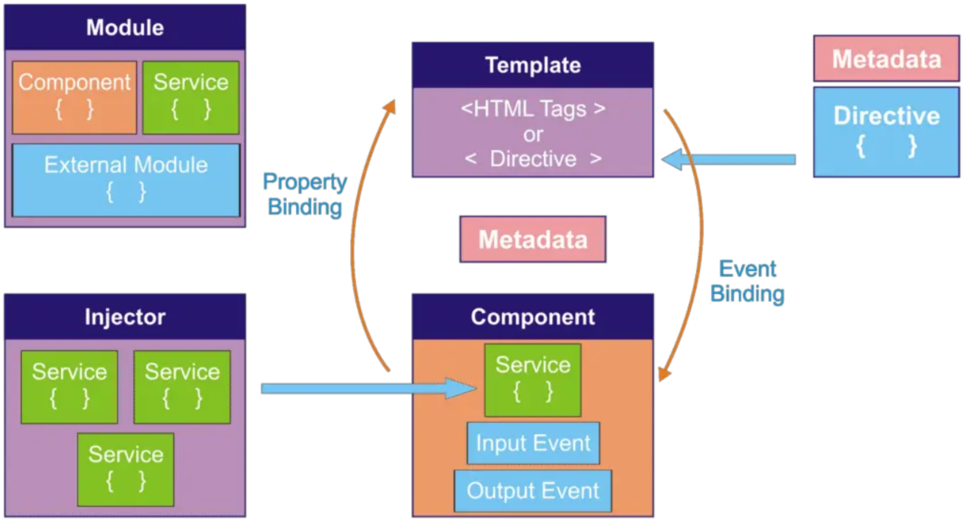


Figure 2.2: Angular Architecture [16].

In essence, Angular gives programmers a blank canvas to paint masterpieces on. A solid, stable, and scalable Single Page Application may be created using this framework, which is more than simply a framework. It introduces structure and consistency, enabling programmers to gracefully handle the complexity of complicated programs [15].

The benefits of Angular are clear. It offers a standardized framework, guaranteeing a seamless and cooperative workflow. Developers may confidently take on the difficulties of creating vast apps thanks to this well-defined strategy. The base of Angular is where innovation thrives and user experiences go above and beyond expectations [15].

### React

One of the most powerful open-source JavaScript frameworks and libraries is React.js, which was created by Facebook. 's objective? help accelerate your web development process and enable you to create elegant, effective user interfaces and online apps while writing a lot less code than you would in raw JavaScript [17].

Reusable components, which might be compared to the adaptable Lego bricks of the digital world, are the groundbreaking idea at the core of React. Each of these elements is a portion of the larger picture that makes up the user interface of your program, standing alone as independent building blocks [17]. The figure 2.3 represent the architecture of react.js:

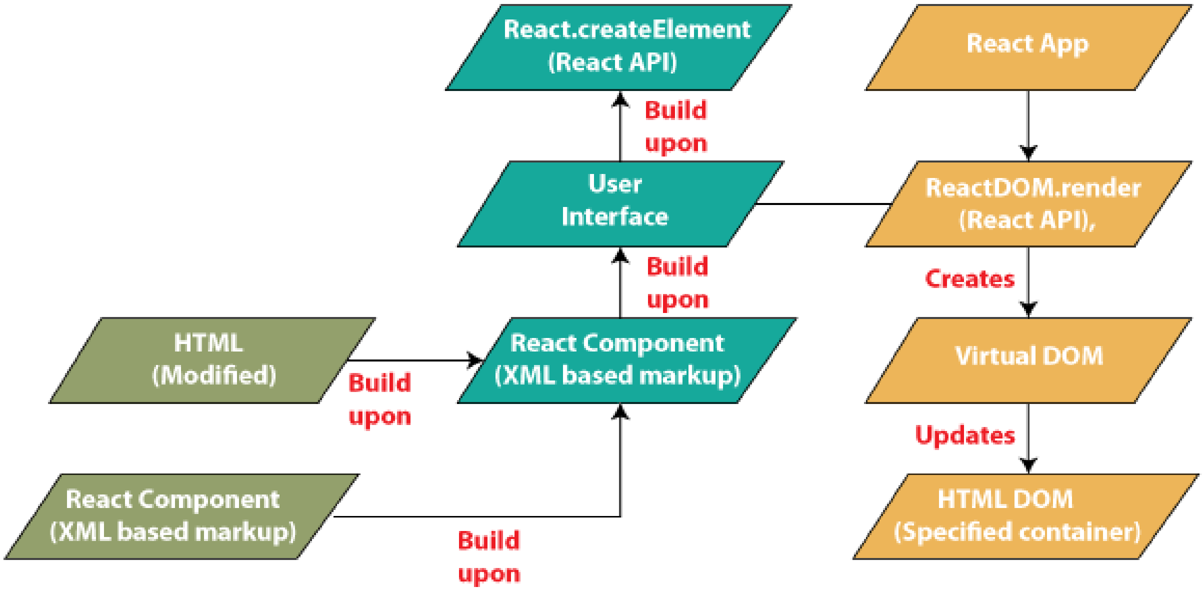


Figure 2.3: ReactJS Architecture [18].

The core function of React in an application is analogous to the model-view-controller (MVC) architecture's "V." It takes the initiative to manage the view layer, assuring the best rendering performance. React encourages developers to break down big UIs into manageable, reusable components rather of tackling them as a single monolithic object, as this is the basic basis for creating amazing user experiences [17].

In this way, the React.js framework combines JavaScript's lightning-fast performance and efficiency with a more simplified method of working with the Document Object Model (DOM) [18]. The outcome? The ability to build dynamic, responsive online apps that fascinate users and improve your programming skills, together with lightning-fast web page rendering [17].

### Vue.js

Vue.js is a JavaScript library that specializes in the ViewModel (VM) layer of the MVVM (Model-View-ViewModel) architectural pattern (Figure 2.4). Its primary purpose is to facilitate the development of interactive and responsive web interfaces. Vue.js accomplishes this by establishing a strong connection between the View (the user interface) and the Model (the data) through two-way data binding. This means that changes in the Model are automatically reflected in the View and vice versa, creating a dynamic and synchronized user experience [19].

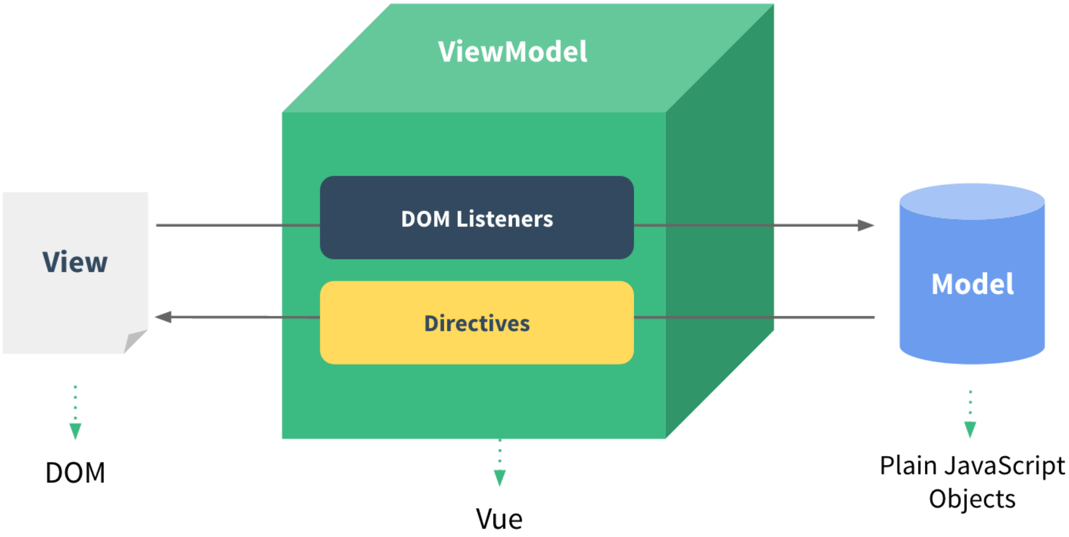


Figure 2.4: VueJS Architecture [19].

VueJS abstracts away the difficulties of output formatting and the subtleties of direct manipulation of the Document Object Model (DOM) to enable this seamless interaction. Instead, it uses filters and directives to manage these activities. While filters are used to structure output, directives are unique HTML markers that instruct Vue.js to change a DOM element's style or behavior. Vue.js was created with simplicity and adaptability in mind from a design standpoint. Instead of acting as a full-fledged framework, it serves as a thin view layer. This implies that you have the option of using Vue.js alone for quick prototyping and small projects or integrating it smoothly with other libraries and technologies to build a front-end stack that is unique to your needs [19]. Vue.js is a perfect fit for services like Firebase since it works well in situations where there is no backend server to conduct data processing. It provides a clear and uncomplicated API that draws inspiration from a number of different frameworks and libraries, such as AngularJS, KnockoutJS, Ractive.js, and Rivets.js. But Vue.js stands out by achieving a balance between simplicity and capability, making it a desirable choice for developers looking for a quick and sophisticated way to create contemporary online apps [19].

It is advised to investigate Vue.js's particular implementation even if you are already familiar with concepts like data binding and view components from other contexts because it could provide new perspectives and insights into modern web development techniques [19].

## 2.3 Back-end frameworks

The back-end is the unseen engine that drives everything in web development, ensuring that everything runs smoothly. Web applications are functional, data is saved and retrieved, and user requests are effectively handled thanks to the magic that happens in the background. In order to offer the functionality and data access required to enable front-end interfaces and user experiences, back-end development entails creating server-side logic, databases, and APIs. The back-end essentially acts as the web's engine see the image 2.5, taking care of operations like server-side calculations, data management, and authentication. The unsung hero is the one who is essential to making web applications work.

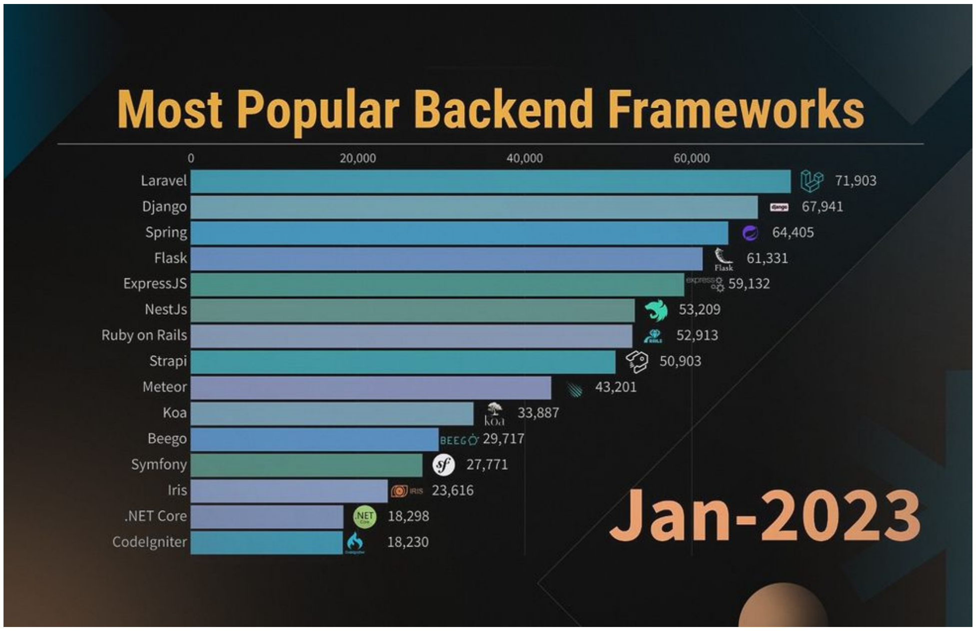


Figure 2.5: The most popular Backend framworks in 2023.
[20]

For the next titles i am going to talk about some of frameworks mentioned in the previous figure [20] , the most popular ones:

### 2.3.1 Laravel

Laravel is a revolutionary MVC (Model-View-Controller) architecture-based PHP web framework that is free and open-source see the figure 2.6. Web development now has a whole new level of power, effectiveness, and simplicity thanks to Laravel [21].

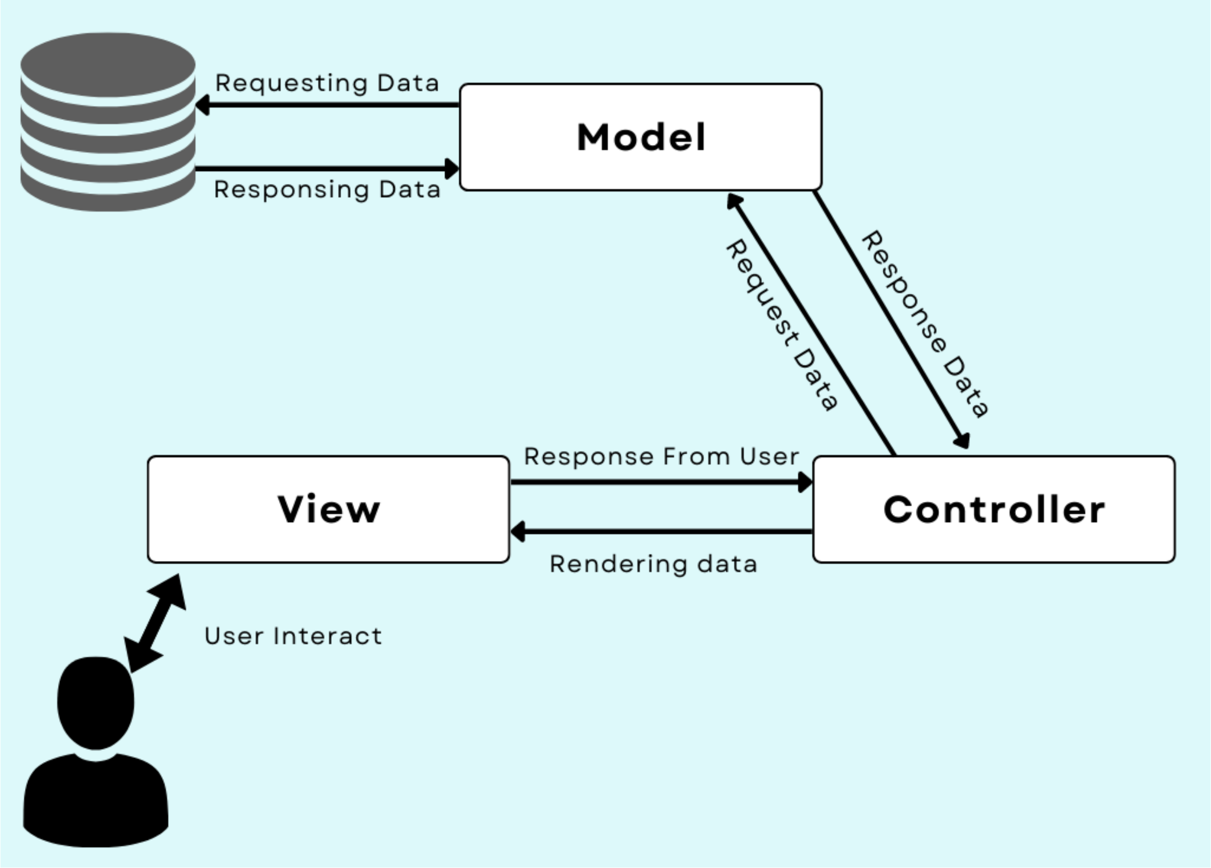


Figure 2.6: Laravel architecture.
[21]

A framework like Laravel, at its core, offers structure and a reliable foundation for developing online applications. Through its dependency management system, it offers a wide range of potent capabilities while providing an amazing development experience [21].

You should always use Laravel when creating complex web apps. Its ability to improve web application security is one of its distinguishing features, making it a solid option for delicate projects. The scalability of this framework is limitless, and it has a flourishing international development and enthusiast community [21].

### 2.3.2 Django

A robust open-source web application framework called Django makes web development a quick and easy process. It was created in Python and has a clear, practical design that speeds up the creation process. Django, developed by seasoned developers, automates tedious procedures so you can concentrate on creating amazing online apps rather than inventing the wheel [22]. Django was developed in 2003 as a result of online development efforts at the Lawrence Journal-World newspaper. It was created as a way to extract and reuse common code and design patterns from several websites. A flexible web development framework known as "Django" was created from this group effort and released as open source in 2005. Notably, the newspaper atmosphere in which Django was born established a dedication to careful documentation, ensuring that developers have access to a multitude of well-written materials see the image 2.7. With its broad range of possibilities, the Django framework attracts a loyal following that regularly contributes outside code to increase its functionality. Djangopackages.org offers a wealth of options, whether you're looking for authentication, content management, e-commerce solutions, or seamless connections with services like Stripe [22].

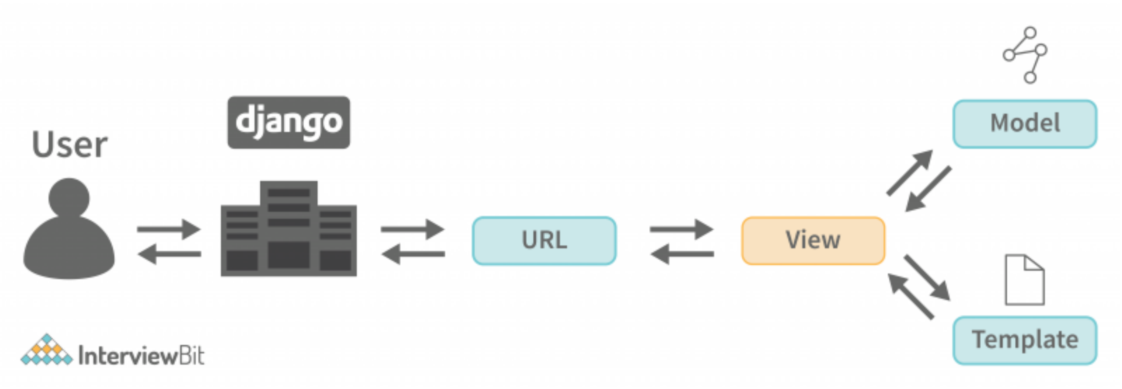


Figure 2.7: Django architecture.
[22]

Although Django is a foundational tool for online development, its use goes beyond typical web applications. It is a crucial tool for creating dynamic blogging systems, scalable e-commerce websites, and many other things. We'll go into the foundations of Django in this tutorial, covering installation, use, and setting up your development environment [22].

### 2.3.3 Flask

A compact yet reliable micro web framework for Python is called Flask. It's intended to make web development easy and adaptable, enabling web application developers to work fast and effectively. Flask is compatible with a range of web servers and platforms since it adheres to the WSGI (Web Server Gateway Interface) standard see the image 2.8. The basic approach of Flask distinguishes it from competing frameworks by allowing programmers to select the tools and libraries that best suit their needs [23].

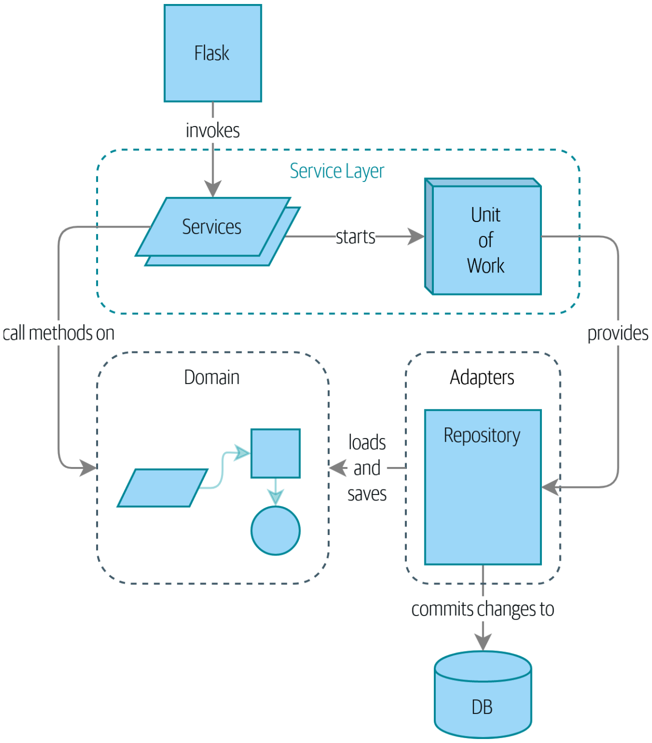


Figure 2.8: Django architecture.
[24]

One of Flask's distinguishing qualities is its simplicity. Developers may quickly get up and running using Flask with very little setup and boilerplate code. It offers crucial elements like URL routing, request processing, and template rendering, letting you to concentrate on your web application's core functionality. Additionally, Flask's modular design encourages the usage of libraries and extensions, allowing you to add capabilities as necessary while still maintaining a slim and effective application [23]. Flask is incredibly extendable while using a simple approach. Its vibrant community has created a broad range of “Flask extensions,” or plugins and extensions, to expand its functionalities. To speed up your development process, Flask extensions are available for a variety of needs, including authentication, database integration, RESTful APIs, and connection with other services [23].

## 2.4 Technologies in use

In the realm of web development, the choice of technologies can significantly impact the outcome of a project. In this endeavor, we’ve strategically harnessed the power of Laravel as our backend tool and Vue.js as our frontend tool, complemented by MySQL as our database. This trio forms a formidable combination that empowers us to create a web application that not only meets but exceeds expectations.

Laravel, our trusted backend tool, is renowned for its robustness and versatility. It provides a solid foundation for our application by handling complex server-side operations with finesse. With Laravel, we can effortlessly manage authentication, routing, and API integration, streamlining the development process and ensuring the utmost security for our users. Its elegant syntax and comprehensive ecosystem of packages and extensions give us the tools we need to build a powerful backend that’s both scalable and maintainable.

On the frontend, Vue.js takes center stage. This progressive JavaScript framework empowers us to craft stunning user interfaces that are not only visually appealing but also highly interactive and responsive. Vue.js excels at building single-page applications (SPAs) and enhancing the overall user experience. Its component-based architecture allows us to create reusable UI elements, ensuring consistency and efficiency throughout our application. With Vue.js, we can seamlessly manage state, handle user interactions, and provide real-time updates, all while maintaining a clean and organized codebase.

In the heart of our data management strategy lies MySQL, a battle-tested relational database system. Its reliability and performance capabilities make it the perfect choice for storing and organizing our data. MySQL’s ability to handle complex queries, ensure data integrity, and scale with our application's growth ensures that we have a solid foundation for our data-driven features. Whether it's managing user profiles, handling transactions, or powering content management systems, MySQL proves itself as a reliable and efficient database solution.

Together, Laravel, Vue.js, and MySQL form a powerful combination that allows us to build a web application that stands out in terms of functionality, user experience, and performance. This technology stack enables us to tackle a wide range of tasks, from user authentication and data storage to dynamic frontend interactions and real-time updates.

By choosing this stack, we've positioned ourselves to deliver a web application that not only meets the demands of modern web development but also exceeds them. With Laravel handling the backend intricacies, Vue.js enhancing the frontend interactivity, and MySQL ensuring data reliability, we're equipped to create a web application that's not just functional but also a joy to use.

In summary, our selection of Laravel, Vue.js, and MySQL is a testament to our commitment to delivering a web application that's both powerful and user-friendly, setting the stage for an exceptional online experience.

# Chapter 3

# Conception

This chapter is divided in four parts. Section 3.1 the technical part of the old website and the architecture based on 3.2 exposes the development methodology adopted. Section 3.3 presents the requirements analysis, use case diagrams and class diagram. Finally, Section 3.4 some figma mock-ups design.

## 3.1 Quizzito architecture

### 3.1.1 Platform Structure

Quizzito comprehensive system encompasses a wide array of components and integrations that work harmoniously to provide a seamless and efficient experience. The figure 3.1 an overview of quizzito setup:

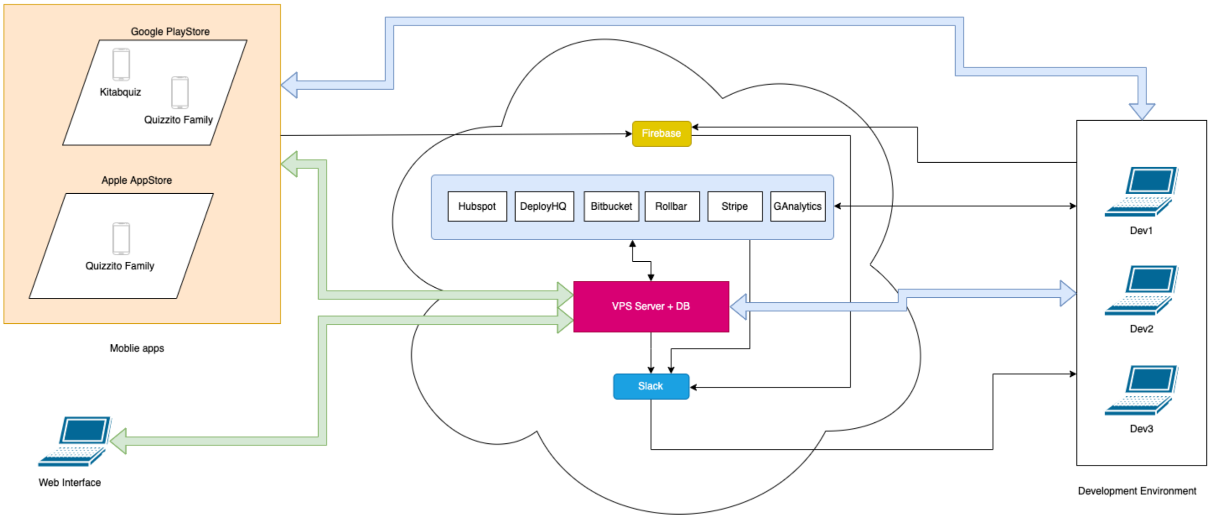


Figure 3.1: Quizzito platform structure.

### Server + Database + Web Interface

At the core of our system lies a robust combination of a server, a database, and a web interface. These essential elements are hosted on an Infomaniak Virtual Private Server (VPS), ensuring reliability and performance.

### Mobile Apps

They developed two dynamic mobile applications to cater to different needs:

1. **Kitabquiz (Animation):** You can find Kitabquiz on the Google Play Store. This engaging app offers interactive animation and is designed to captivate and educate users.

2. **Quizzito Family:** This versatile app is available on both the PlayStore and AppStore, making it accessible to a broad audience. Quizzito Family is packed with educational content, making it a valuable resource for users across platforms.

### Server-Side Integrations:

To streamline server deployments and enhance error tracking, they integrated several powerful tools:

1. **DeployHQ:** This integration simplifies server deployments, ensuring that updates are executed seamlessly and efficiently.
2. **Rollbar:** For robust error tracking, we rely on Rollbar. It helps us identify and resolve issues promptly, ensuring a smooth user experience.
3. **Stripe:** For secure online payments, we've integrated Stripe, a trusted platform that guarantees the safety of financial transactions.
4. **Google Analytics:** To keep a close eye on key metrics, we employ Google Analytics. This tool provides valuable insights into user behavior and engagement.

**Mobile App Integrations:**
their mobile apps are equipped with the following integrations:

- **Firebase:** This powerful tool is utilized for analytics and error tracking within the mobile apps. It enables us to monitor user interactions and promptly address any issues that may arise.

**Global Integrations:**
To foster effective communication and collaboration, they incorporated global integrations:

- **Slack:** quizzito team relies on Slack for real-time notifications. Whether notifications stem from the server, apps, or other integrations, Slack keeps everyone in the loop, ensuring efficient communication and teamwork.

In summary, quizzito system is a sophisticated ecosystem that combines server, database, web, and mobile app components, all seamlessly hosted on Infomaniak's VPS. The inclusion of various integrations, both server-side and mobile, bolsters the system's performance, tracking, and functionality. Additionally, Slack serves as the central hub for team communication, making sure that everyone is well-informed and in sync, no matter where notifications originate. This intricate and well-balanced setup is at the heart of our dynamic platform.

### 3.1.2 Server Structure

Our Virtual Private Server (VPS) is divided into two distinct sections, each sharing a similar structure but featuring its unique domain name see the figure 3.2:

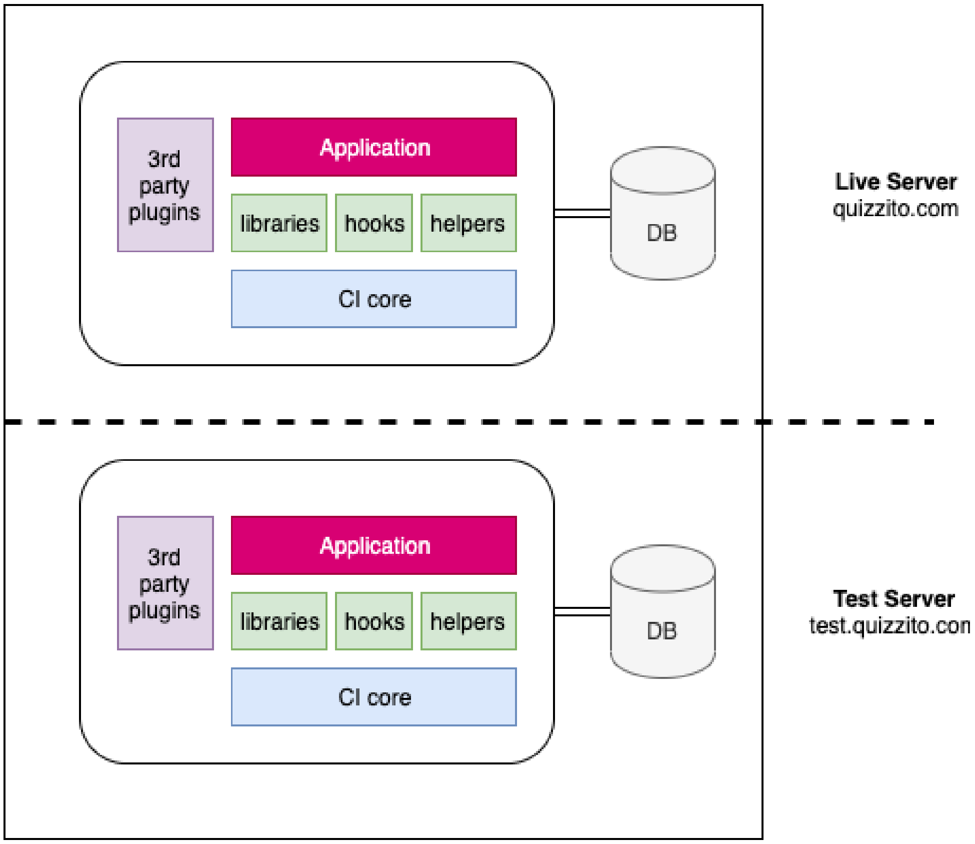


Figure 3.2: Quizzito server structure.

- **Live Server:** This segment is dedicated to the production environment, catering to our real clients and users, delivering a live and operational experience.

- **Test Server:** In contrast, the test server serves as a controlled environment for testing and conducting pre-deployment assessments, ensuring that all updates and changes meet our standards before reaching the live server.

Their choice of PHP framework is CodeIgniter, and we've enhanced its capabilities by incorporating personalized libraries, hooks, and helpers on top of its core functionality. This customization enables us to tailor our application precisely to our requirements.

For database management, they rely on MySQL as our System of a Database Management (SGBD). To efficiently handle third-party plugins and dependencies, they employ Composer, a popular dependency manager for PHP.

To facilitate access and administration, our servers are accessible through various methods, including:

- **FTP (File Transfer Protocol):** Ideal for securely transferring files to and from the servers.

- **HTTPS (Hypertext Transfer Protocol Secure):** Ensuring secure and encrypted communication for web-based activities.

- **SSH (Secure Shell):** Providing secure access for command-line interactions, system maintenance, and management tasks.

This comprehensive setup empowers us to maintain a well-structured and efficient server environment, catering to both production and testing needs while harnessing the power of CodeIgniter, MySQL, and Composer for robust web application development.

### 3.1.3 Application Structure

The utilization of the CodeIgniter framework, combined with the HMVC (Hierarchical Model-View-Controller) plugin, brings a well-organized structure to our application. This structure is built around the concept of modules, where each module represents a distinct triad of model-view-controllers (MVC). These modules are conveniently located under ’application/modules’ and are designed to serve specific domains or purposes, such as battles, readers, and games.

A crucial component in this framework is the “Core” module, which is essential for the functioning of many other modules. It serves as the hub for all database interactions, housing core classes (models) within the “core/models” folder. Additionally, classes responsible for managing multiple instances, like retrieving lists of items or batch editing, are found in the “core/models/multi” folder. Notably, the “Core” module primarily consists of models and does not include controllers or views like in the figure 3.3:

The structure of each module adheres to a typical pattern:

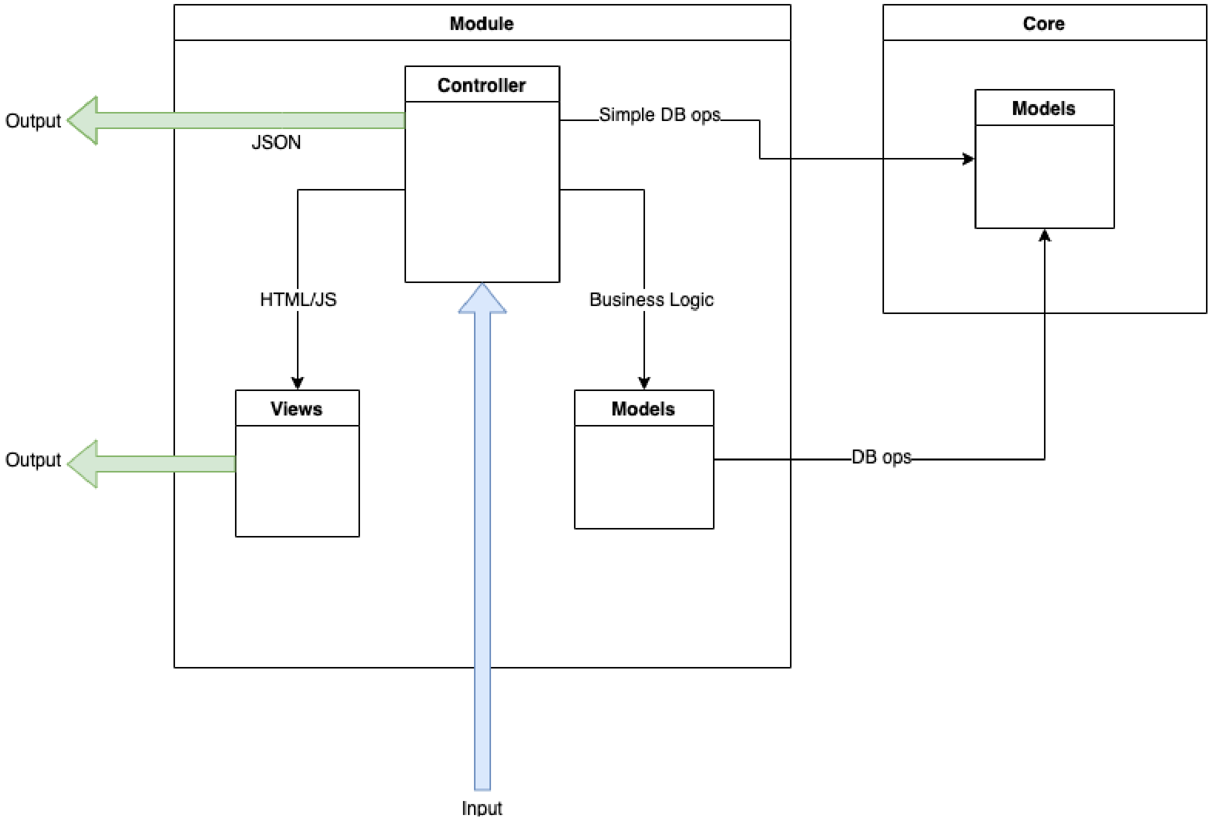


Figure 3.3: Quizzito application structure.

- **Controllers:** These modules receive input data, encode/decode data as required, and initiate specific tasks, including processing data using models. When straightforward operations are at play, they rely on the Core module, but if more complex business logic is involved, they employ specialized business logic models. Finally, they send outputs in the form of HTML views or JSON objects.

- **Models:** Models within each module contain the essential business logic, serving as the workhorses of the application. They are called upon by controllers, utilize the Core module for certain tasks, and handle sequences of operations while conducting necessary checks along the way.

Views: The view components contain pure HTML and JavaScript, with data injection facilitated through pure PHP or the Smarty template engine.

It's important to note that all models within all modules are exclusively dedicated to business logic, except for the “Core“ models, which specialize in database interactions. This well-structured framework ensures the efficiency and maintainability of our application, making it a robust and scalable solution for our specific domains and purposes.

## 3.2 Design diagrams

In this section we are going to talk about the several UML diagrams in use in our research. Use Case and Class Diagrams are essential modeling tools in software development. Use Case Diagrams help capture functional requirements from a user's perspective, illustrating interactions between actors and the system. On the other hand, Class Diagrams focus on the structural aspects, detailing classes, relationships, attributes, and methods within the system. Together, they provide a comprehensive view that aids in design, communication, and documentation throughout the software development process.

### 3.2.1 Use case diagram

In our system (Figure 3.4), we have a well-defined use case diagram that outlines the interactions and functionalities of different actors and use cases.

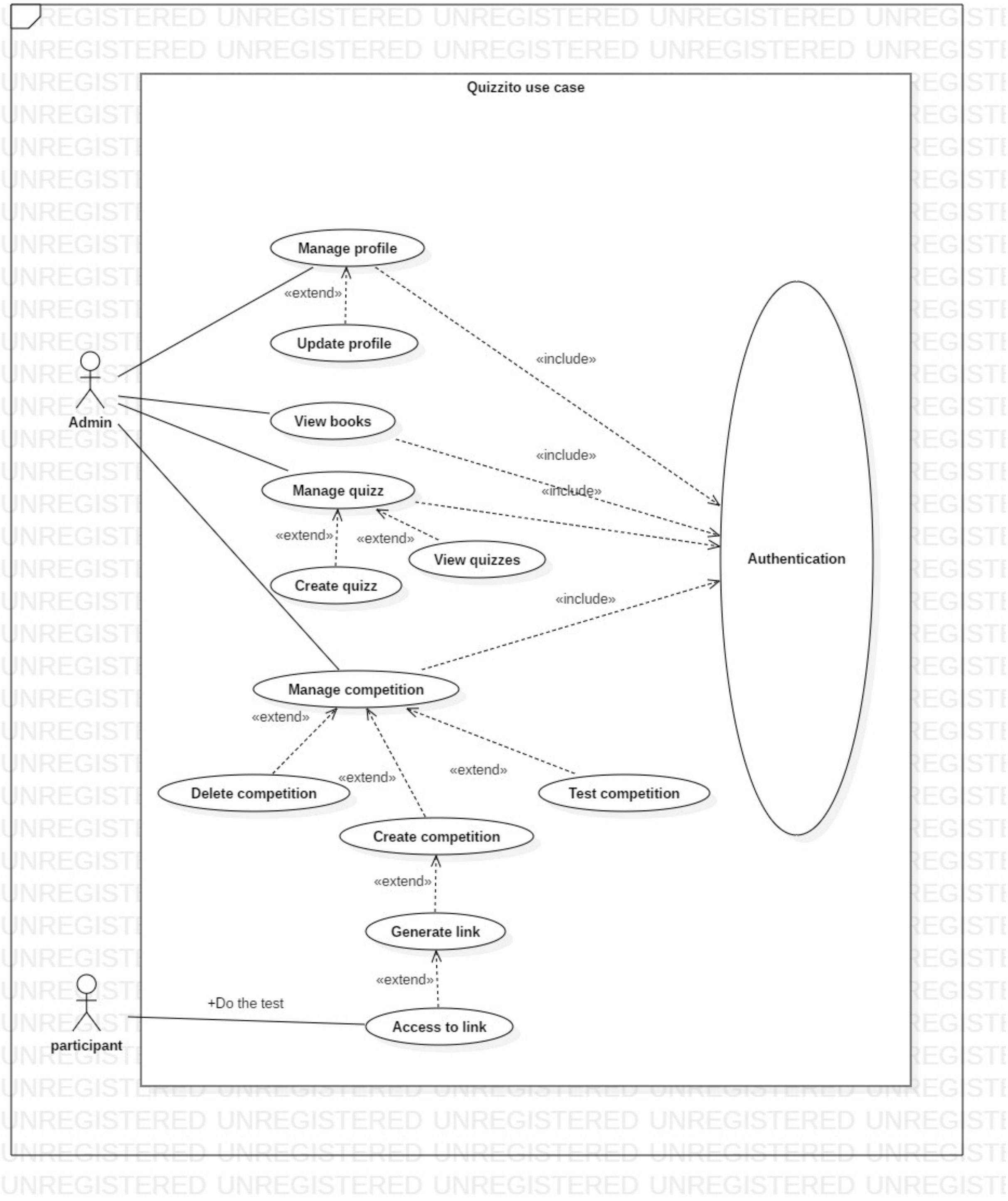


Figure 3.4: New website use case diagram.

Let’s break down the components and associations to create a coherent text:

**Actor: Admin**

Our primary actor, “Admin,” has various responsibilities within the system, including “Manage Profile,“ “View Books,” “Manage Quizzes,“ and “Manage Competitions.” These use cases are all connected to “Authentication“ through an “include” association, ensuring that proper authentication is required to access these features.

**Use Case: Manage Profile**

Within the “Manage Profile” use case, there is a specialization with “Update Profile,” allowing admins to update their profiles as needed. This relationship is established through a “generalization” association, signifying that “Update Profile” is a more specific action derived from “Manage Profile.”

**Use Case: Manage Quizzes**

“Manage Quizzes” serves as a comprehensive use case. It further breaks down into two child use cases: “Create Quiz” and “View Quizzes.” These child use cases inherit their functionality from “Manage Quizzes” through “generalization” associations, indicating that they are specialized actions derived from the parent use case.

**Use Case: Manage Competitions**

Similarly, “Manage Competitions” has two child use cases: “Create Competition” and “Delete Competition.” These actions are more specific and are connected to “Manage Competitions” through “generalization” associations. Additionally, “Create Competition” further extends to “Generate Link,” and “Generate Link” extends to “Access to Link.”

**Use Case: Test Competition**

The “Test Competition” use case is associated with “Manage Competitions” through an “extend” association, signifying that it extends the functionality of “Manage Competitions.” This relationship allows for additional actions within competitions when needed.

**Actor: Participant**

Finally, we have another actor, “Participant,” which is associated with “Access to Link” through a “do the test” association. This means that participants can access competition links to participate in tests.

This use case diagram provides a clear visual representation of how our system's actors and use cases interact and the relationships between them, ensuring efficient and secure functionality.

### 3.2.2 Class diagram

The class diagram of the platform, presented in the figure 3.5), describes the structure of the system by showing the system's classes, their attributes and the relationships among objects.

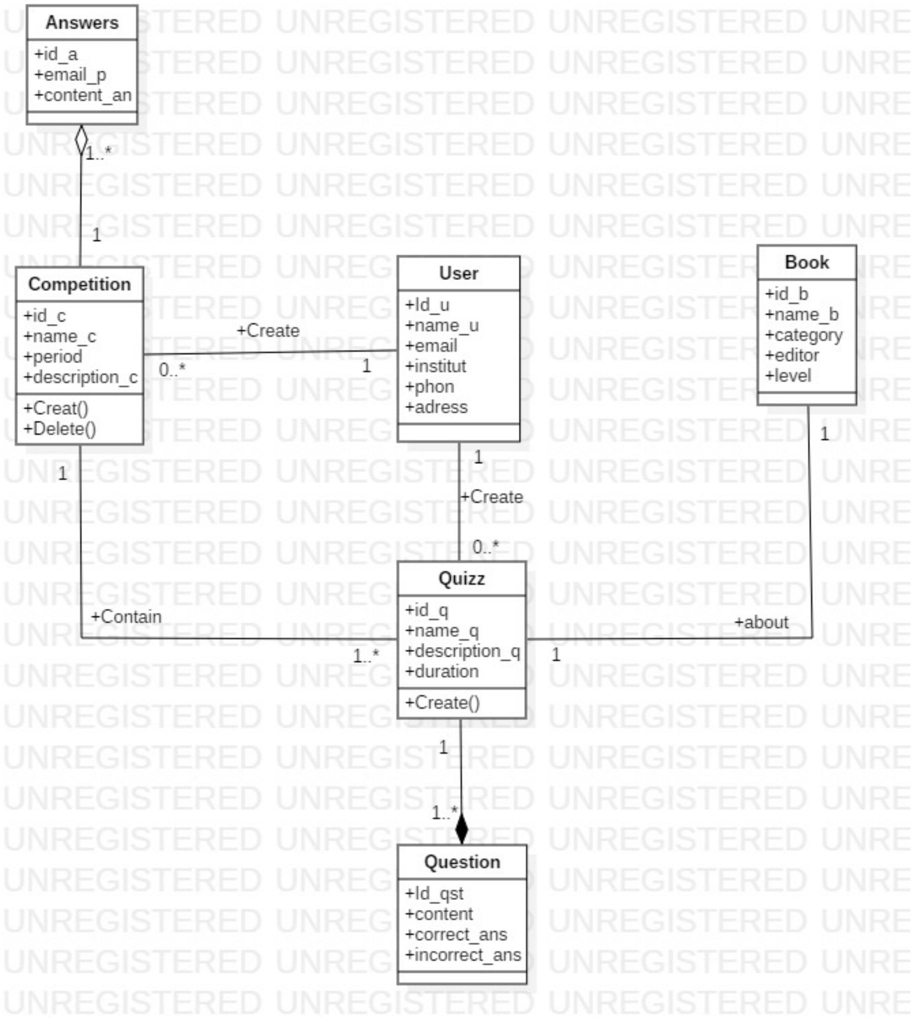


Figure 3.5: New website class diagram.

The **User** represent the class of the user registered in the system. A user is associated with **Quiz** which mean that the user can create several quizzes that can be used in the **Competition**. The **Competition** can contain many quizzes and the **Quiz** is associated with the **Class** with the relation of about witch means the questions of an quiz is related of a book, the **Question** class is a child class of the **Class** an quiz can be one or more questions, **Answers** class is associated with the **Competition** class with an aggregation relationship because if the **Competition** doesn't exist the **Answers** can never exist.

## 3.3 Mock-ups

In our project, we utilized Figma as a central design and collaboration tool [25]. Figma is a cloud-based platform that enabled our team to efficiently design user interfaces, create interactive prototypes, and collaborate in real-time [25]. This collaborative environment enhanced communication and streamlined feedback from team members and stakeholders [25]. Figma's version control features allowed us to track design changes, maintain a clear record of design iterations, and ensure that design decisions were well-documented [25]. Additionally, the platform facilitated the collection of feedback and review of design elements, making it easy to address issues and suggest improvements [25]. Figma's interactive prototyping capabilities were instrumental in user testing and validation, allowing us to gather user feedback early in the design process [25]. The platform's accessibility and sharing features made it simple to share design assets and prototypes with project stakeholders and clients, promoting a collaborative and efficient design process [25]. The figure 3.6 represent the existent web site:

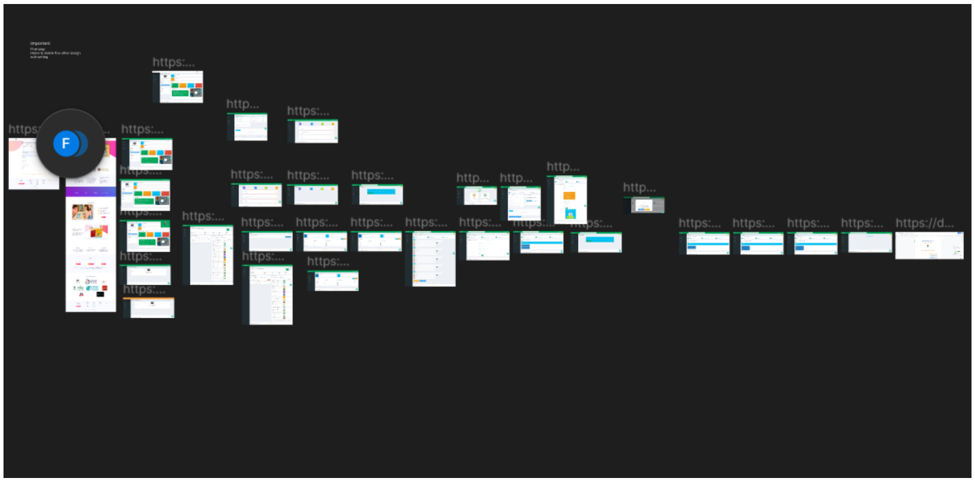


Figure 3.6: Old website Figma design.

The figure 3.7 represent the proposal protocol to implement for improvement of the old design:

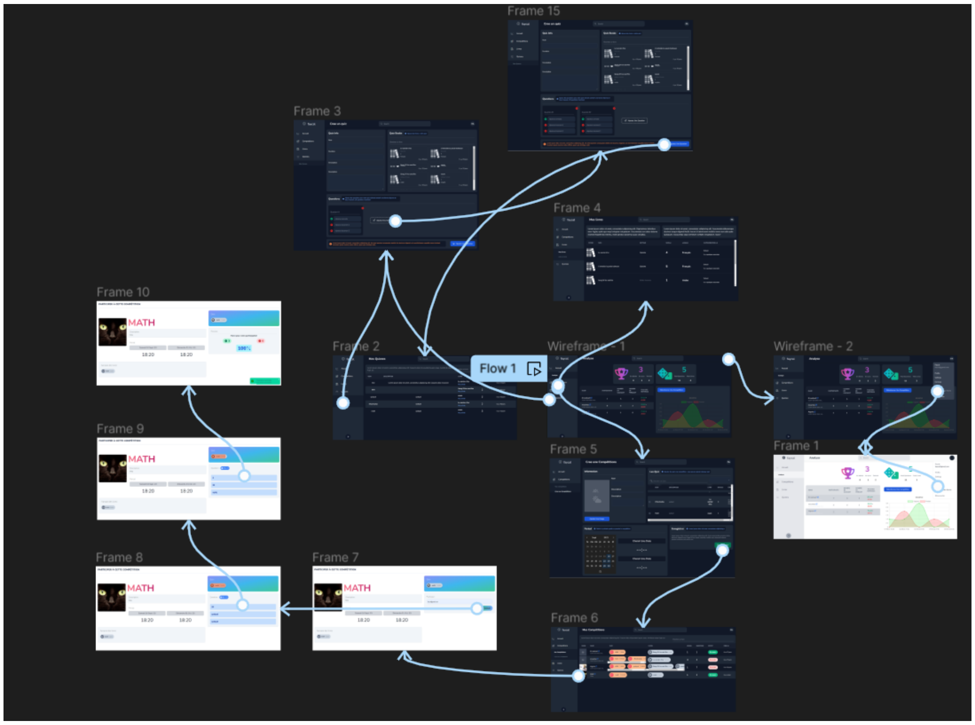


Figure 3.7: New website Figma design.

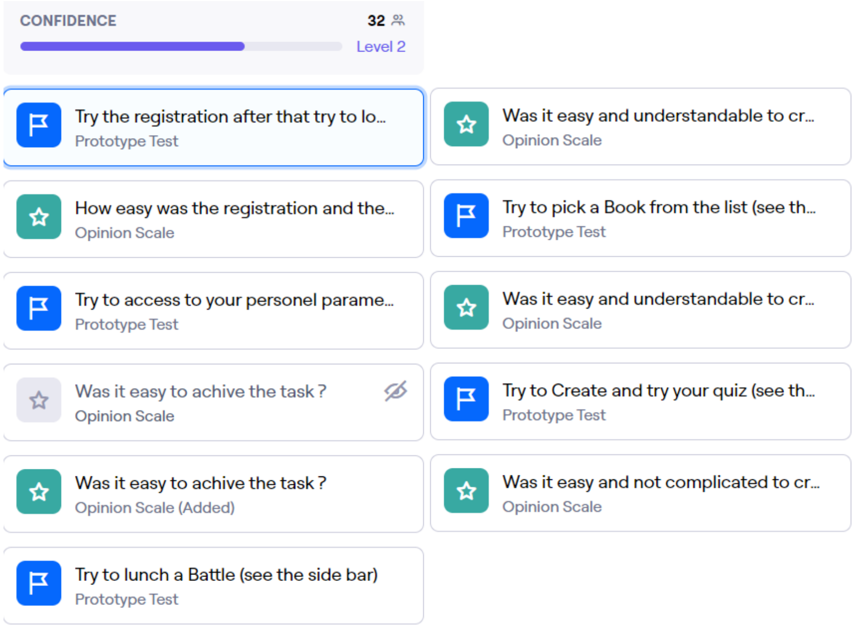
In summary, Figma's design and collaboration capabilities streamline the process of comparing two protocols through user testing that we are going to see in the next section, resulting in a more comprehensive understanding of their respective strengths and weaknesses. This, in turn, aids in making informed decisions about protocol selection or optimization.

## 3.4 User testing

User testing is crucial during the design and development process because it provides direct, real-life insights into how users interact with a product or interface. By watching users navigate your website, app, or prototype, you can discover usability issues, identify pain points, and gain a deeper understanding of user needs and preferences. These insights help designers and developers make informed decisions, optimize user experiences, and build products that are intuitive and easy to use. User testing also helps validate design decisions, reduces the risk of costly post-release modifications, and ultimately increases user satisfaction and better product adoption. In essence, user testing is a fundamental step in developing a product that truly meets user expectations and is successful. In our study we are using "Maze.co" as a tool to do our user testing. Maze is a powerful user testing platform that has become a cornerstone in the world of usability testing and design research. With the ability to conduct remote usability tests and integrate seamlessly with popular design tools, Maze empowers teams to gain critical insights into user behavior. Through features such as heatmaps, click tracking, and A/B testing, it offers a comprehensive toolkit for evaluating and enhancing user interfaces. Maze's support for both quantitative and qualitative data collection, along with its collaborative capabilities, makes it an essential tool for improving the user experience and making informed, data-driven design decisions [26]. In our comprehensive research, we conducted a series of three different tests designed to gain insight into user perceptions of the ergonomics, complexity, and overall user experience of an existing website. These tests provide valuable feedback, highlight areas for improvement, and provide critical input on changes needed to improve the usability and functionality of the website. Furthermore, the final phase of our research involves compiling extensive data on the newly proposed protocol to ensure that user requirements and expectations are fully integrated into the development process. This holistic approach to user feedback and data collection helps create an optimized, user-centric digital environment.

### 3.4.1 First step

The cornerstone of an exemplary website lies in its navigation, hierarchy, and color schemes. In our rigorous evaluation, we prioritize the solicitation of user opinions and preferences regarding these pivotal aspects. To achieve this, we devised a two-part testing methodology. The initial phase involves presenting users with mock-ups that vividly illustrate the website's appearance and afford them the opportunity to engage in tasks mirroring those of the existing website. Subsequently, the second phase is dedicated to garnering user experiences and soliciting constructive suggestions to inform the redesign of the current website. The initial testing phase is structured around a set of well-defined questions aimed at see the figure 3.8:



Try the registration after that try to lo...
Prototype Test

Was it easy and understandable to cr...
Opinion Scale

How easy was the registration and the...
Opinion Scale

Try to pick a Book from the list (see th...
Prototype Test

Try to access to your personel parame...
Prototype Test

Was it easy and understandable to cr...
Opinion Scale

Was it easy to achive the task ?
Opinion Scale

Try to Create and try your quiz (see th...
Prototype Test

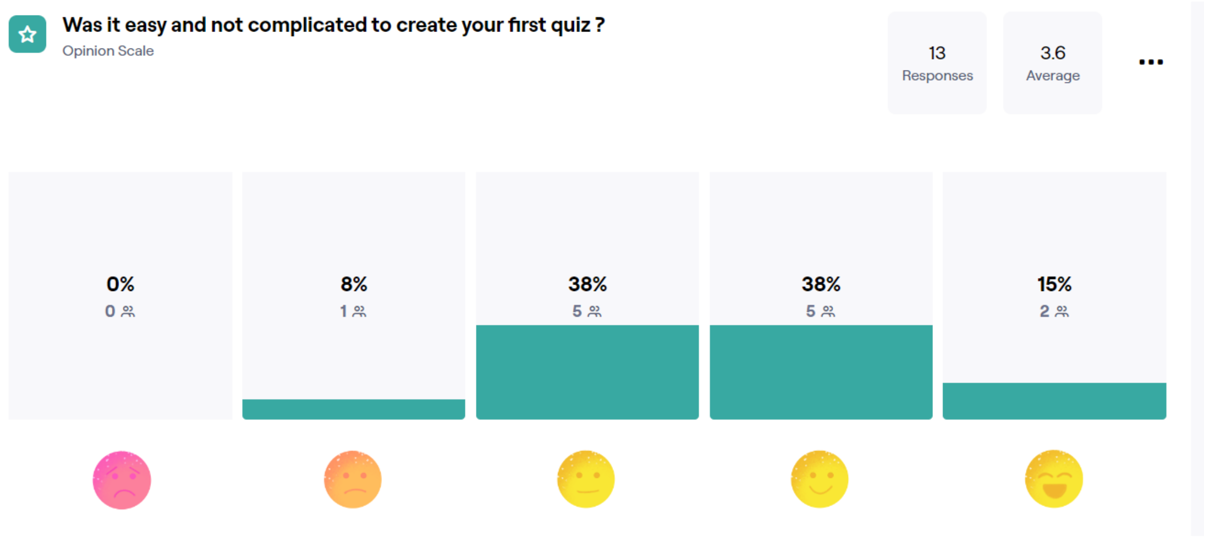
Was it easy to achive the task ?
Opinion Scale (Added)

Was it easy and not complicated to cr...
Opinion Scale

Try to lunch a Battle (see the side bar)
Prototype Test

Figure 3.8: First questionnaire.

For the result we will chose the most hard parts in the existent website which is the quiz creation and the battle creation and the quiz creation. The quiz task was the most complicated one and this task is the one who get our focus because for the user the platform should be easy not complicated in that task there is too much buttons click and as we said a good website need to have a good navigation and that's one of the important thing that we are going to focus on to remade the website see the result of the figure 3.9:



Was it easy and not complicated to create your first quiz ?

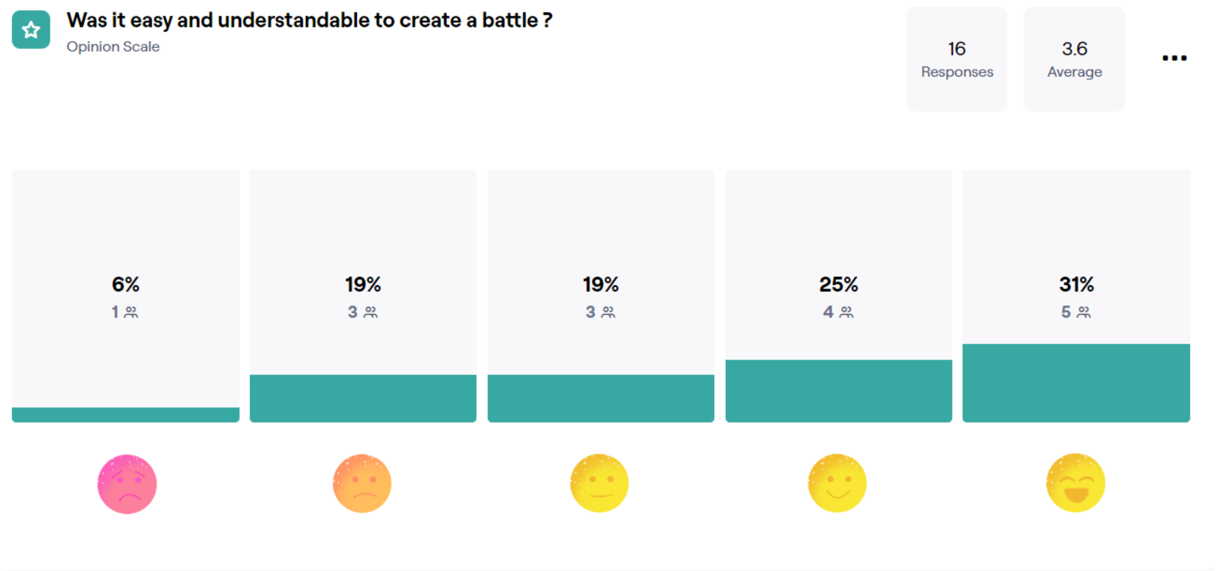
Opinion Scale

13 Responses

3.6 Average

Figure 3.9: Create quiz task results for the old website.

The next task is to create a battle the battle is to lunch the quizzes created in the first task between the kids and the administrator can see the result from his platform based on the following result (figure 3.10 creating a battle was not a big deal.



Was it easy and understandable to create a battle ?

Opinion Scale

16 Responses

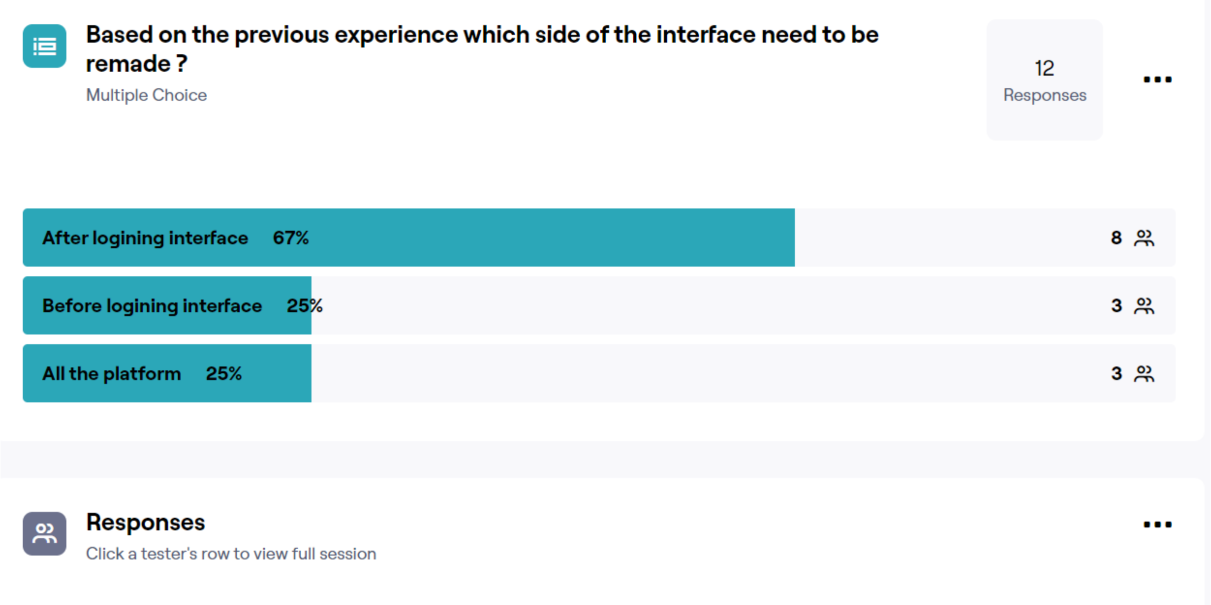
3.6 Average

Figure 3.10: Result of creating a battle task for the old website.

### 3.4.2 Second step

In the later phase of our testing process, we sought comprehensive feedback from users with the precise aim of pinpointing areas in need of redevelopment. Additionally, we solicited personal insights from users, valuable inputs that will be instrumental in shaping the requirements for the new prototype.

The figure 3.11 displayed illustrates a survey designed to identify areas in need of enhancement or redevelopment:



Based on the previous experience which side of the interface need to be remade ?

Multiple Choice

12 Responses

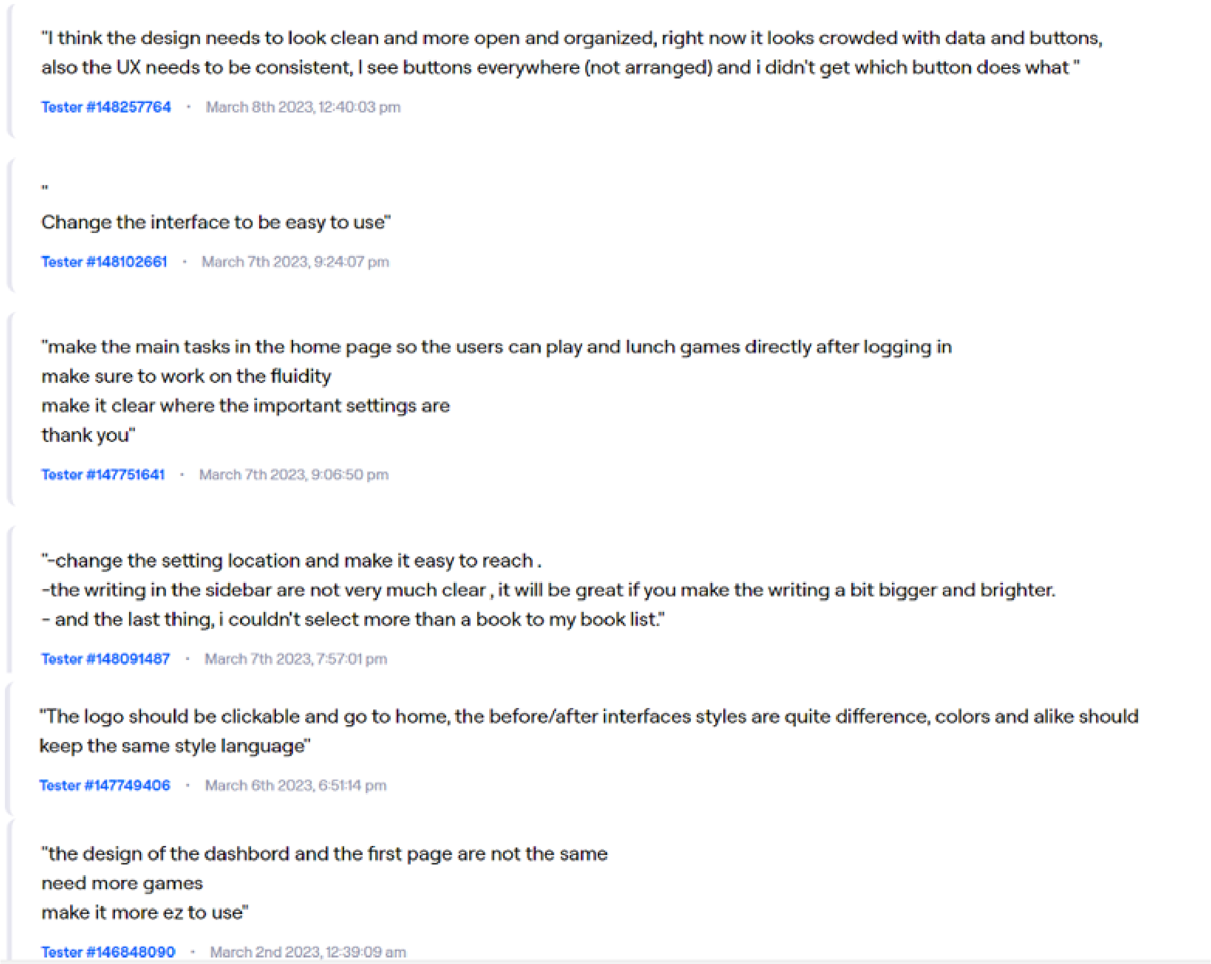
| | | |
|---|---|---|
| After logining interface | 67% | 8 |
| Before logining interface | 25% | 3 |
| All the platform | 25% | 3 |

Responses

Click a tester's row to view full session

Figure 3.11: Result of the users feedback to know which part of the platform need to be remade.

During the final stage of the second test, we requested users to share their personal opinions and insights see the figure 3.12:



"I think the design needs to look clean and more open and organized, right now it looks crowded with data and buttons, also the UX needs to be consistent, I see buttons everywhere (not arranged) and i didn't get which button does what "

Tester #148257764 · March 8th 2023, 12:40:03 pm

"
Change the interface to be easy to use"

Tester #148102661 · March 7th 2023, 9:24:07 pm

"make the main tasks in the home page so the users can play and lunch games directly after logging in
make sure to work on the fluidity
make it clear where the important settings are
thank you"

Tester #147751641 · March 7th 2023, 9:06:50 pm

"-change the setting location and make it easy to reach .
-the writing in the sidebar are not very much clear , it will be great if you make the writing a bit bigger and brighter.
- and the last thing, i couldn't select more than a book to my book list."

Tester #148091487 · March 7th 2023, 7:57:01 pm

"The logo should be clickable and go to home, the before/after interfaces styles are quite difference, colors and alike should keep the same style language"

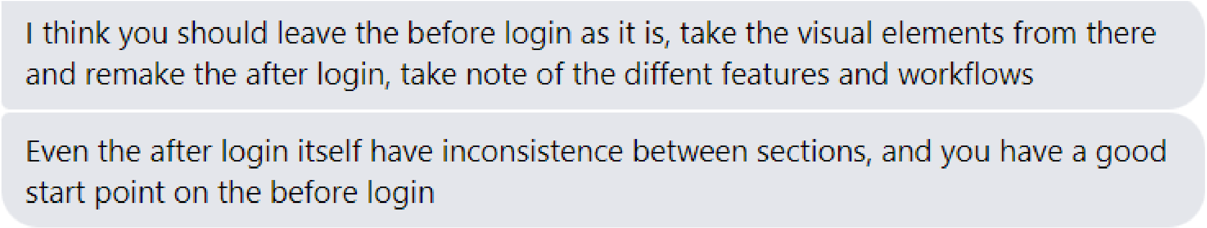
Tester #147749406 · March 6th 2023, 6:51:14 pm

"the design of the dashbord and the first page are not the same
need more games
make it more ez to use"

Tester #146848090 · March 2nd 2023, 12:39:09 am

Figure 3.12: The feedbacks collected from the maze platform.

We also got this opinion see the figure 3.13 from a college on social media:



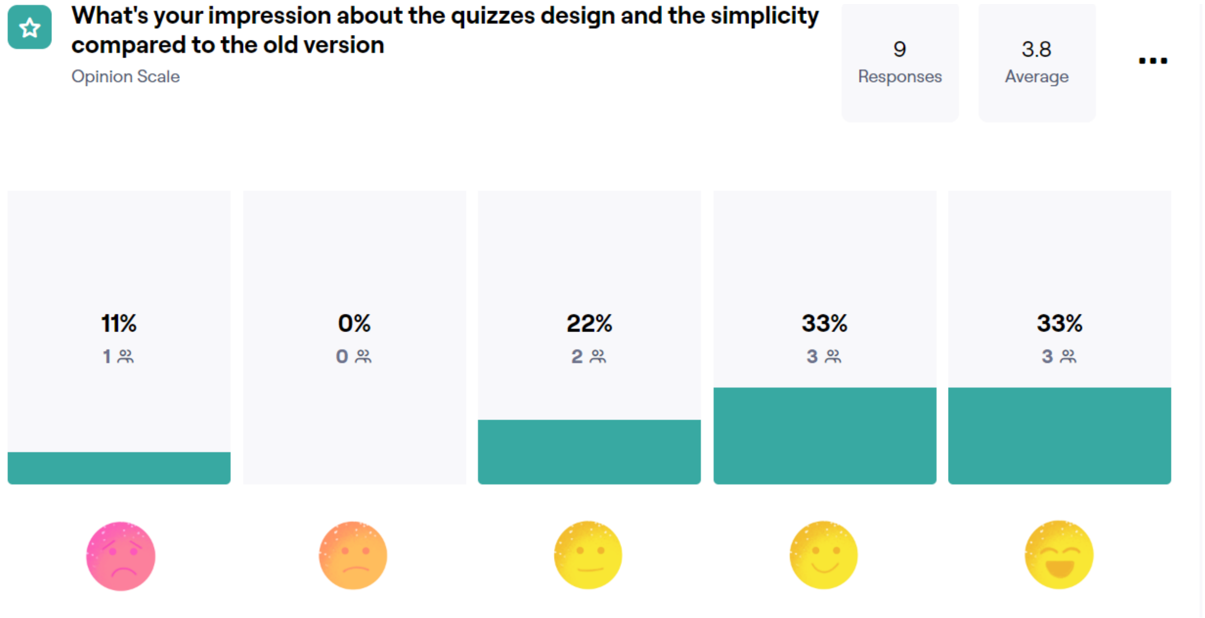
I think you should leave the before login as it is, take the visual elements from there and remake the after login, take note of the diffent features and workflows

Even the after login itself have inconsistence between sections, and you have a good start point on the before login

Figure 3.13: A feedback from social media.

### 3.4.3 Last step

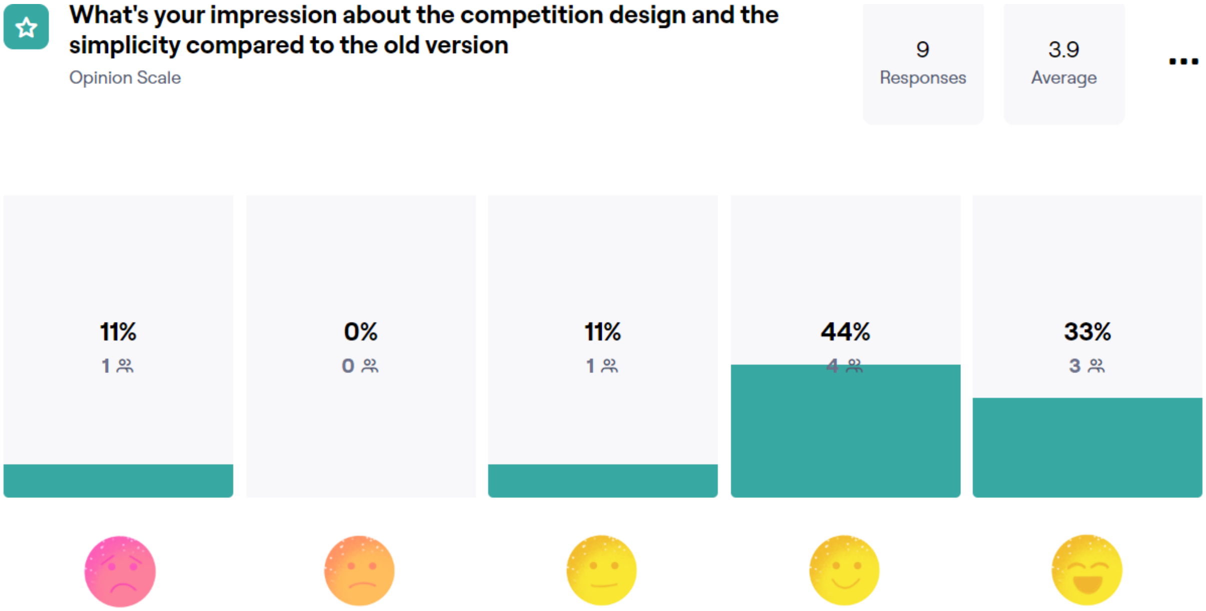
For the final phase, we are conducting the ultimate test, wherein users are provided with the new Figma prototype to explore and share their opinions. Furthermore, we request their feedback on their preferred design aspects. The figure 3.14 represent the result about the quiz creation task by the users:



What's your impression about the quizzes design and the simplicity compared to the old version

Figure 3.14: Result of creating a quiz task for the new prototype.

The figure 3.15 illustrates the results obtained for the task of creating battles or competitions:


What's your impression about the competition design and the simplicity compared to the old version

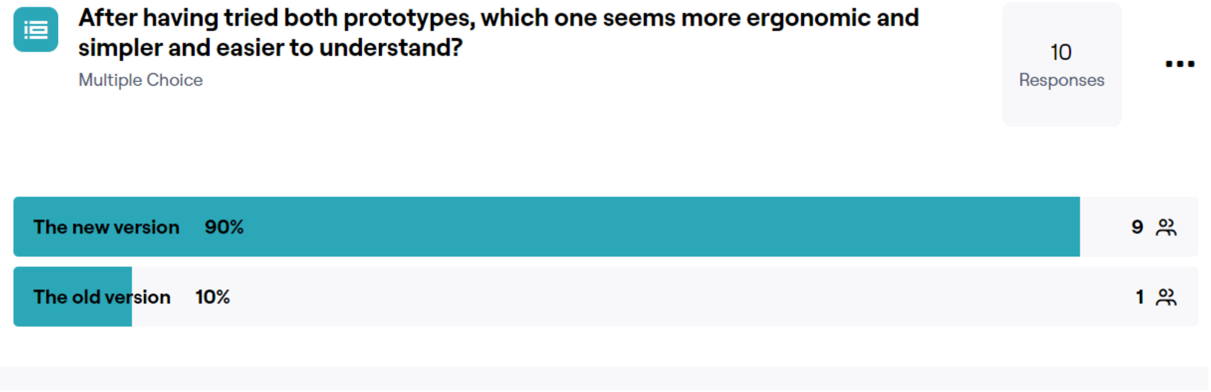
Opinion Scale

9 Responses

3.9 Average

Figure 3.15: Result of creating a battle task for the new prototype.

After compiling all the gathered information and user feedback, Figure 3.16 reveals that a significant majority of users, approximately 90%, favor the newly proposed version.


After having tried both prototypes, which one seems more ergonomic and simpler and easier to understand?

Multiple Choice

10 Responses

Figure 3.16: Result of the final feedback.

# Chapter 4

# Development

## 4.1 Tools in use

In our project, we adopted complex and interoperable technologies to create a robust and user-friendly workflow. Our system is based on the use of MySQL Workbench, which is a well-known and reliable database management tool. To support this, we used the capabilities of Laravel, the leading PHP framework for our Back-end development, while Vue.js, the dynamic JavaScript framework, MySQL Workbench, Laravel, and Vue.js are a good combination for this project provides a simple and efficient ecosystem that offers many benefits. The compatible nature of this technology improves data flow, facilitates real-time innovation, and simplifies the user experience. The comprehensive Back-end capabilities of Laravel seamlessly integrate with MySQL Workbench, enabling data backup, restore and secure processing capabilities, while Vue.js enhances the Front-end with features that are dynamic and so responsive this harmonized combination of database management, Back-end and Front-end technologies ensures high performance and user centric application customizable and able to meet today's web development requirements.

### 4.1.1 mysql workbench

For the database we are using SQL and for the tool MySQL Workbench serves as a versatile and comprehensive tool tailored for database architects, developers, and DBAs. Offering a unified platform, it seamlessly integrates essential functions for data modeling, SQL development, and extensive database administration, making it an invaluable resource for efficient server configuration, user management, backups, and more. With compatibility across Windows, Linux, and Mac OS X, MySQL Workbench is highly accessible. It empowers users to visually design and model intricate ER structures, supporting forward and reverse engineering processes while simplifying change management and documentation. Additionally, it provides a robust environment for crafting, executing, and optimizing SQL queries, ensuring a streamlined database development experience. Furthermore, its visual console enhances database administration tasks, enabling efficient server configuration, user management, backup procedures, audit data inspection, and database health assessment. MySQL Workbench also features a Visual Performance Dashboard for monitoring key performance indicators and offers a solution for smooth database migration, making it a holistic and invaluable tool for various database-related tasks[27].

### 4.1.2 Laravel

We are using Laravel in our project because it is the preferred choice for backend development due to its beautiful syntax, reliance on MVC architecture and modularity, which improves code structure, scalability and reusability Its rich ecosystem of pre-built packages, comprehensive certificate licensing scheme its database migration can simplify development tasks Laravel's Query Builder and Eloquent ORM Database operations are straightforward, while Artisan console It automates common tasks. Extensive testing support, debugging tools, and a large developer team help build robust and secure applications. Additionally, Laravel's excellent performance, security features, and advanced documentation make it a good framework for building high-performance and reliable web applications.

### 4.1.3 Vue.js

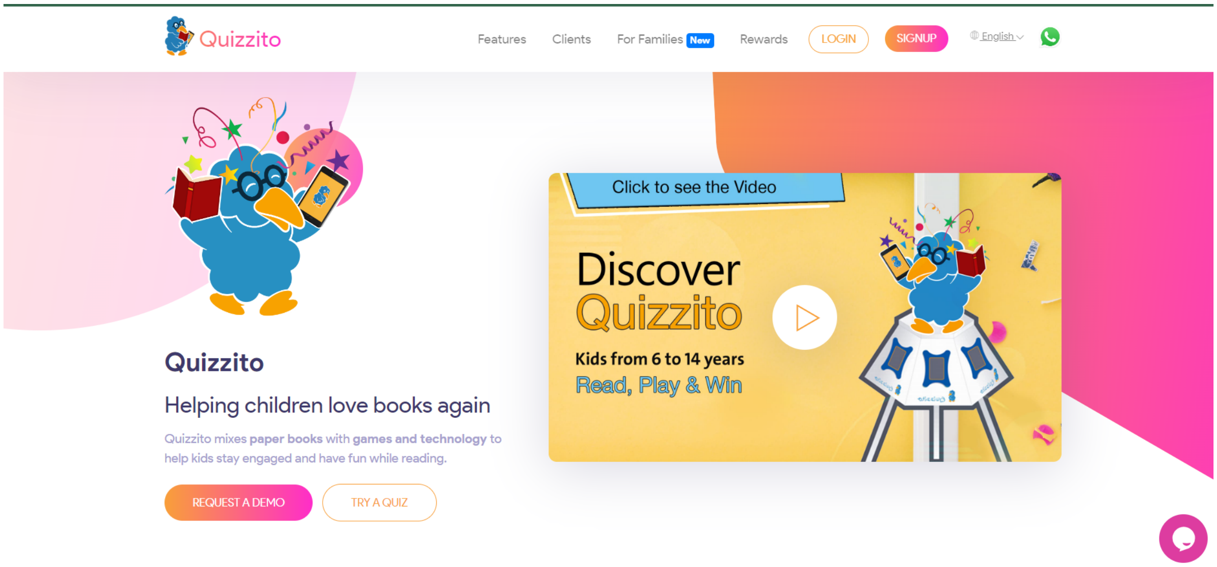
In our project we are using Vue.js because it is a highly regarded choice for Front-end development because of its versatility, simplicity, and robust features. Its responsive data binding ensures a dynamic and functional user interface, while the design based on component-based architecture promotes code reusability and maintainability. Vue's small file size and slow learning curve make it easy for new and experienced developers. The framework's seamless integration with existing services and libraries, as well as its evolutionary nature, allows for gradual adoption. Vue.js also enjoys a vibrant and supportive community, offering many features, extensions and plugins. Ultimately, Vue.js empowers developers to easily create high-performance, responsive, and interactive web applications.

## 4.2 Actual platform

As established in the initial chapter, Quizzito.com serves as an educational platform tailored for children, rooted in the concept of combining play, learning, and winning. Through our rigorous research and testing on the Quizzito platform, we unearthed numerous issues and deficiencies. Consequently, our efforts extended beyond the mere proposition of a prototype to enhance the platform's interface. We also diligently documented a substantial number of critical bugs that were identified within the platform. This section delves into a comprehensive examination of the Quizzito interface, shedding light on the plethora of issues uncovered throughout our assessment.

### 4.2.1 Quizzito interface

The core objective of our research revolves around the refinement of the platform's user interface. To initiate this critical phase, the platform owner graciously facilitated a Zoom conference, wherein they articulated the prevailing issues afflicting the platform. Foremost among these challenges is the intricate nature of the platform's operation, necessitating users to undergo comprehensive training to fully grasp its functionality. This inherent complexity presents a substantial barrier to entry. Additionally, we noted that the platform's interface lacks user-friendly visual aesthetics, failing to engage users effectively. Mitigating these issues stands as a paramount focus within our broader strategy to optimize the platform's overall user experience and visual appeal. The figure 4.1 represent the login page:



Quizzito

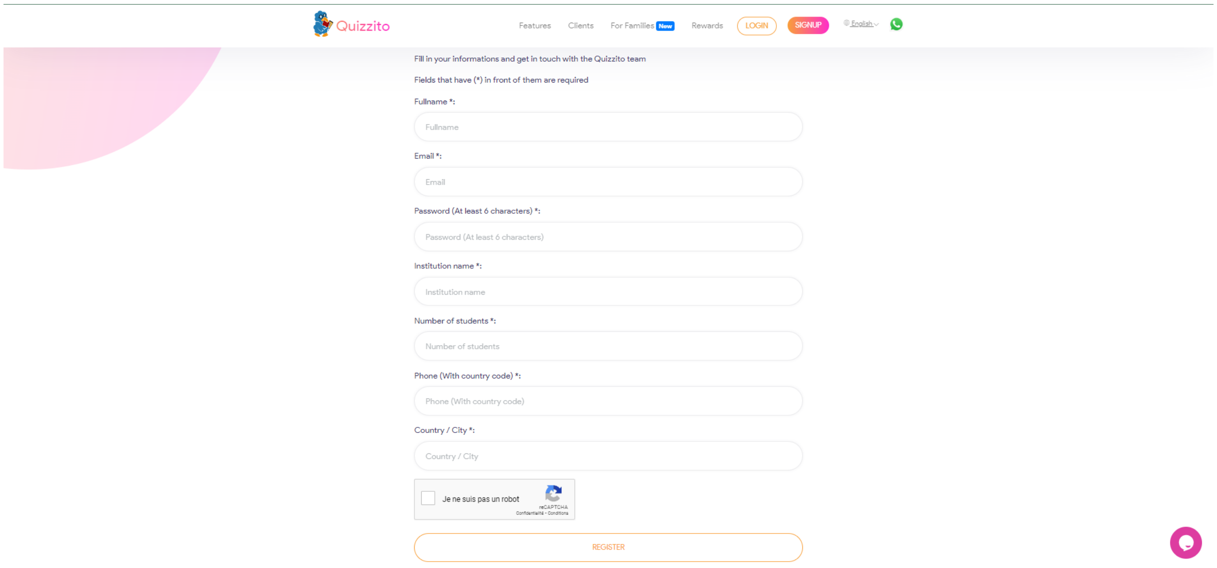
Helping children love books again

Quizzito mixes paper books with games and technology to help kids stay engaged and have fun while reading.

Figure 4.1: Quizzito login page.

The login page on the interface looks great, and during user testing, we received positive feedback about it. However, there is one technical issue. When a user saves their login information in cookies and then tries to log in with a different account, it automatically takes them to the dashboard ("auto-enter"). To address this issue, users should either avoid saving their information in cookies or open a private browsing window, Furthermore, we've noticed that there is no "Forgot Password" function on the login page. This means that if a user forgets their password, they would need to reach out to the support team for assistance, which isn't the most efficient technical solution.

The registration (figure 4.2 process received similar feedback as the home page, with a visually appealing interface but weak security measures. We attempted to register but did not receive any confirmation email for our registration. Furthermore, we successfully registered using a fake email address, "testtest@test.com" and the password test, even for the password it doesn't required a Strong one we can put just 4 characters and here we go.



Fill in your informations and get in touch with the Quizzito team

Fields that have (*) in front of them are required

Fullname *: Fullname

Email *: Email

Password (At least 6 characters) *: Password (At least 6 characters)

Institution name *: Institution name

Number of students *: Number of students

Phone (With country code) *: Phone (With country code)

Country / City *: Country / City

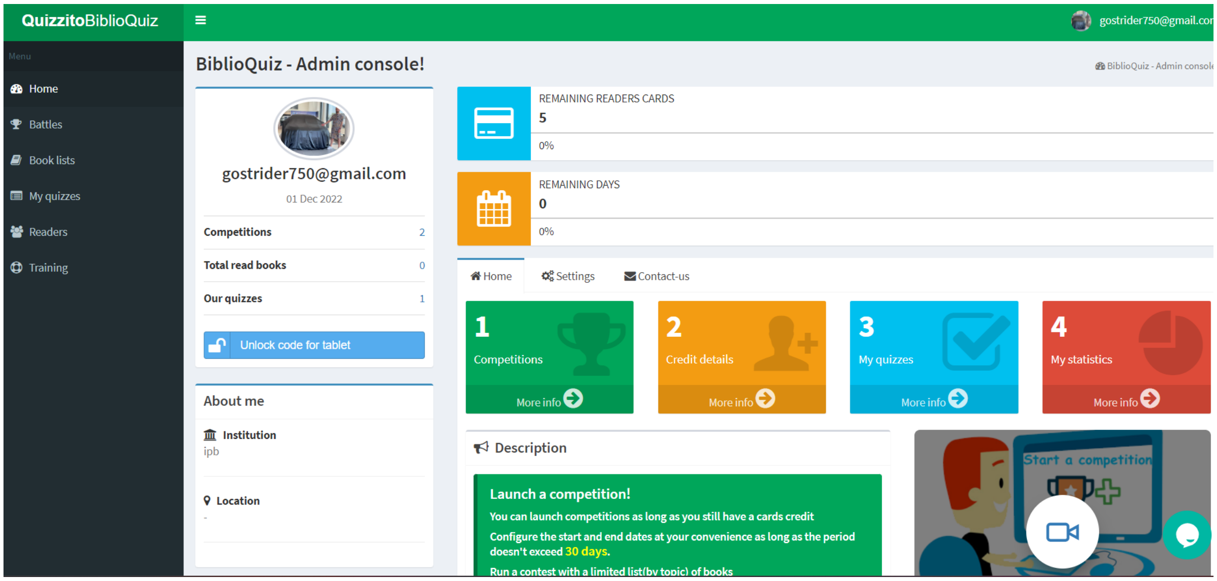
□ Je ne suis pas un robot reCAPTCHA Confidentialité - Conditions

Figure 4.2: Quizzito registration page.

The figure 4.1 depicts the platform dashboard, and it's evident that the interface lacks ergonomic design. It may pose usability challenges as there are excessive colors, repetitive information, and unnecessary buttons.

The two images below (figure 4.4 and figure 4.5) illustrate how to access the settings or profile page. However, the problem with this window is that it only allows you to change your profile image. This means that the sole purpose of the settings is to modify the user's profile picture.

The depicted illustration (figure 4.6) indicates that settings can be altered directly from the dashboard, which seems counter intuitive. All these steps should ideally be consolidated within the settings or profile configuration to eliminate redundancy across multiple windows, making the platform more ergonomic.



gostrider750@gmail.com

01 Dec 2022

Competitions 2

Total read books 0

Our quizzes 1

Institution: ipb

Location: -

REMAINING READERS CARDS: 5, 0%

REMAINING DAYS: 0, 0%

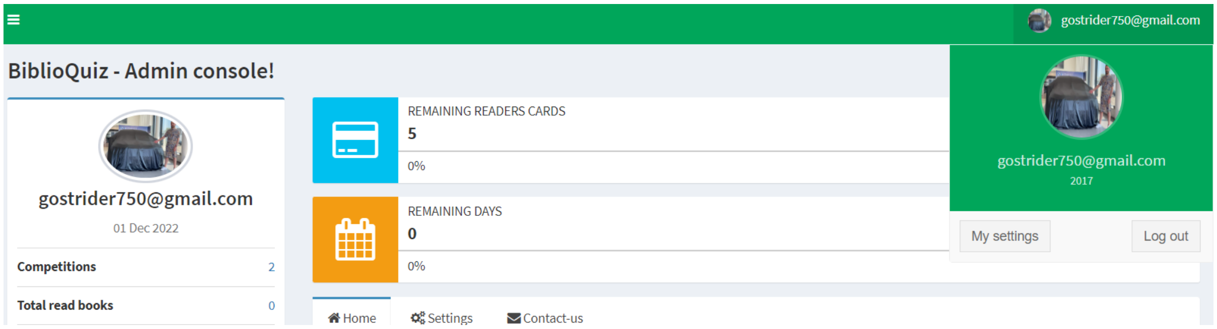
Launch a competition!

You can launch competitions as long as you still have a cards credit

Configure the start and end dates at your convenience as long as the period doesn't exceed 30 days.

Run a contest with a limited list(by topic) of books

Figure 4.3: Quizzito dashboard page.



gostrider750@gmail.com

01 Dec 2022

Competitions 2

Total read books 0

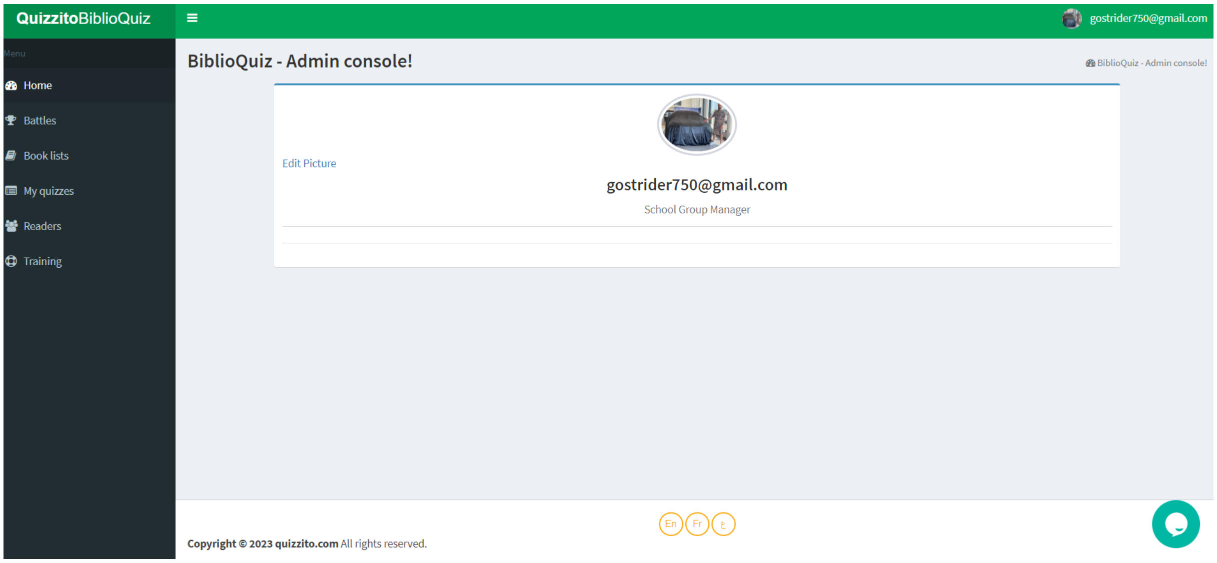
REMAINING READERS CARDS: 5, 0%

REMAINING DAYS: 0, 0%

gostrider750@gmail.com

2017

Figure 4.4: Quizzito window to access to the setting page.



gostrider750@gmail.com

School Group Manager

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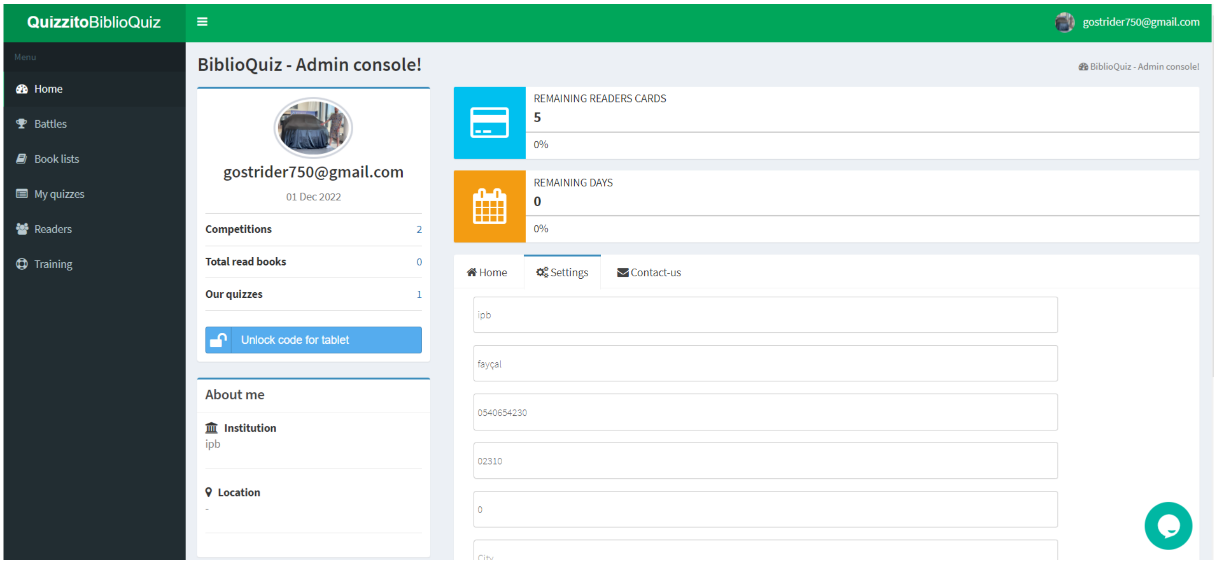
Figure 4.5: Quizzito setting window page.



gostrider750@gmail.com

01 Dec 2022

| | |
|---|---|
| Competitions | 2 |
| Total read books | 0 |
| Our quizzes | 1 |

About me

Institution
ipb

Location
-

REMAINING READERS CARDS
5
0%

REMAINING DAYS
0
0%

ipb

fayçal

0540654230

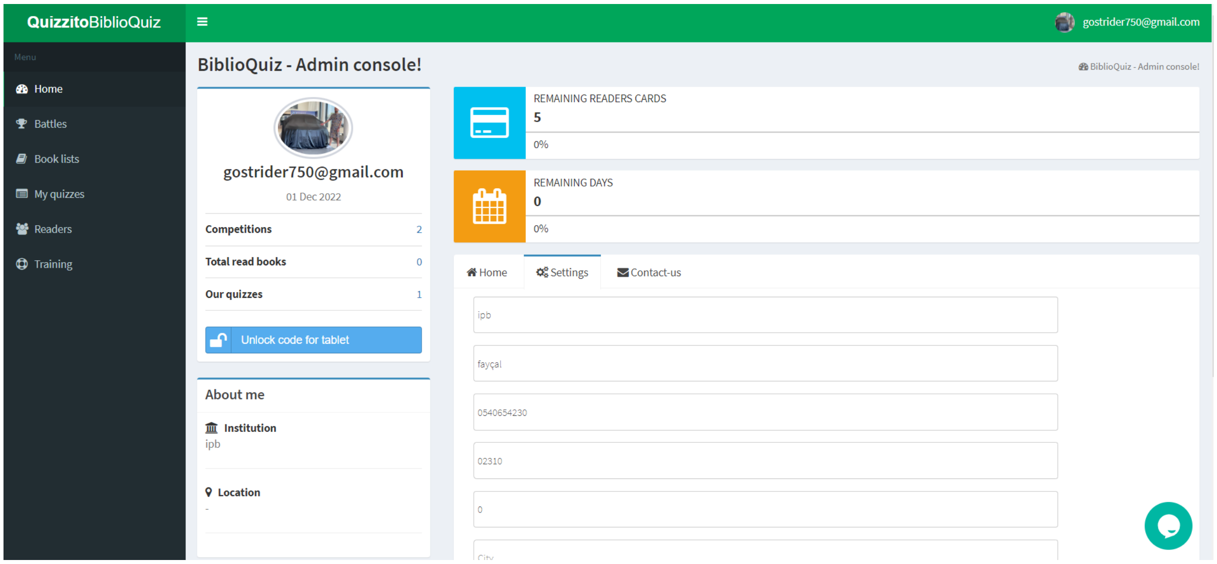
02310

0

City

Figure 4.6: Quizzito setting in the dashboard page.

The provided images (figure 4.7 and figure 4.8) illustrate the “Book List” section in the dashboard, allowing users to view and manage lists they’ve created. The concept behind these book lists is to prepare for battles or competitions. When a user creates a list, they can add multiple books in different languages and at various difficulty levels.



gostrider750@gmail.com

01 Dec 2022

| | |
|---|---|
| Competitions | 2 |
| Total read books | 0 |
| Our quizzes | 1 |

About me

Institution
ipb

Location
-

REMAINING READERS CARDS
5
0%

REMAINING DAYS
0
0%

ipb

fayçal

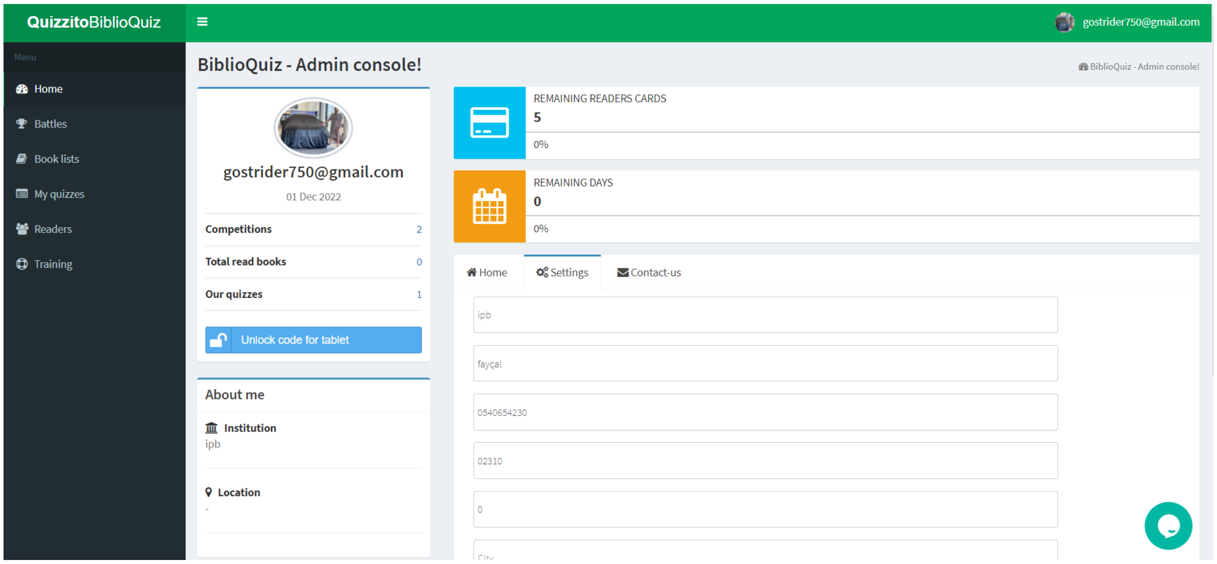
0540654230

02310

0

City

Figure 4.7: Quizzito book list main page.



gostrider750@gmail.com
01 Dec 2022

Competitions 2
Total read books 0
Our quizzes 1

About me
Institution
ipb
Location
-

REMAINING READERS CARDS
5
0%

REMAINING DAYS
0
0%

ipb
fayçal
0540654230
02310
0
City

Figure 4.8: Quizzito adding a book list page.

Quizzes consist of questions that students or children encounter in competitions. Within the quiz section, users have the ability to create their quizzes. To do so, they must provide a title for the quiz and specify the language. Users are also required to determine the number of questions, which can be either 5 or 10 per quiz. Following these initial steps, users proceed to create the questions and their corresponding answers. The final step involves defining the difficulty level and other necessary information. These three stages (figure 4.9 and figure 4.10 and figure 4.11) are spread across distinct windows.

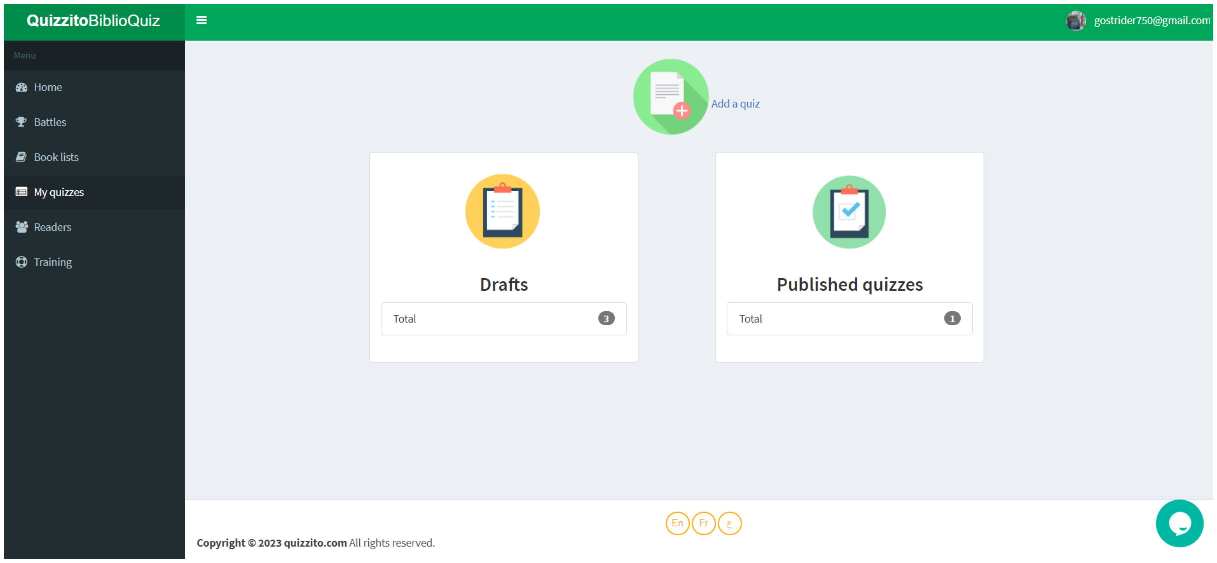


Figure 4.9: Quizzito setting in the dashboard page.

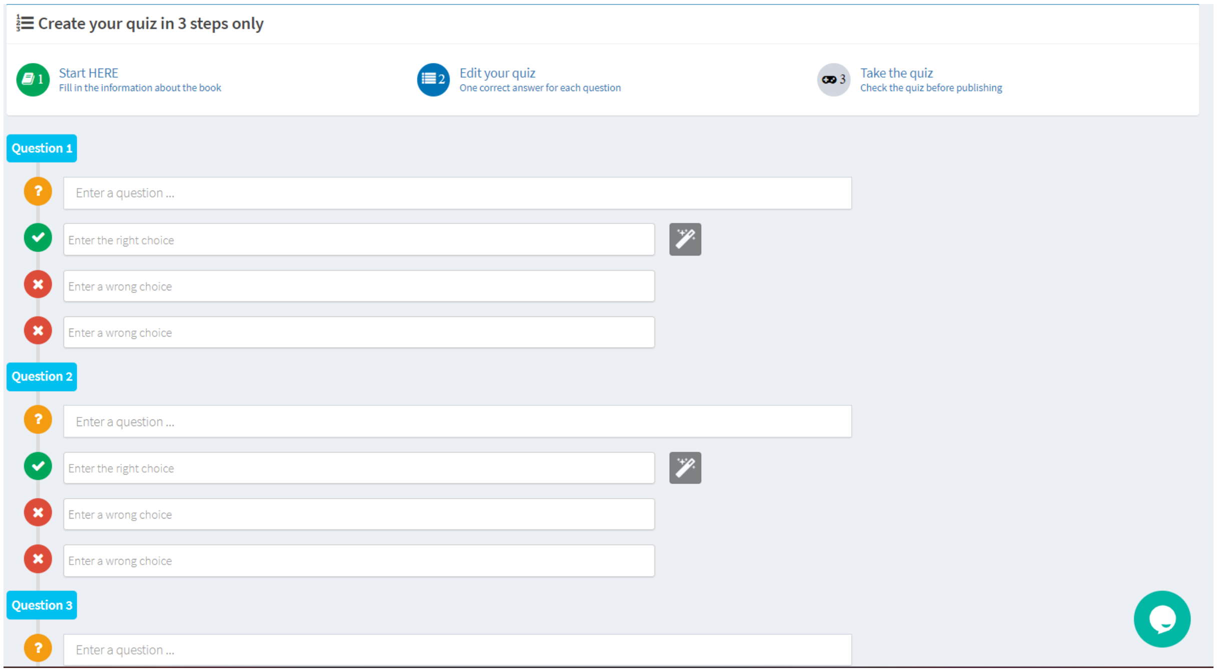
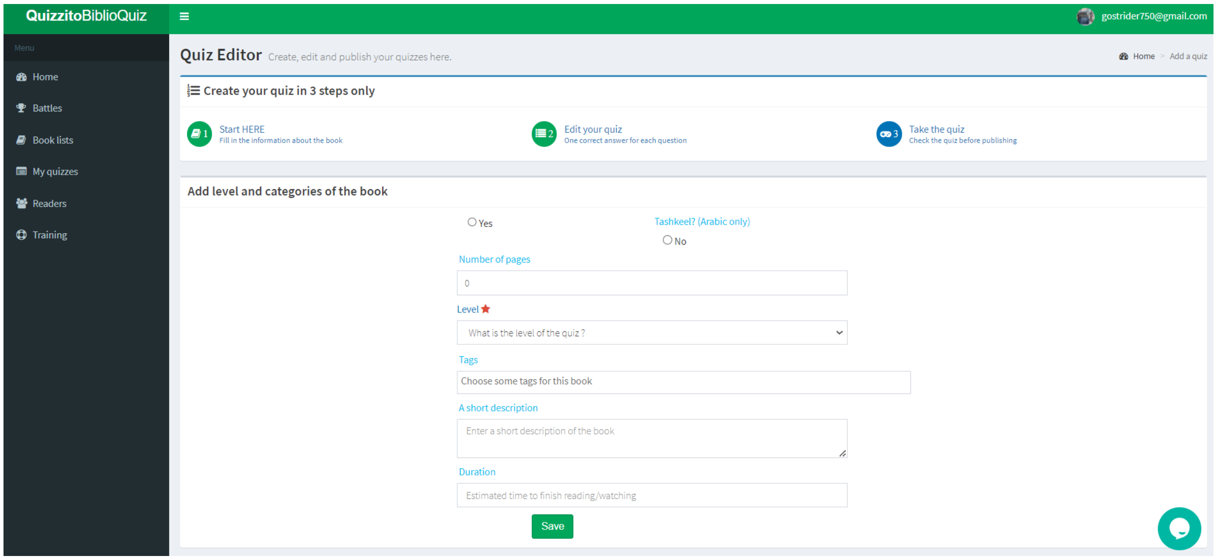


Figure 4.10: Quizzito setting in the dashboard page.



Quiz Editor Create, edit and publish your quizzes here.

Create your quiz in 3 steps only

1 Start HERE
Fill in the information about the book

2 Edit your quiz
One correct answer for each question

3 Take the quiz
Check the quiz before publishing

Add level and categories of the book

Tashkeel? (Arabic only) ○ Yes ○ No

Number of pages: 0

Level ★: What is the level of the quiz ?

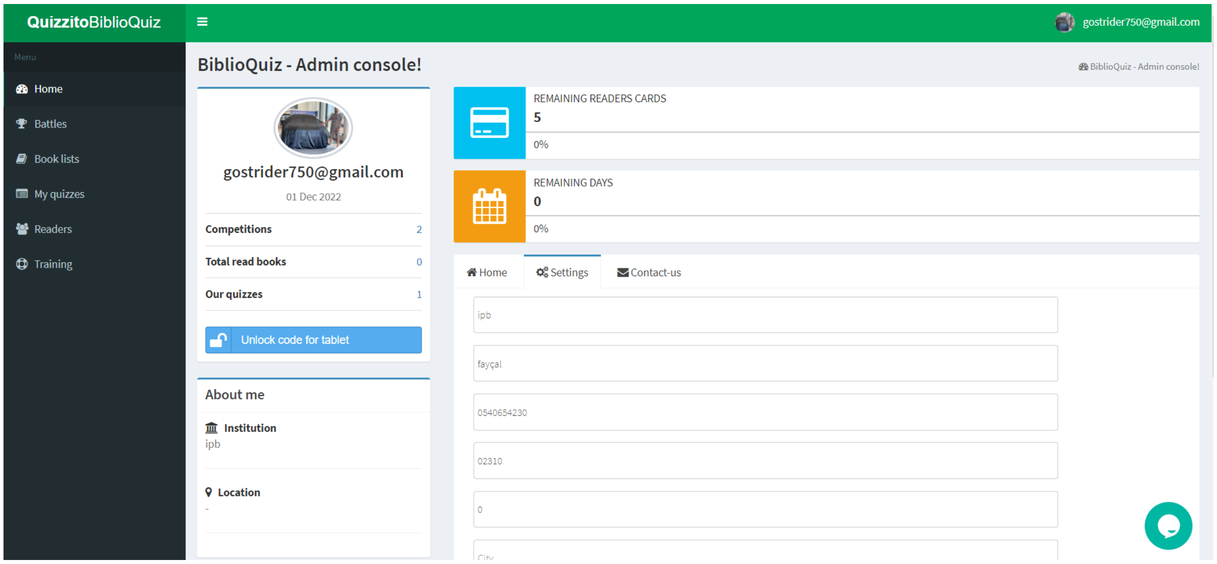
Tags: Choose some tags for this book

A short description: Enter a short description of the book

Duration: Estimated time to finish reading/watching

Figure 4.11: Quizzito setting in the dashboard page.

In the final stage, we have the battle or competition feature, designed to launch a duel between the kids to engage in quiz play. To initiate a battle, users must first create it, specifying the title, level, and the duration or time period for the competition see the following images (figure 4.12 and figure 4.13).



BiblioQuiz - Admin console!

gostrider750@gmail.com
01 Dec 2022

| | |
|---|---|
| Competitions | 2 |
| Total read books | 0 |
| Our quizzes | 1 |

About me

Institution
ipb

Location
-

REMAINING READERS CARDS
5
0%

REMAINING DAYS
0
0%

ipb

fayçal

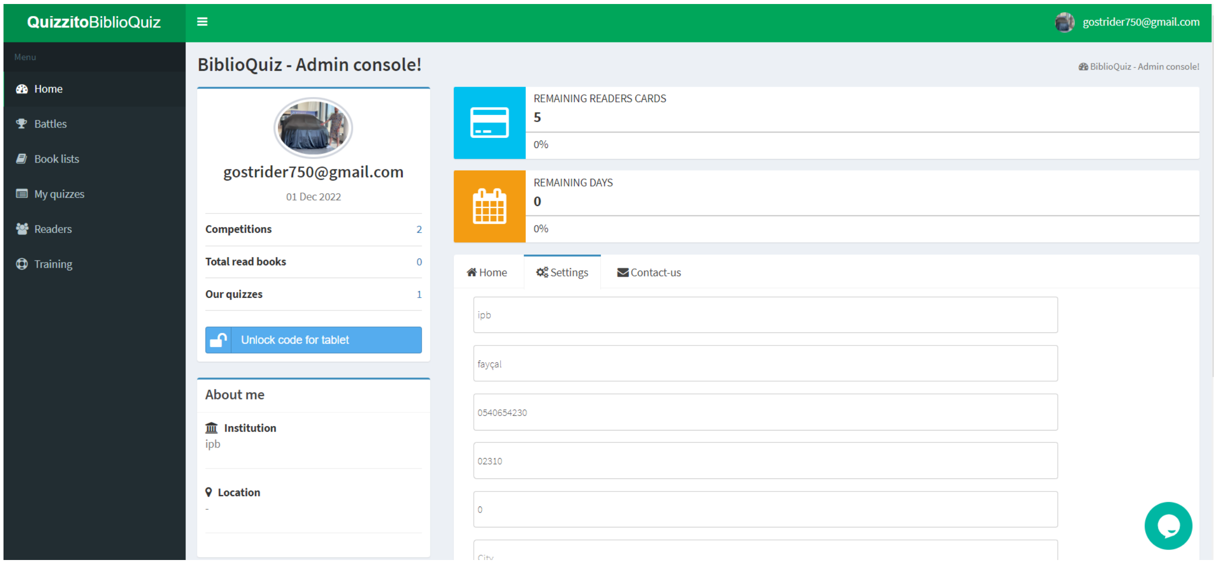
0540654230

02310

0

City

Figure 4.12: Quizzito Battle main page.



BiblioQuiz - Admin console!

gostrider750@gmail.com

01 Dec 2022

Competitions 2

Total read books 0

Our quizzes 1

About me

Institution

ipb

Location

-

REMAINING READERS CARDS

5

0%

REMAINING DAYS

0

0%

ipb

fayçal

0540654230

02310

0

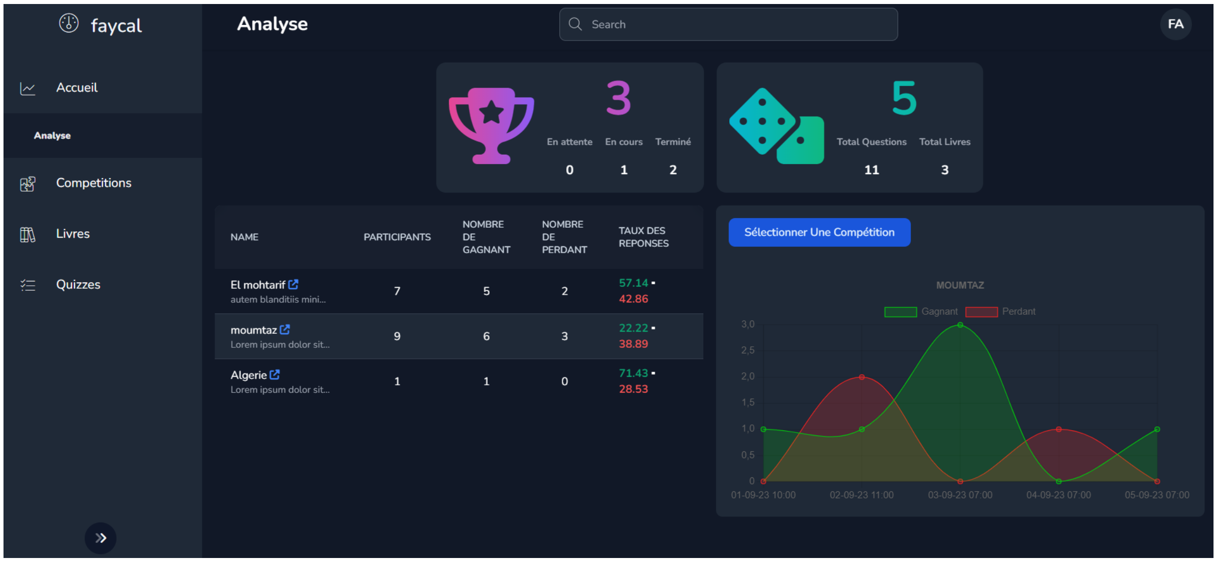
City

Figure 4.13: Quizzito creating battel page.

In this section, information is defined both in the battle and the quiz. One notable bug is that it allows the inclusion of two different levels in both the quiz and the battle, even if they are related. This issue presents a significant problem.

## 4.3 Developed Features

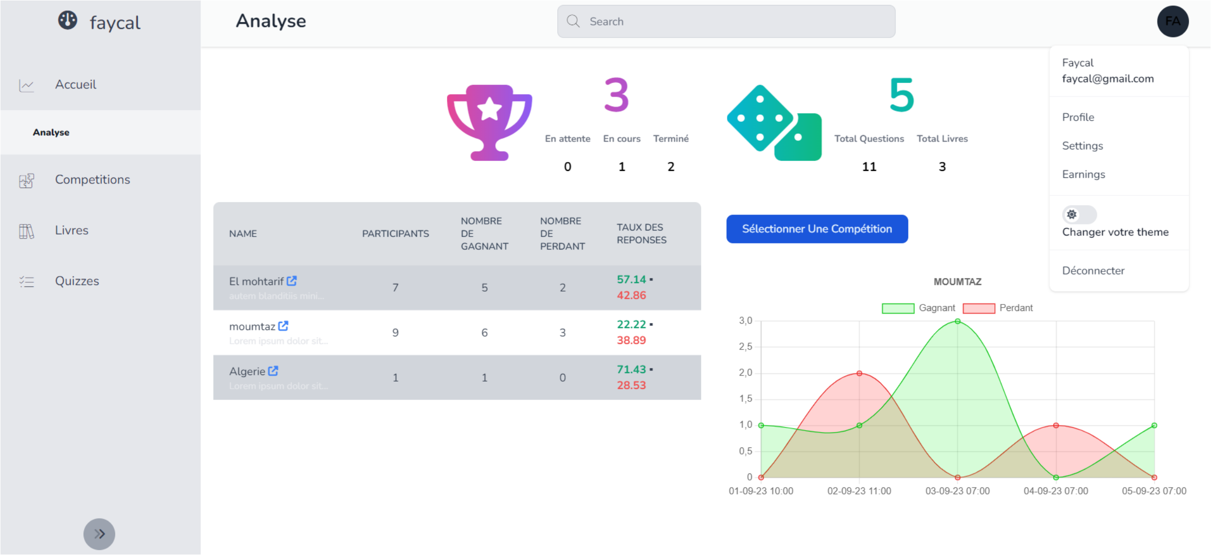
In this section, we will provide a comprehensive overview of the interface and address most of the issues that were prevalent in the initial platform. The solutions we've implemented aim to simplify the user experience and reduce complexity significantly. The depicted figure 4.14 showcases the home page that users encounter after logging in:



| NAME | PARTICIPANTS | NOMBRE DE GAGNANT | NOMBRE DE PERDANT | TAUX DES REPONSES |
|---|---|---|---|---|
| El mohtarif<br>autem blanditiis mini... | 7 | 5 | 2 | 57.14<br>42.86 |
| moumtaz<br>Lorem ipsum dolor sit... | 9 | 6 | 3 | 22.22<br>38.89 |
| Algerie<br>Lorem ipsum dolor sit... | 1 | 1 | 0 | 71.43<br>28.53 |

Figure 4.14: New proposal prototype home page.

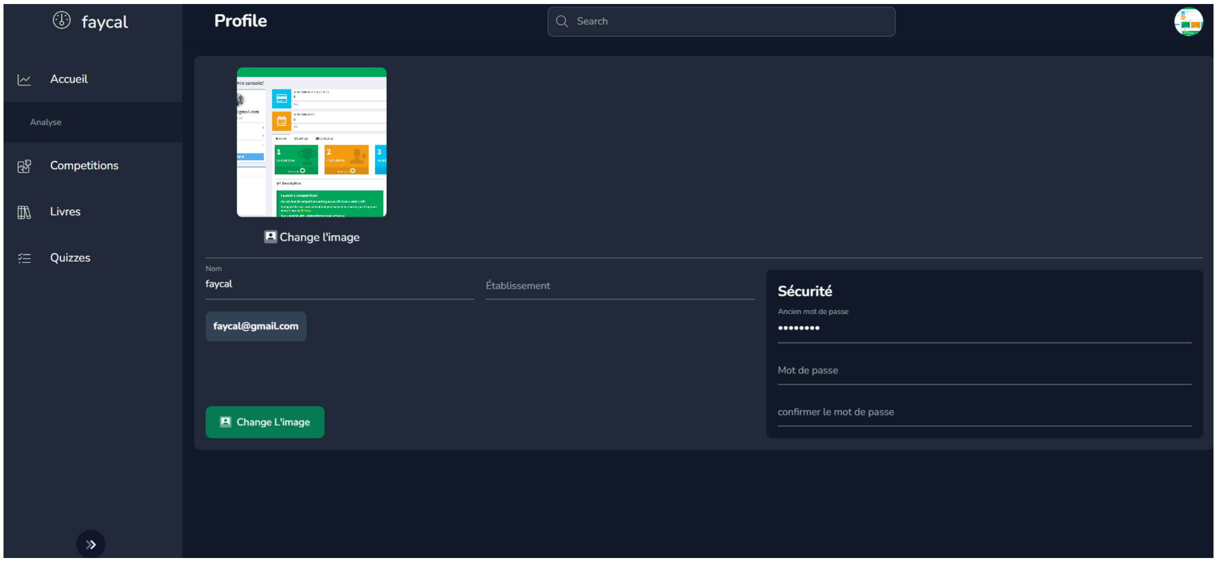
The page is divided into several sections, including the dashboard, which displays statistics we'll delve into in subsequent sections. Additionally, there's a sidebar for user navigation to other pages and a top section housing search and profile functionalities, both of which we'll discuss in the following sections.



| NAME | PARTICIPANTS | NOMBRE DE GAGNANT | NOMBRE DE PERDANT | TAUX DES REPONSES |
|---|---|---|---|---|
| El mohtarif<br>autem blanditiis mini... | 7 | 5 | 2 | 57.14<br>42.86 |
| moumtaz<br>Lorem ipsum dolor sit... | 9 | 6 | 3 | 22.22<br>38.89 |
| Algerie<br>Lorem ipsum dolor sit... | 1 | 1 | 0 | 71.43<br>28.53 |

Figure 4.15: New proposal prototype profile them changing.

As evident in the earlier figure 4.15, within the settings window, users have the option to modify the page's theme. The platform offers two themes: dark mode and light mode. Additionally, users can access the settings to view and update their personal information, as illustrated in the upcoming figure 4.16.



Nom
faycal

Établissement

faycal@gmail.com

Sécurité

Ancien mot de passe
••••••••

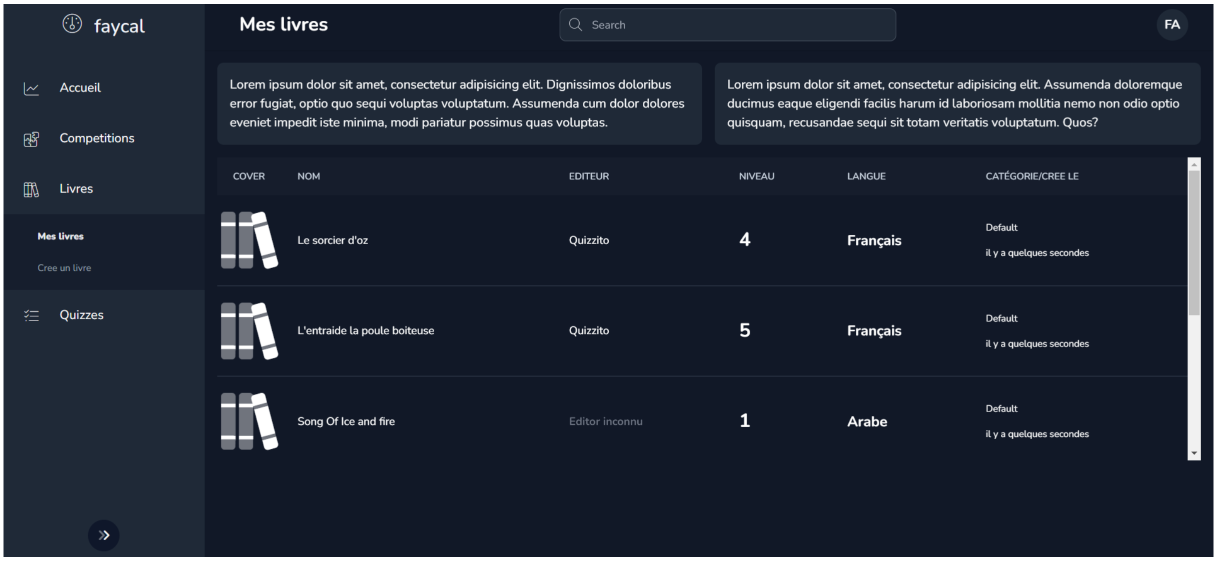
Mot de passe

confirmer le mot de passe

Figure 4.16: New proposal prototype profile setting.

In Figure 4.16, it's evident that users have the capability to update their name, affiliation, and personal photo. For security reasons, users can also change their password by entering both the old and the new passwords they wish to set.

The image below (figure 4.17) depicts the book list, and it's important to note that regular users do not have the option to update this list. Only administrators have the authority to add or remove books. We had initially considered proposing a "create book" or "add book" feature, but due to the existing functionality of the old platform, we had to adhere to the same mechanism.



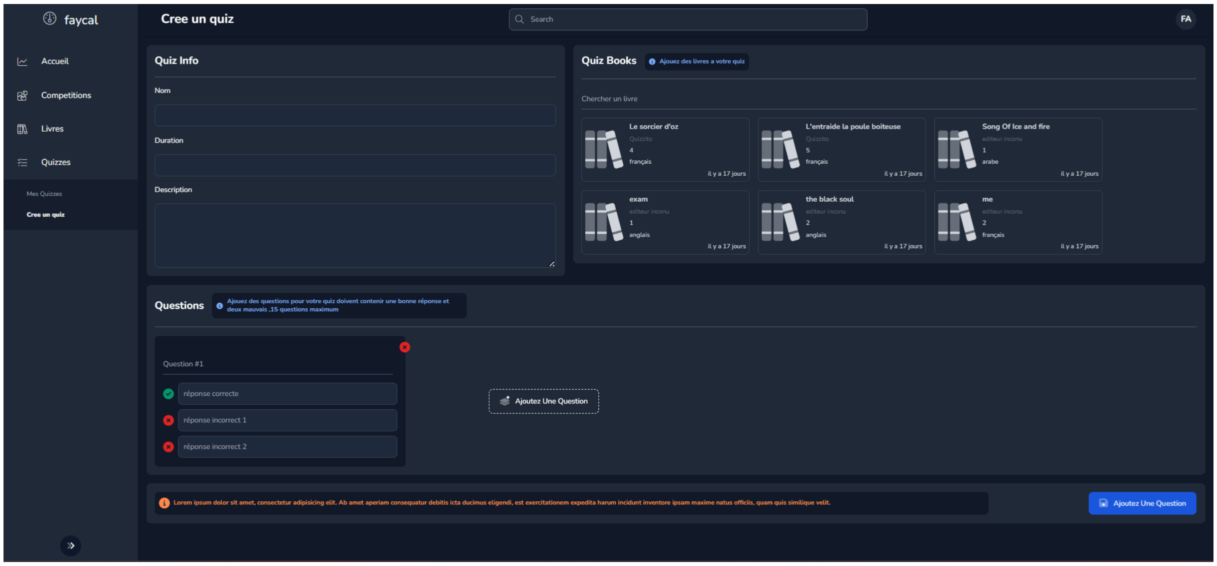
Lorem ipsum dolor sit amet, consectetur adipisicing elit. Dignissimos doloribus error fugiat, optio quo sequi voluptas voluptatum. Assumenda cum dolor dolores eveniet impedit iste minima, modi pariatur possimus quas voluptas.

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Assumenda doloremque ducimus eaque eligendi facilis harum id laboriosam mollitia nemo non odio optio quisquam, recusandae sequi sit totam veritatis voluptatum. Quos?

| COVER | NOM | EDITEUR | NIVEAU | LANGUE | CATÉGORIE/CREE LE |
|---|---|---|---|---|---|
| | Le sorcier d'oz | Quizzito | 4 | Français | Default<br>il y a quelques secondes |
| | L'entraide la poule boiteuse | Quizzito | 5 | Français | Default<br>il y a quelques secondes |
| | Song Of Ice and fire | Editor inconnu | 1 | Arabe | Default<br>il y a quelques secondes |

Figure 4.17: New proposal prototype book list.

For the next section we have the quiz section the figure 4.18 represent the page of the creation of an quiz:



Ajouez des livres a votre quiz

Le sorcier d'oz
Quizzito
4
français
il y a 17 jours

L'entraide la poule boiteuse
Quizzito
5
français
il y a 17 jours

Song Of Ice and fire
editeur inconu
1
arabe
il y a 17 jours

exam
editeur inconu
1
anglais
il y a 17 jours

the black soul
editeur inconu
2
anglais
il y a 17 jours

me
editeur inconu
2
français
il y a 17 jours

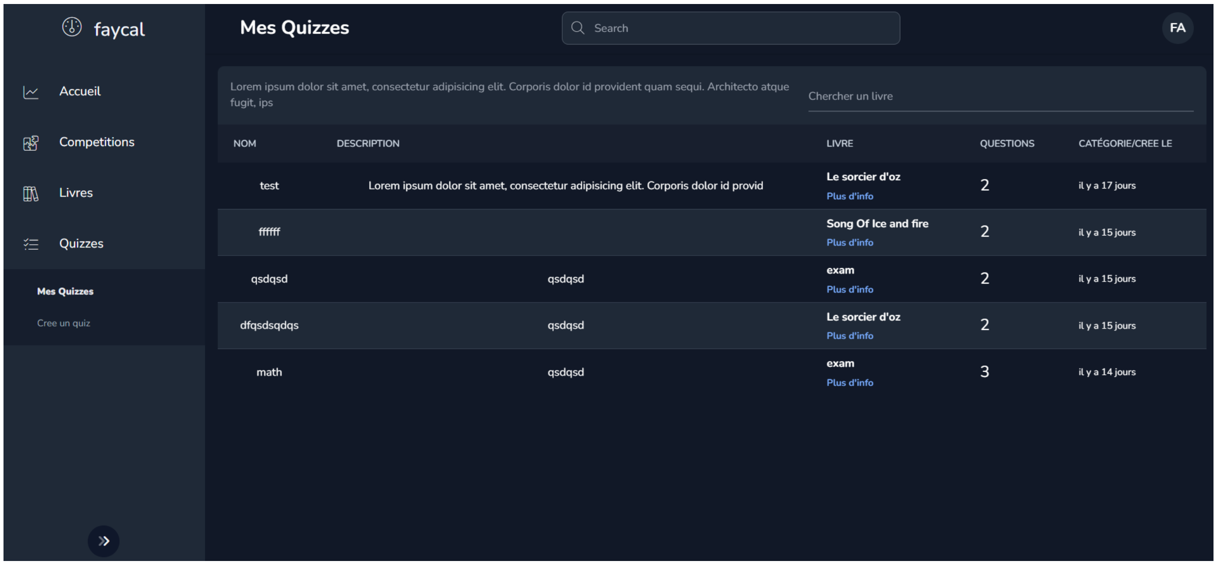
Ajouez des questions pour votre quiz doivent contenir une bonne réponse et deux mauvais ,15 questions maximum

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Ab amet aperiam consequatur debitis icta ducimus eligendi, est exercitationem expedita harum incidunt inventore ipsam maxime natus officiis, quam quis similique velit.

Figure 4.18: New proposal prototype quiz creation.

In this section, we've introduced a significant change compared to the old platform's mechanism, which now makes more sense and is logically structured. In the previous platform, any quiz created was automatically added to the book list, allowing users to add these quizzes to the competitions they wanted to create. This approach didn't align with the content structure because the book list contained books defined by administrators alongside user-created quizzes.

In our proposed prototype (figure 4.19), we've established a more logical relationship between books and quizzes. Redundant information, such as defining the level in both the quiz and the competition, has been removed. In our model, the creation of a quiz is linked exclusively to a single book. Users are required to provide the quiz's name, duration, description, and select the specific book they want to associate with the quiz. At the bottom of the page, users have the flexibility to create multiple quizzes, with a maximum of 15 quizzes available. Unlike the previous platform, which offered only two options (5 or 10 quizzes), our prototype grants users greater freedom in managing the number of questions for their quizzes.



Lorem ipsum dolor sit amet, consectetur adipisicing elit. Corporis dolor id provident quam sequi. Architecto atque fugit, ips

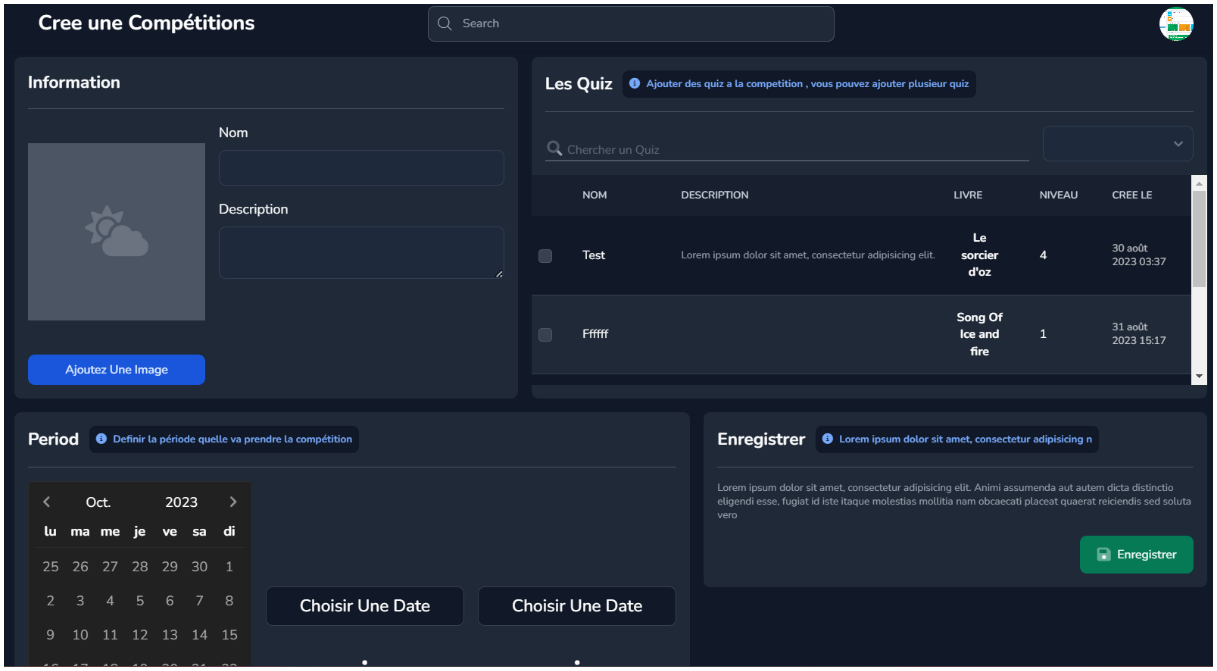
Chercher un livre

| NOM | DESCRIPTION | LIVRE | QUESTIONS | CATÉGORIE/CREE LE |
|---|---|---|---|---|
| test | Lorem ipsum dolor sit amet, consectetur adipisicing elit. Corporis dolor id provid | Le sorcier d'oz<br>Plus d'info | 2 | il y a 17 jours |
| ffffff | | Song Of Ice and fire<br>Plus d'info | 2 | il y a 15 jours |
| qsdqsd | qsdqsd | exam<br>Plus d'info | 2 | il y a 15 jours |
| dfqsdsqdqs | qsdqsd | Le sorcier d'oz<br>Plus d'info | 2 | il y a 15 jours |
| math | qsdqsd | exam<br>Plus d'info | 3 | il y a 14 jours |

Figure 4.19: New proposal prototype quiz creation.

The preceding figure illustrates the list of quizzes created by the user. Here, the user can easily discern the number of questions within each quiz and the associated book.

The subsequent section, which is the most complex and significant, pertains to competitions. In the old platform, the competition setup was more complicated due to redundant data entry, as previously mentioned, involving level specifications in both the quiz and the default level in the book. Notably, we even attempted to insert two different levels without detecting any errors. However, in our proposed prototype, the competition setup is less intricate, as depicted in the figure 4.20.



Ajouter des quiz a la competition , vous pouvez ajouter plusieur quiz

| | NOM | DESCRIPTION | LIVRE | NIVEAU | CREE LE |
|---|---|---|---|---|---|
| □ | Test | Lorem ipsum dolor sit amet, consectetur adipisicing elit. | Le sorcier d'oz | 4 | 30 août 2023 03:37 |
| □ | Ffffff | | Song Of Ice and fire | 1 | 31 août 2023 15:17 |

Definir la période quelle va prendre la compétition

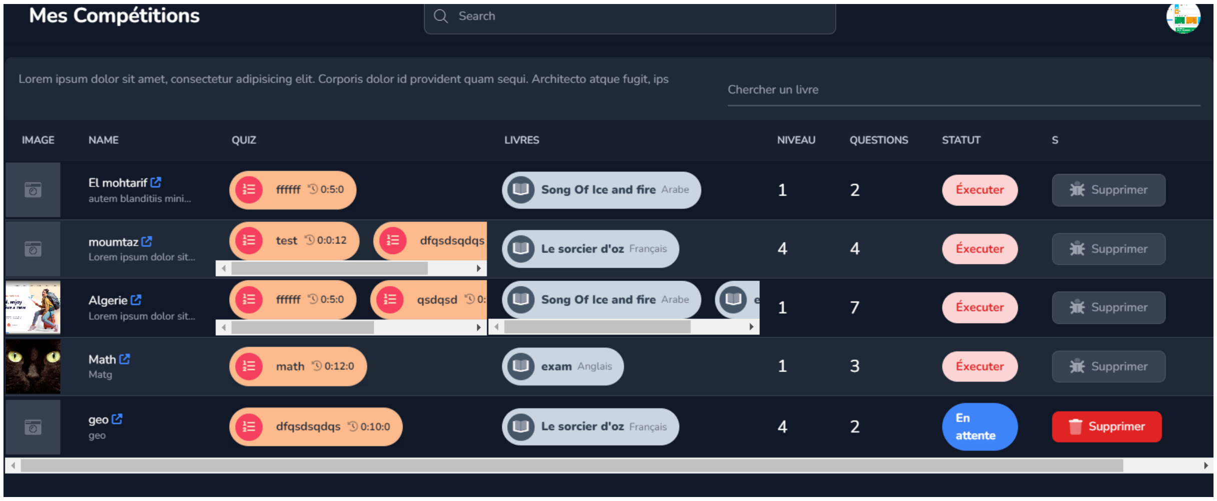
| < Oct. | | | 2023 | | | > |
|---|---|---|---|---|---|---|
| lu | ma | me | je | ve | sa | di |
| 25 | 26 | 27 | 28 | 29 | 30 | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |

Lorem ipsum dolor sit amet, consectetur adipisicing n

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Animi assumenda aut autem dicta distinctio eligendi esse, fugiat id iste itaque molestias mollitia nam obcaecati placeat quaerat reiciendis sed soluta vero

Figure 4.20: New proposal prototype competition creation.

In order to set up a competition, users are required to input several essential pieces of information, including the competition's name, a description, an image, and the duration or period for the competition. We've introduced a novel feature to address the problem of redundant data entry. When users choose the quizzes they wish to include in the competition, the system prevents them from selecting different difficulty levels within the same competition. For instance, if a user selects three quizzes for level 1, and then adds a quiz of a different level, the previous level selections will be automatically deselected. This ensures a consistent and cohesive competition experience. Following the creation of the competition, users can locate it within the competition list, as depicted in the figure 4.21.



Mes Compétitions

Search

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Corporis dolor id provident quam sequi. Architecto atque fugit, ips

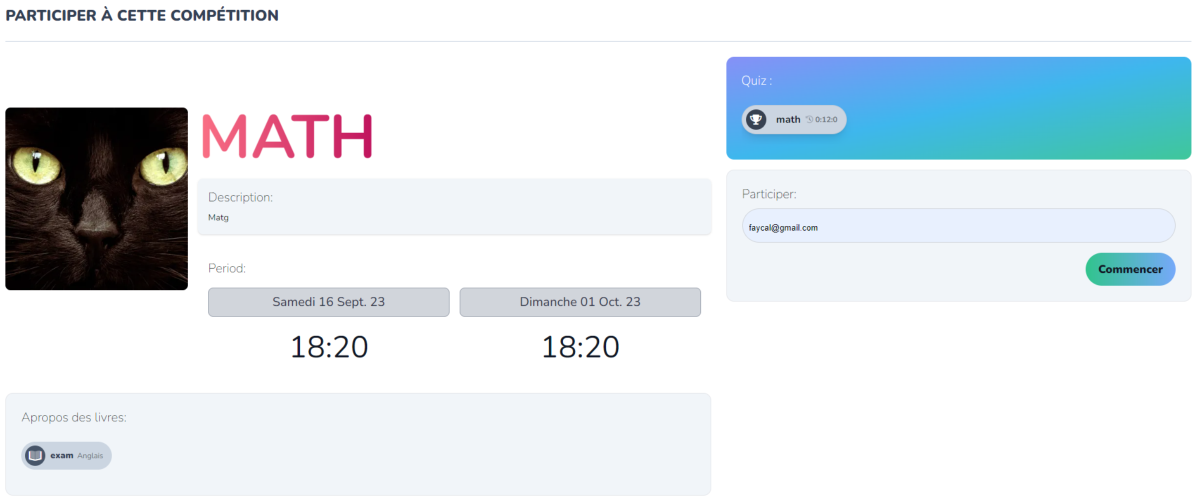
Chercher un livre

| IMAGE | NAME | QUIZ | LIVRES | NIVEAU | QUESTIONS | STATUT | S |
|---|---|---|---|---|---|---|---|
|  | El mohtarif<br>autem blanditiis mini... | ffffff 0:5:0 | Song Of Ice and fire Arabe | 1 | 2 | Éxecuter | Supprimer |
|  | moumtaz<br>Lorem ipsum dolor sit... | test 0:0:12<br>dfqsdsqdqs | Le sorcier d'oz Français | 4 | 4 | Éxecuter | Supprimer |
|  | Algerie<br>Lorem ipsum dolor sit... | ffffff 0:5:0<br>qsdqsd 0: | Song Of Ice and fire Arabe<br>e | 1 | 7 | Éxecuter | Supprimer |
|  | Math<br>Matg | math 0:12:0 | exam Anglais | 1 | 3 | Éxecuter | Supprimer |
|  | geo<br>geo | dfqsdsqdqs 0:10:0 | Le sorcier d'oz Français | 4 | 2 | En attente | Supprimer |

Figure 4.21: New proposal prototype competition list.

As evident from the list, users can view the competitions, the quizzes linked to each competition, and the books associated with those quizzes. Additionally, the user can access information regarding the competition's level, the total number of questions, and its status (e.g., not started, ongoing, or expired). If the competition has not yet commenced, users have the option to delete it. However, once the competition has started, deletion is no longer possible. To access to the competition link the user need to click on the blue squard, after doing that the user will access to the following interface as shown in the figure 4.22:

To access this page, a link should be sent to the students for them to participate in the quiz. In comparison to the old platform's method of creating users, our approach is considerably more user-friendly. In the old system, after creating a competition, a PDF file was generated containing all the usernames and passwords for accessing the battle. While this method offers enhanced security, it can be quite burdensome for users to copy and paste this information to share with their students. In our proposed prototype, the process is simplified. Users only need to share a link, and students can easily authenticate with their email addresses to join the competition. Students can view the competition's cover, title, and period, and they have the flexibility to start at their convenience within the specified time frame. Upon completing all the questions, the student will reach the



PARTICIPER À CETTE COMPÉTITION

MATH

Description: Matg

Period:

Samedi 16 Sept. 23 — 18:20

Dimanche 01 Oct. 23 — 18:20

Apropos des livres:

exam Anglais

Quiz :

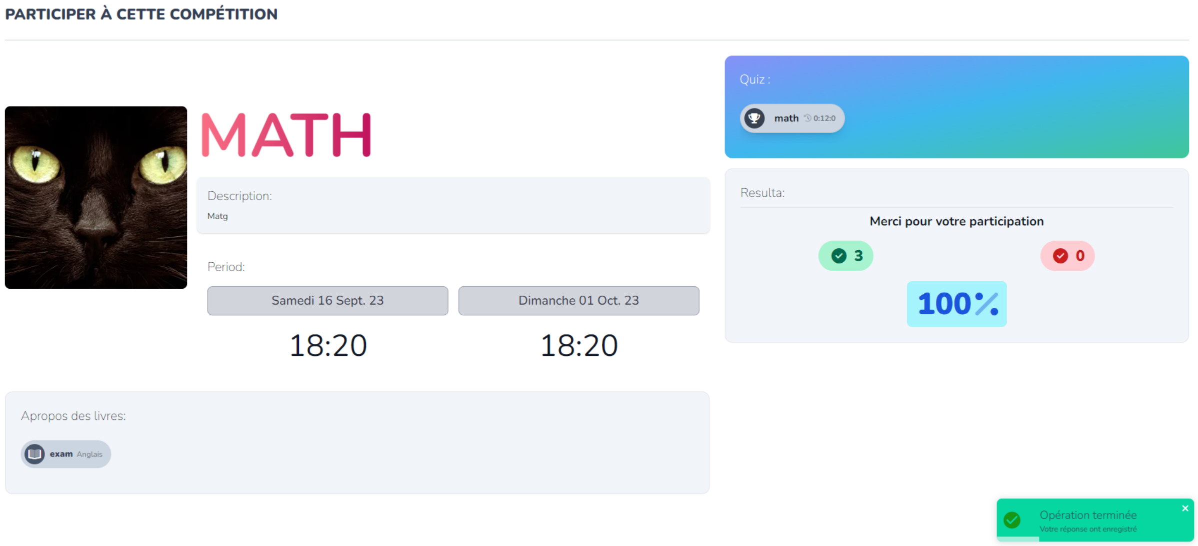
math 0:12:0

Participer:

faycal@gmail.com

Figure 4.22: New proposal prototype competition starting page.

final stage of the competition, as illustrated in the forthcoming figure (figure 4.23).



PARTICIPER À CETTE COMPÉTITION

MATH

Description: Matg

Period:

Samedi 16 Sept. 23 — 18:20

Dimanche 01 Oct. 23 — 18:20

Apropos des livres:

exam Anglais

Quiz :

math 0:12:0

Resulta:

Merci pour votre participation

✓ 3 ✗ 0

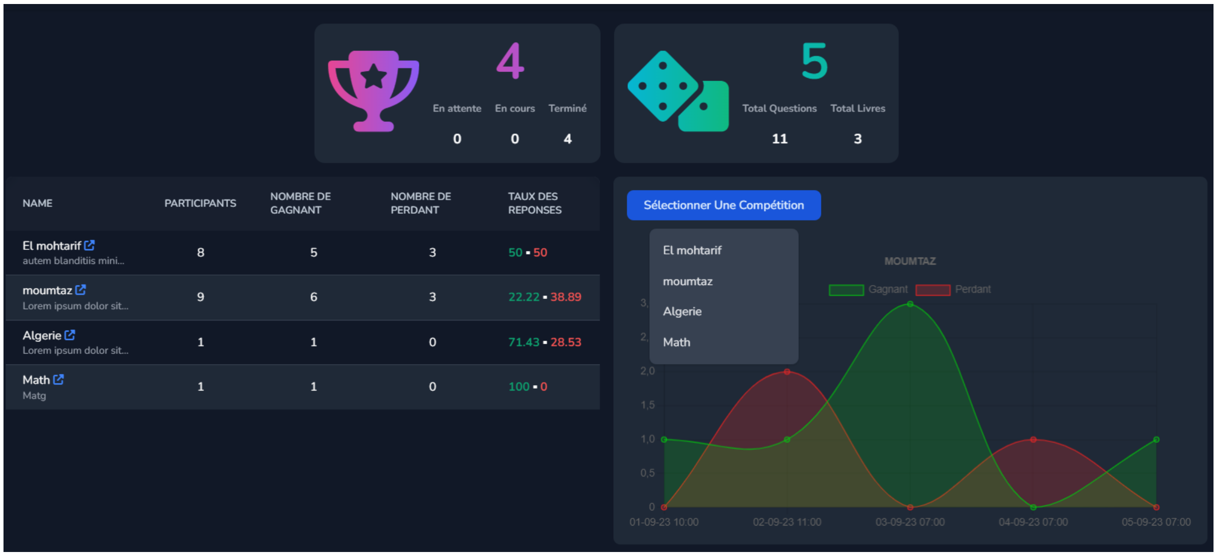
100%

Opération terminée

Votre réponse ont enregistré

Figure 4.23: New proposal prototype competition ending page.

The student can view both the percentage of correct answers and the total number of questions they have answered. These details will appear in the "Analysis" section on the home page for the authorized competition administrator to access as shown in the figure 4.24.



4

| En attente | En cours | Terminé |
|---|---|---|
| 0 | 0 | 4 |

5

| Total Questions | Total Livres |
|---|---|
| 11 | 3 |

| NAME | PARTICIPANTS | NOMBRE DE GAGNANT | NOMBRE DE PERDANT | TAUX DES REPONSES |
|---|---|---|---|---|
| El mohtarif<br>autem blanditiis mini... | 8 | 5 | 3 | 50 ▪ 50 |
| moumtaz<br>Lorem ipsum dolor sit... | 9 | 6 | 3 | 22.22 ▪ 38.89 |
| Algerie<br>Lorem ipsum dolor sit... | 1 | 1 | 0 | 71.43 ▪ 28.53 |
| Math<br>Matg | 1 | 1 | 0 | 100 ▪ 0 |

Figure 4.24: New proposal prototype statistic page.

In this section, the user has the ability to search for all the competitions they've created. They can also review the answer rates, with correct answers highlighted in green and incorrect ones in red. Additionally, users can access a graph that displays the number of winners and losers throughout the competition period.

## 4.4 Unit tests

### 4.4.1 Database unit test

Unit tests for the database are indispensable as they serve to verify data integrity, maintain data consistency, ensure security measures, and prevent issues from arising during development. These tests not only validate that data operations work as intended but also act as a safety net, catching errors early, supporting efficient collaboration among developers, and serving as essential documentation. They play a vital role in continuous integration, regression prevention, and overall quality assurance, making them a crucial component of any robust software development process. the figure 4.25 show our representation of the database:

In our testing phase, we employed straightforward queries to verify the successful

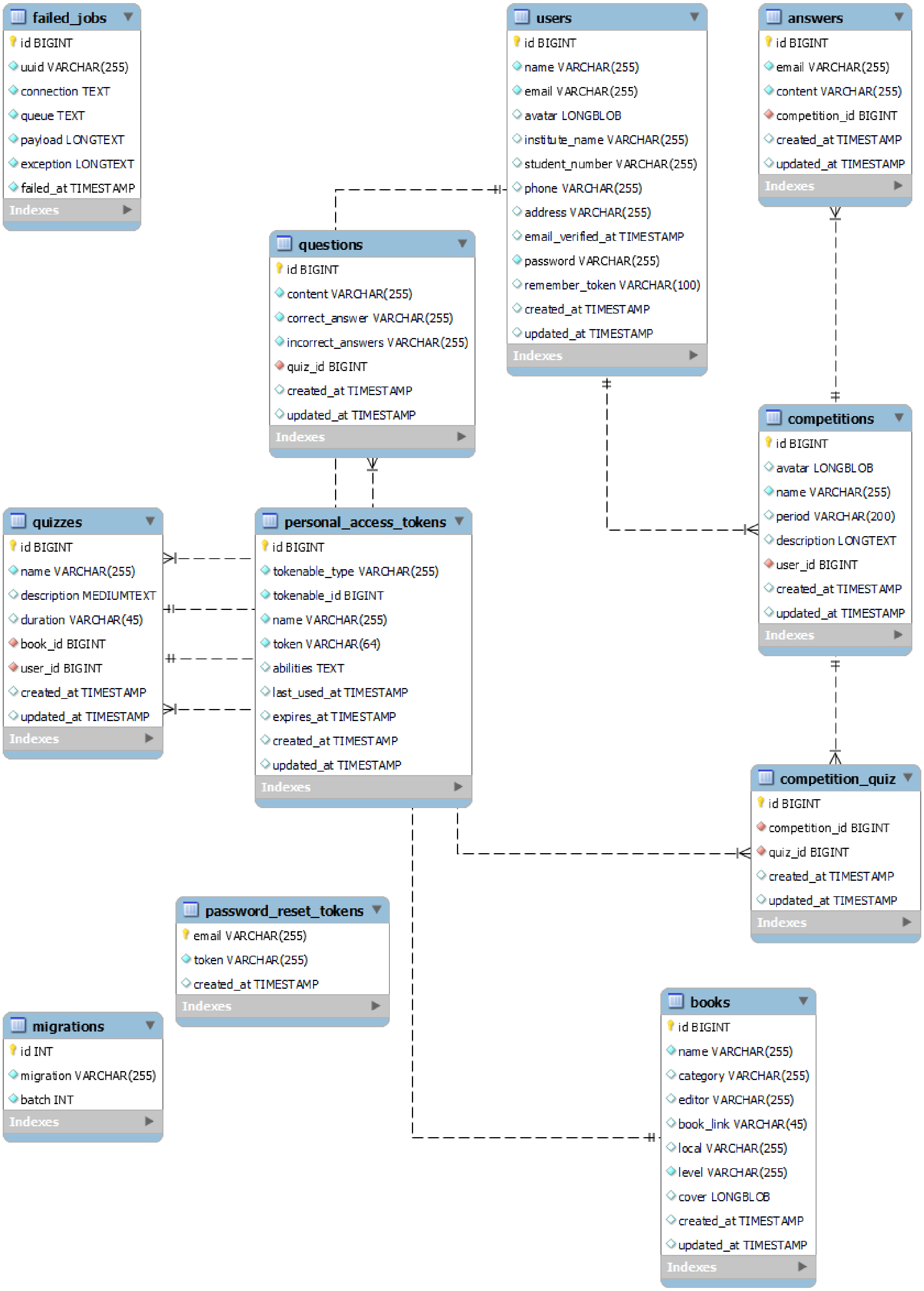
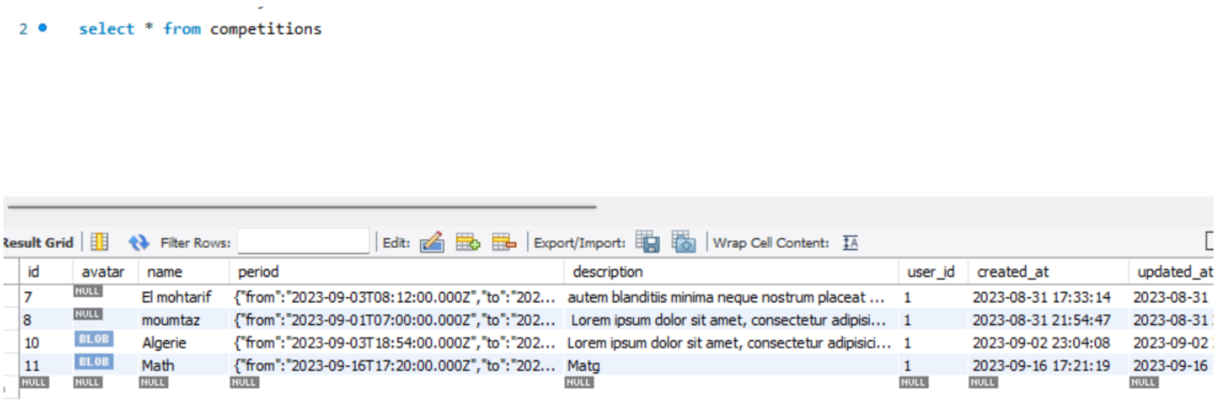


Figure 4.25: New prototype Database.

passage of information from the interface to the database. This validation process was conducted across all database tables. The subsequent figure (figure 4.26) illustrates a basic query performed on the competition table:



```
2 •   select * from competitions
```

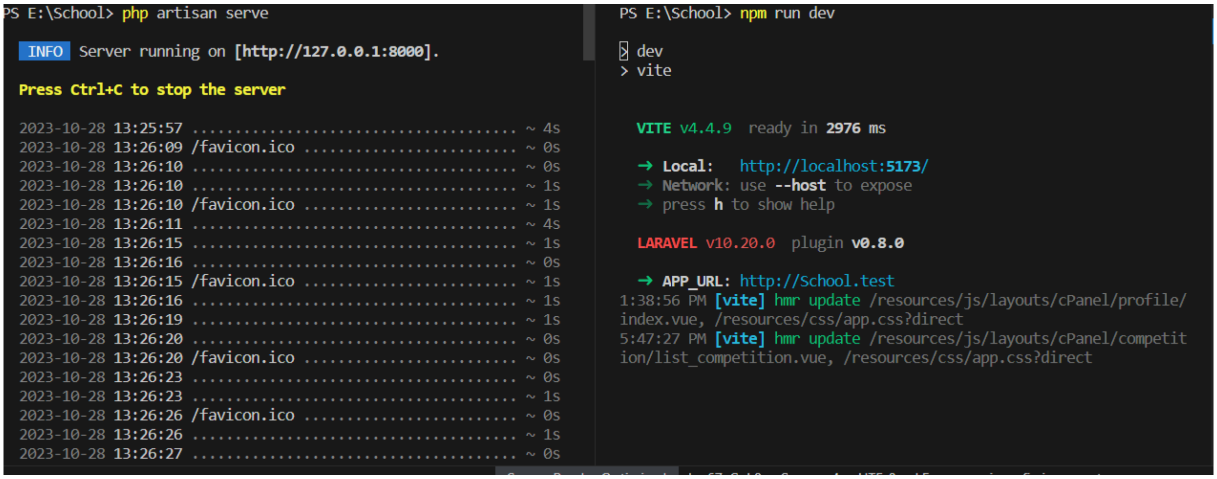
| id | avatar | name | period | description | user_id | created_at | updated_at |
|---|---|---|---|---|---|---|---|
| 7 | NULL | El mohtarif | {"from":"2023-09-03T08:12:00.000Z","to":"202... | autem blanditiis minima neque nostrum placeat ... | 1 | 2023-08-31 17:33:14 | 2023-08-31 |
| 8 | NULL | moumtaz | {"from":"2023-09-01T07:00:00.000Z","to":"202... | Lorem ipsum dolor sit amet, consectetur adipisi... | 1 | 2023-08-31 21:54:47 | 2023-08-31 |
| 10 | BLOB | Algerie | {"from":"2023-09-03T18:54:00.000Z","to":"202... | Lorem ipsum dolor sit amet, consectetur adipisici... | 1 | 2023-09-02 23:04:08 | 2023-09-02 |
| 11 | BLOB | Math | {"from":"2023-09-16T17:20:00.000Z","to":"202... | Matg | 1 | 2023-09-16 17:21:19 | 2023-09-16 |
| NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

Figure 4.26: Testing competition table.

We got the same results for all the tables all the information display normally.

### 4.4.2 Execution

Regarding unit tests, we have not executed them yet as the project has not been deployed. Instead, we plan to provide the source code to the owner of the previous platform, who will be responsible for conducting their own unit tests on both the Front-end and Back-end components. The tests that have been performed primarily focused on the usability and functionality of the interface components through visual testing, and we are pleased to report that all aspects performed seamlessly. For the execution we used the following commands for both Front-end and Back-end see the figure 4.27:



```
PS E:\School> php artisan serve

  INFO  Server running on [http://127.0.0.1:8000].

  Press Ctrl+C to stop the server

  2023-10-28 13:25:57 ..................................... ~ 4s
  2023-10-28 13:26:09 /favicon.ico ........................ ~ 0s
  2023-10-28 13:26:10 ..................................... ~ 0s
  2023-10-28 13:26:10 ..................................... ~ 1s
  2023-10-28 13:26:10 /favicon.ico ........................ ~ 1s
  2023-10-28 13:26:11 ..................................... ~ 4s
  2023-10-28 13:26:15 ..................................... ~ 1s
  2023-10-28 13:26:16 ..................................... ~ 0s
  2023-10-28 13:26:15 /favicon.ico ........................ ~ 1s
  2023-10-28 13:26:16 ..................................... ~ 1s
  2023-10-28 13:26:19 ..................................... ~ 1s
  2023-10-28 13:26:20 ..................................... ~ 0s
  2023-10-28 13:26:20 /favicon.ico ........................ ~ 0s
  2023-10-28 13:26:23 ..................................... ~ 0s
  2023-10-28 13:26:23 ..................................... ~ 1s
  2023-10-28 13:26:26 /favicon.ico ........................ ~ 0s
  2023-10-28 13:26:26 ..................................... ~ 1s
  2023-10-28 13:26:27 ..................................... ~ 0s
```

```
PS E:\School> npm run dev

> dev
> vite


  VITE v4.4.9  ready in 2976 ms

  ➜  Local:   http://localhost:5173/
  ➜  Network: use --host to expose
  ➜  press h to show help

  LARAVEL v10.20.0  plugin v0.8.0

  ➜  APP_URL: http://School.test
1:38:56 PM [vite] hmr update /resources/js/layouts/cPanel/profile/
index.vue, /resources/css/app.css?direct
5:47:27 PM [vite] hmr update /resources/js/layouts/cPanel/competit
ion/list_competition.vue, /resources/css/app.css?direct
```

Figure 4.27: Execution part.

In terms of security, we conducted tests by attempting to connect with non-existent email addresses in the database, and these attempts were unsuccessful, demonstrating a robust level of security in the authentication process. Furthermore, we also tested for SQL injection vulnerabilities, which were also unsuccessful. Consequently, it can be affirmed that the security measures in place are significantly stronger than those in the previous platform.

# Chapter 5

# Conclusion

In conclusion, educational platforms play a vital role in nurturing growth and learning, offering individuals a dynamic avenue to expand their knowledge and skills. Quizzito, a remarkable educational platform, was conceived by an Algerian team with a unique vision of learning, playing, and earning rewards. This ingenious concept was born to assist parents in educating their children effectively. Our project's primary objective was to reimagine an existing platform that had been struggling with client retention, primarily due to interface disorganization, color schemes, work complexity, and flawed logic.

In the conception phase, we collaborated closely with the owner of Quizzito, drawing from their insights on system architecture and modeling. We leveraged essential tools like use case and class diagrams to mold our project effectively. The user testing phase was marked by our use of Figma for creating mock-ups and Maze.co for gathering invaluable user testing data.

For the development phase, we harnessed the power of Vue.js for the front end, Laravel for the back end, and SQL for robust data storage. As we near completion, we are excited to deliver our work to the owner of Quizzito, who will have the opportunity to replace the existing interface with our proposed prototype. This collaborative effort underscores our commitment to making the Quizzito educational platform more user-friendly, engaging, and impactful, serving as a testament to the positive evolution of educational tools for both children and parents.

## 5.1 Future Work

This project is not yet finished, but for our part, our job is done, which is the redesign of the platform. The following list represents the tasks that need to be done so the project will be deployed and executed:

- Language selection option In the old platform, there were three languages (Arabic, English, and French). In our prototype, we used French.
- The prototype need to be linked with the old platform database.
- Unit test is going to be done by the company if they want to deploy the prototype, the unit test suppose to be done by me and to team of quizzito when the company is okay to keep the prototype.
- Secure the registration and the connection in case they want to keep only the design.
- Add more educational games.

Those points is to be discussed with the quizzito owner in the next meeting.

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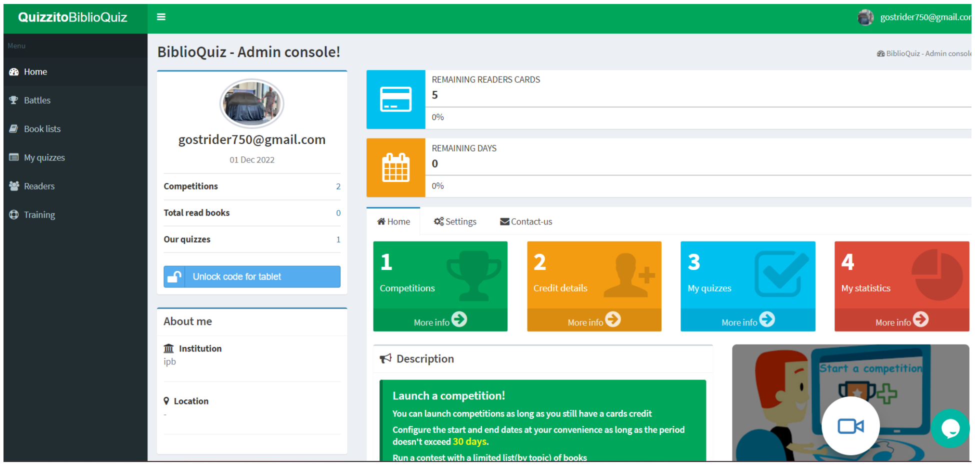
# Appendix A

# Design Pages

In this section, we are going to see the different design pages in the old and new prototype. Quizzito dashboard design shown in figure A.1 too many colors and buttons.



BiblioQuiz - Admin console!

gostrider750@gmail.com

01 Dec 2022

Competitions 2

Total read books 0

Our quizzes 1

About me

Institution
ipb

Location
-

REMAINING READERS CARDS
5
0%

REMAINING DAYS
0
0%

Description

Launch a competition!

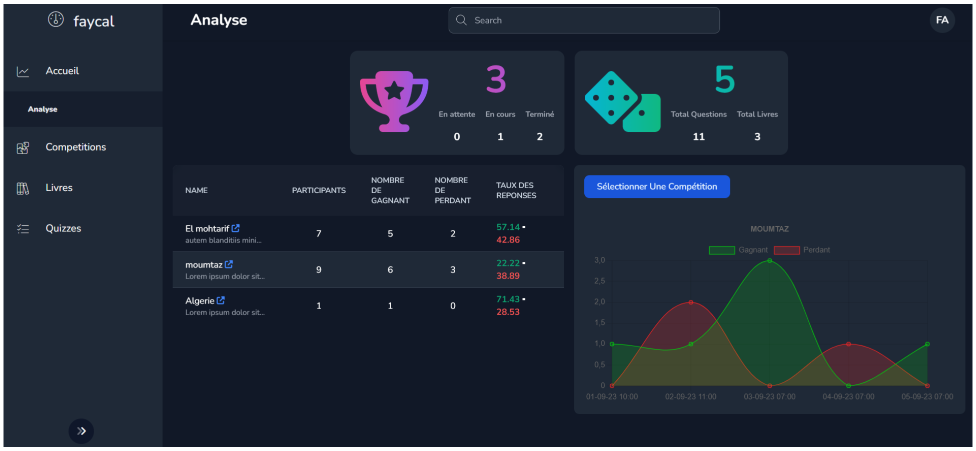
You can launch competitions as long as you still have a cards credit

Configure the start and end dates at your convenience as long as the period doesn't exceed 30 days.

Run a contest with a limited list(by topic) of books

Figure A.1: Old dashboard.

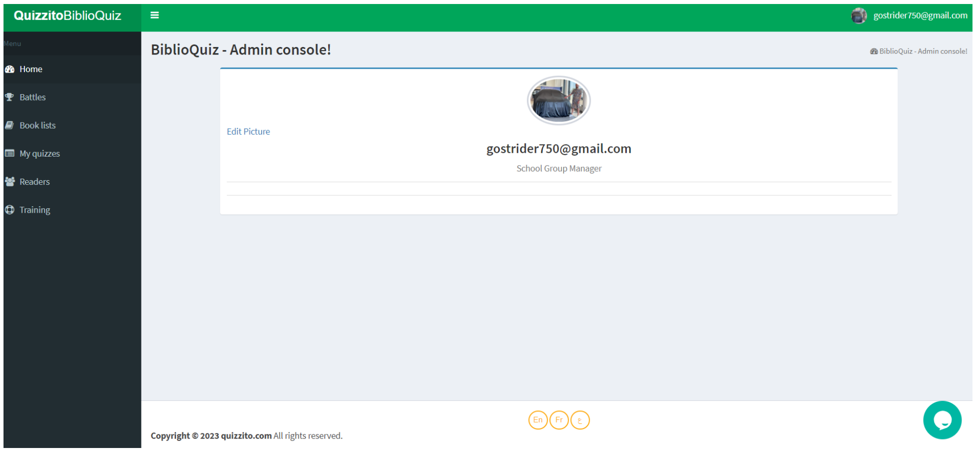
In the new prototype dashboard design shown in figure A.2 we focused on a few colors and added statistics.



| NAME | PARTICIPANTS | NOMBRE DE GAGNANT | NOMBRE DE PERDANT | TAUX DES REPONSES |
|---|---|---|---|---|
| El mohtarif<br>autem blanditiis mini... | 7 | 5 | 2 | 57.14 ▪<br>42.86 |
| moumtaz<br>Lorem ipsum dolor sit... | 9 | 6 | 3 | 22.22 ▪<br>38.89 |
| Algerie<br>Lorem ipsum dolor sit... | 1 | 1 | 0 | 71.43 ▪<br>28.53 |

Figure A.2: New dashboard.

The following figure A.3 represents the process of displaying and changing the profile information. As we can see, there is a profile section, but the information can be changed in the dashboard, see figure A.4.



BiblioQuiz - Admin console!

gostrider750@gmail.com

School Group Manager

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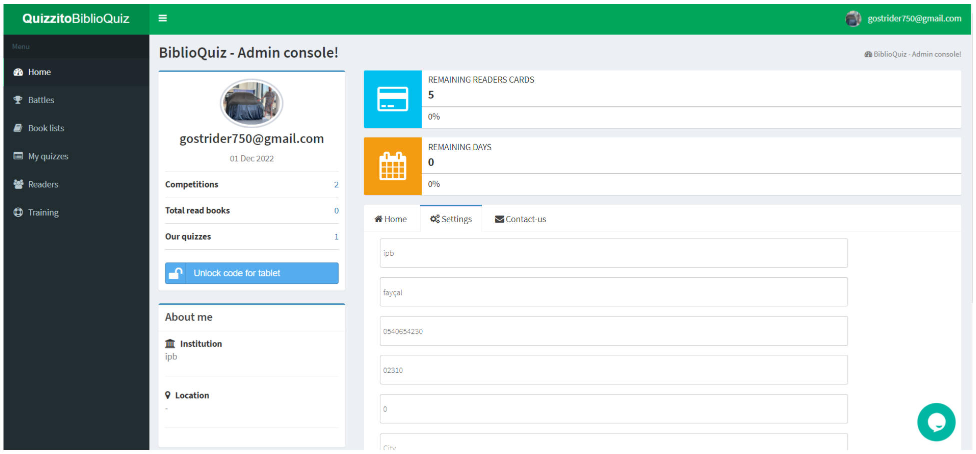
Figure A.3: Old platform setting page.



BiblioQuiz - Admin console!

gostrider750@gmail.com
01 Dec 2022

| | |
|---|---|
| Competitions | 2 |
| Total read books | 0 |
| Our quizzes | 1 |

About me

Institution
ipb

Location
-

REMAINING READERS CARDS
5
0%

REMAINING DAYS
0
0%

ipb

fayçal

0540654230

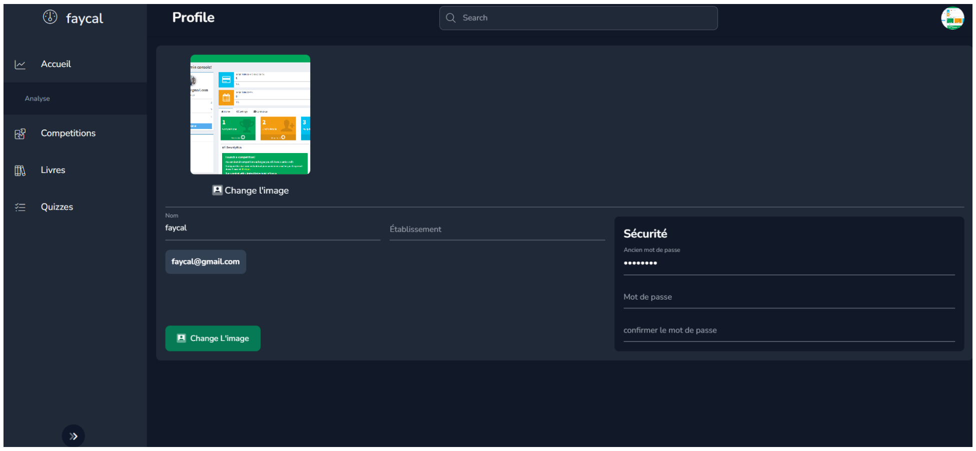
02310

0

City

Figure A.4: Old platform setting dashboard.

The following figure A.5 represents the new design proposed to replace the design issue and the duplicate pages of the same function.



Nom
faycal

Établissement

faycal@gmail.com

Sécurité

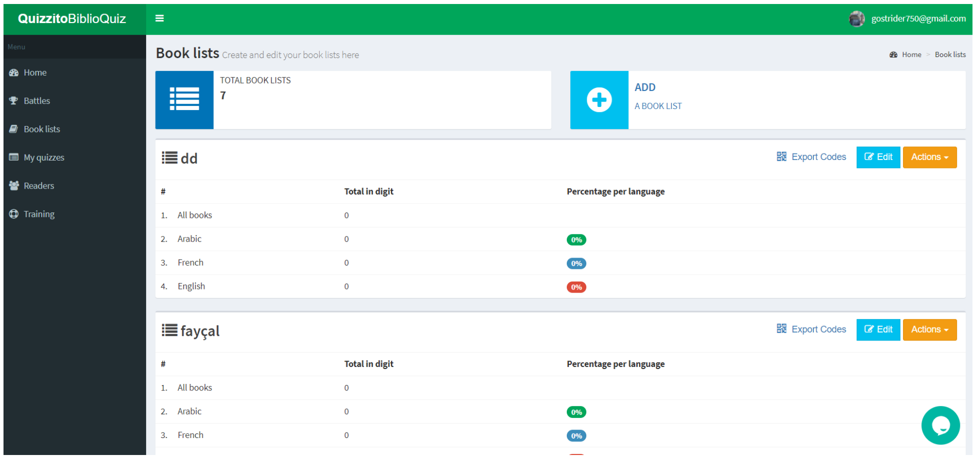
Ancien mot de passe
••••••••

Mot de passe

confirmer le mot de passe

Figure A.5: The new design of the setting.

The following figures (A.6)(A.7) represent the list of books created to be added in a competition and how to create a list of books.



Book lists Create and edit your book lists here

TOTAL BOOK LISTS
7

ADD
A BOOK LIST

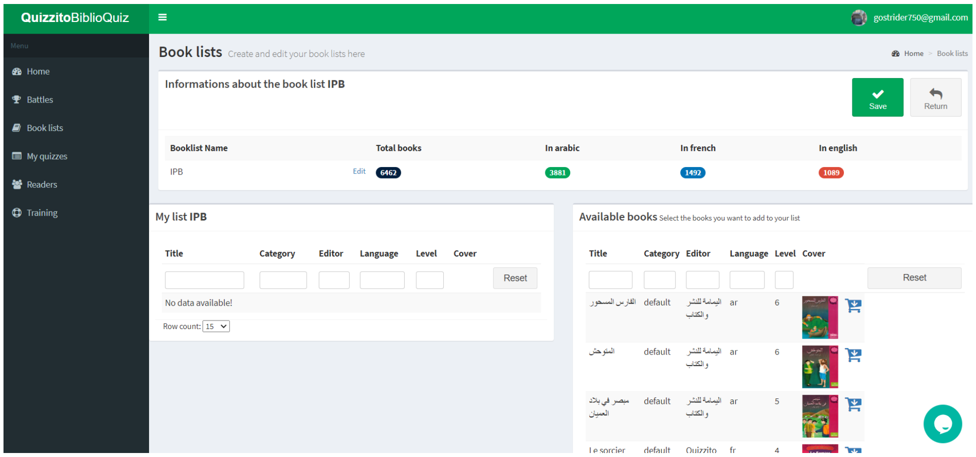
dd

| # | | Total in digit | Percentage per language |
|---|---|---|---|
| 1. | All books | 0 | |
| 2. | Arabic | 0 | 0% |
| 3. | French | 0 | 0% |
| 4. | English | 0 | 0% |

fayçal

| # | | Total in digit | Percentage per language |
|---|---|---|---|
| 1. | All books | 0 | |
| 2. | Arabic | 0 | 0% |
| 3. | French | 0 | 0% |

Figure A.6: Old platform books lists.



Book lists Create and edit your book lists here

Informations about the book list IPB

| Booklist Name | | Total books | In arabic | In french | In english |
|---|---|---|---|---|---|
| IPB | Edit | 6462 | 3881 | 1492 | 1089 |

My list IPB

| Title | Category | Editor | Language | Level | Cover |
|---|---|---|---|---|---|
| No data available! | | | | | |

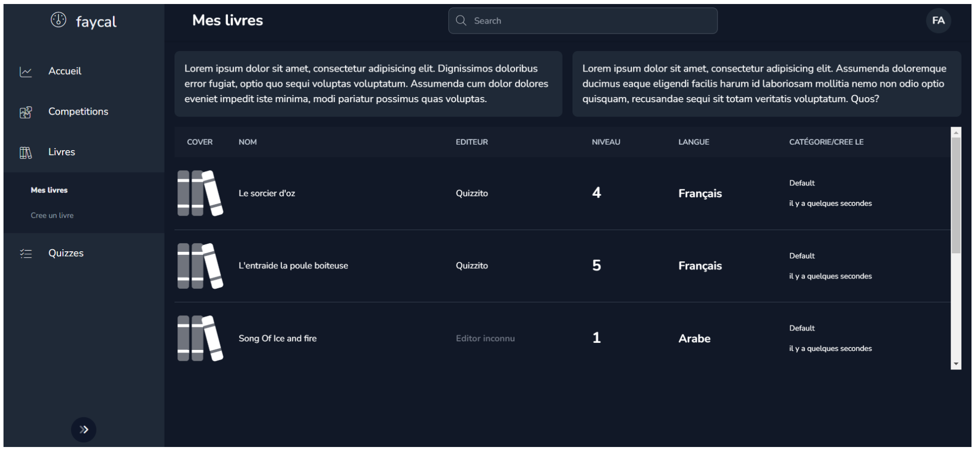
Row count: 15

Available books Select the books you want to add to your list

| Title | Category | Editor | Language | Level | Cover |
|---|---|---|---|---|---|
| الفارس المسحور | default | اليمامة للنشر و الكتاب | ar | 6 | |
| المتوحش | default | اليمامة للنشر و الكتاب | ar | 6 | |
| مبصر في بلاد العميان | default | اليمامة للنشر و الكتاب | ar | 5 | |
| Le sorcier | default | Quizzito | fr | 4 | |

Figure A.7: Old platform create a book list.

In the new prototype, figure A.8 solves the issue of doing to many steps to add a book to a competition.



Lorem ipsum dolor sit amet, consectetur adipisicing elit. Dignissimos doloribus error fugiat, optio quo sequi voluptas voluptatum. Assumenda cum dolor dolores eveniet impedit iste minima, modi pariatur possimus quas voluptas.

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Assumenda doloremque ducimus eaque eligendi facilis harum id laboriosam mollitia nemo non odio optio quisquam, recusandae sequi sit totam veritatis voluptatum. Quos?

| COVER | NOM | EDITEUR | NIVEAU | LANGUE | CATÉGORIE/CREE LE |
|---|---|---|---|---|---|
| | Le sorcier d'oz | Quizzito | 4 | Français | Default<br>il y a quelques secondes |
| | L'entraide la poule boiteuse | Quizzito | 5 | Français | Default<br>il y a quelques secondes |
| | Song Of Ice and fire | Editor inconnu | 1 | Arabe | Default<br>il y a quelques secondes |

Figure A.8: New prototype the book list.

The following figures (A.9)(A.10)(A.11) represent the steps to create a quiz, first creation of the quiz by giving the name and the number of questions, the level, and the book, after that, the user must add the questions, and for the last, insert the level again.

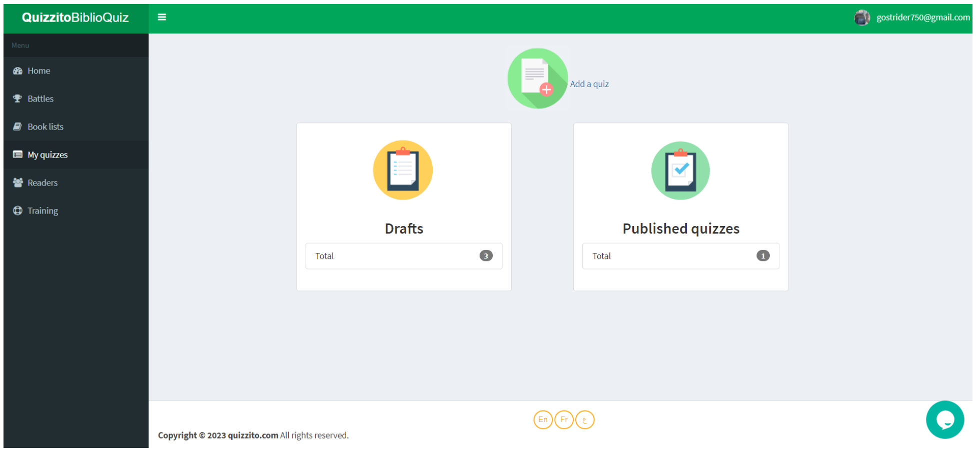
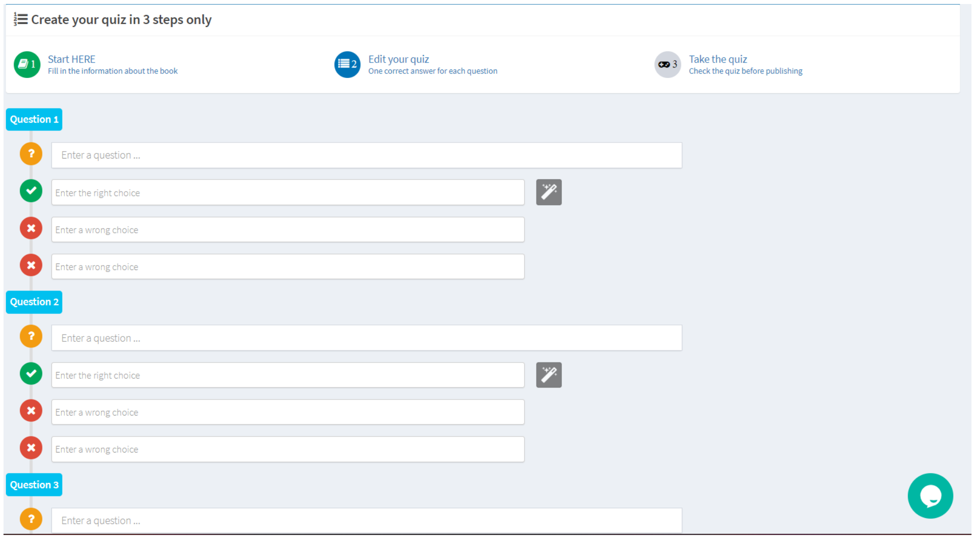


Figure A.9: Old platform quiz creation.



Create your quiz in 3 steps only

1 Start HERE
Fill in the information about the book

2 Edit your quiz
One correct answer for each question

3 Take the quiz
Check the quiz before publishing

Question 1

Enter a question ...

Enter the right choice

Enter a wrong choice

Enter a wrong choice

Question 2

Enter a question ...

Enter the right choice

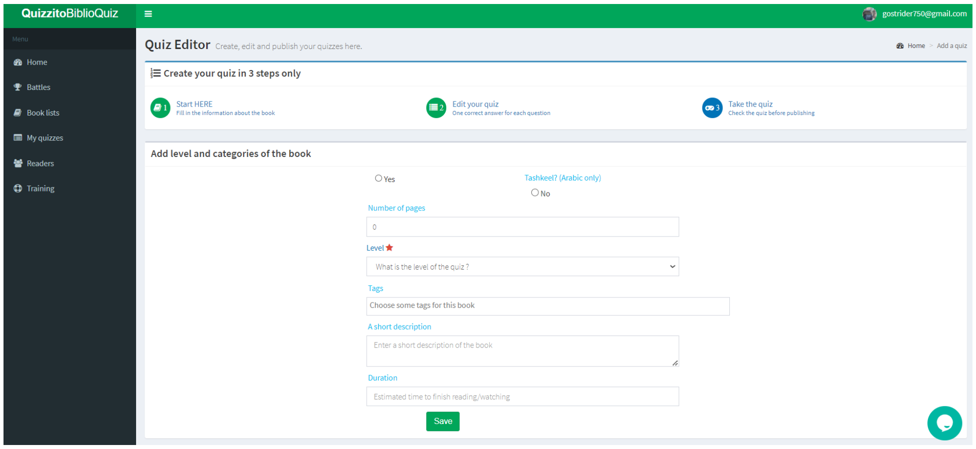
Enter a wrong choice

Enter a wrong choice

Question 3

Enter a question ...

Figure A.10: Old platform questions creation.



Quiz Editor Create, edit and publish your quizzes here.

Create your quiz in 3 steps only

1 Start HERE
Fill in the information about the book

2 Edit your quiz
One correct answer for each question

3 Take the quiz
Check the quiz before publishing

Add level and categories of the book

Tashkeel? (Arabic only)
○ Yes
○ No

Number of pages
0

Level
What is the level of the quiz ?

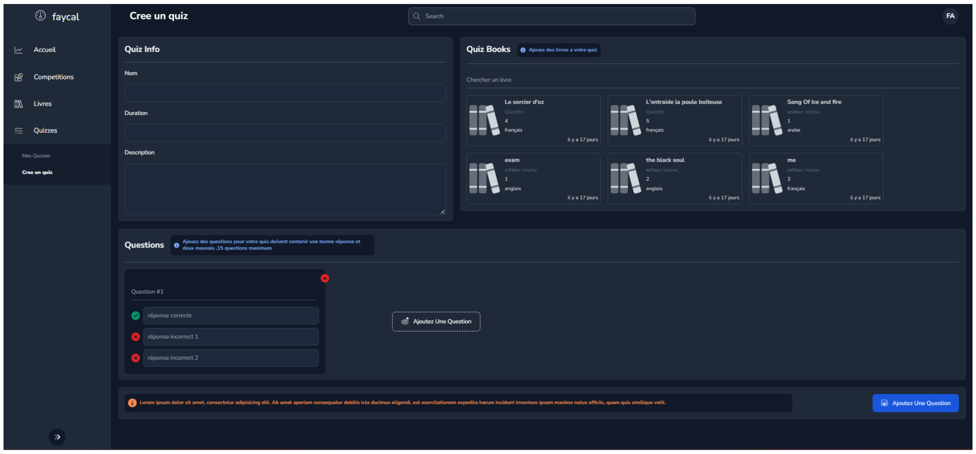
Tags
Choose some tags for this book

A short description
Enter a short description of the book

Duration
Estimated time to finish reading/watching

Figure A.11: Old platform last phase of the creation of an quiz.

In the new prototype, we minimized all the steps of the creation of a quiz on one page see the following figure A.12.



Ajouez des livres a votre quiz

Le sorcier d'oz
Quizzito
4
français
il y a 17 jours

L'entraide la poule boiteuse
Quizzito
5
français
il y a 17 jours

Song Of Ice and fire
editeur inconu
1
arabe
il y a 17 jours

exam
editeur inconu
1
anglais
il y a 17 jours

the black soul
editeur inconu
2
anglais
il y a 17 jours

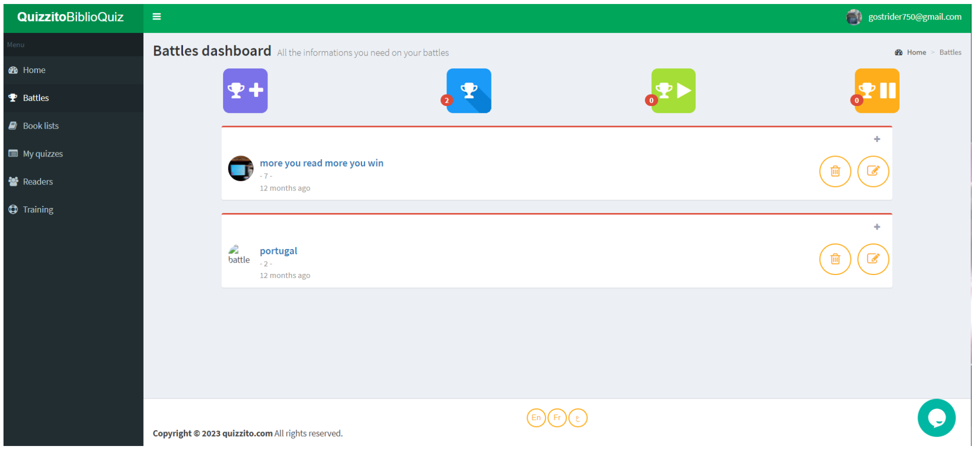
me
editeur inconu
2
français
il y a 17 jours

Ajouez des questions pour votre quiz doivent contenir une bonne réponse et deux mauvais ,15 questions maximum

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Ab amet aperiam consequatur debitis icta ducimus eligendi, est exercitationem expedita harum incidunt inventore ipsam maxime natus officiis, quam quis similique velit.

Figure A.12: New prototype create quiz.

The following figure A.13 represents the battle dashboard, where we can see all the competitions created. In the dashboard, users can create a competition see the figure A.14, after the creation, a pdf will be generated with the information of the competition participants see the figure A.15.



Battles dashboard All the informations you need on your battles

more you read more you win
- 7 -
12 months ago

portugal
- 2 -
12 months ago

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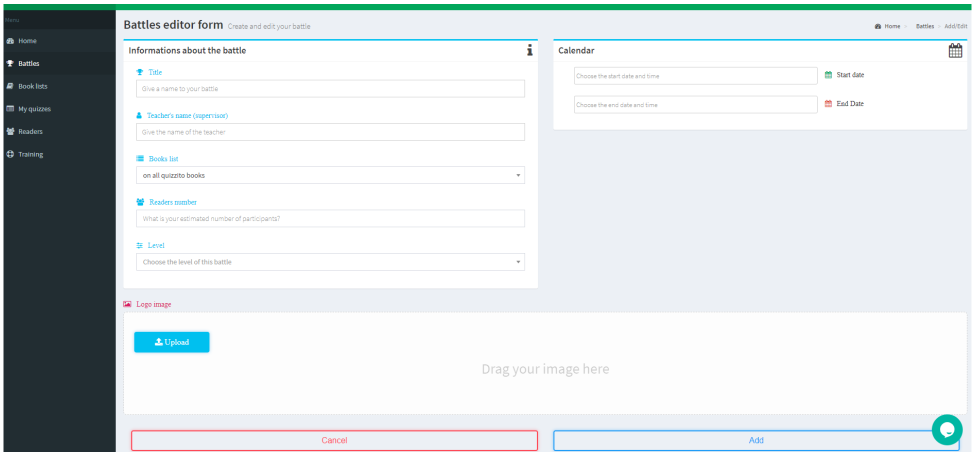
Figure A.13: Old platform competitions dashboard.



Battles editor form Create and edit your battle

Informations about the battle

Title: Give a name to your battle

Teacher's name (supervisor): Give the name of the teacher

Books list: on all quizzito books

Readers number: What is your estimated number of participants?

Level: Choose the level of this battle

Calendar

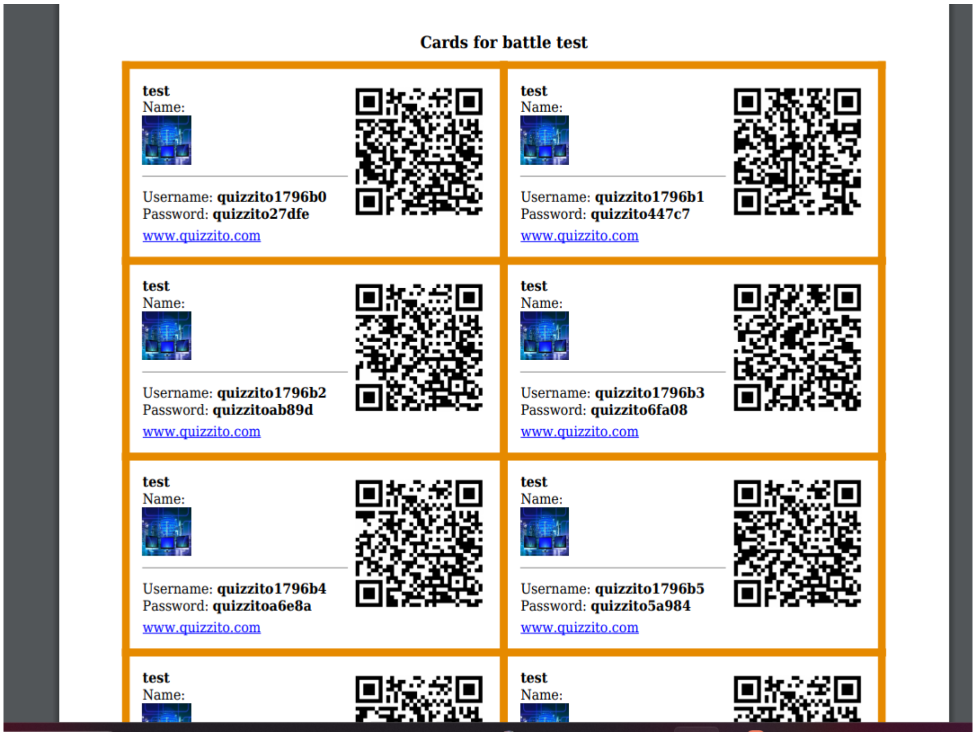
Start date: Choose the start date and time

End Date: Choose the end date and time

Logo image

Drag your image here

Figure A.14: Old platform competition create page.



**Cards for battle test**

test
Name:

Username: **quizzito1796b0**
Password: **quizzito27dfe**
www.quizzito.com

test
Name:

Username: **quizzito1796b1**
Password: **quizzito447c7**
www.quizzito.com

test
Name:

Username: **quizzito1796b2**
Password: **quizzitoab89d**
www.quizzito.com

test
Name:

Username: **quizzito1796b3**
Password: **quizzito6fa08**
www.quizzito.com

test
Name:

Username: **quizzito1796b4**
Password: **quizzitoa6e8a**
www.quizzito.com

test
Name:

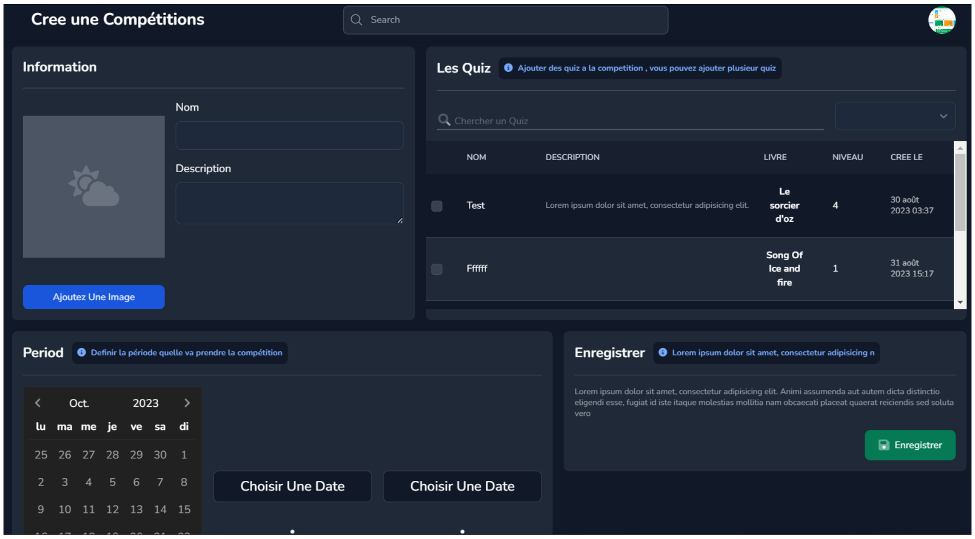
Username: **quizzito1796b5**
Password: **quizzito5a984**
www.quizzito.com

test
Name:

test
Name:

Figure A.15: Old platform users created to participate in competition.

In the new prototype, users can create competitions by inserting the following information: name, description, duration, and books. See figure A.16, after that, the user can see the battle list, which he can see all the competitions created and the state of the competition see the figure A.17, user can access to the competition by a link and it is that link that should be sent to the children's figure A.18 represents the start page of the competition the participant must enter his email to begin and the figure A.19 represents the end page of the competition where the participant can see his right and wrong answer.



Cree une Compétitions

Information

Nom

Description

Les Quiz — Ajouter des quiz a la competition , vous pouvez ajouter plusieur quiz

| | NOM | DESCRIPTION | LIVRE | NIVEAU | CREE LE |
|---|---|---|---|---|---|
| □ | Test | Lorem ipsum dolor sit amet, consectetur adipisicing elit. | Le sorcier d'oz | 4 | 30 août 2023 03:37 |
| □ | Ffffff | | Song Of Ice and fire | 1 | 31 août 2023 15:17 |

Period — Definir la période quelle va prendre la compétition

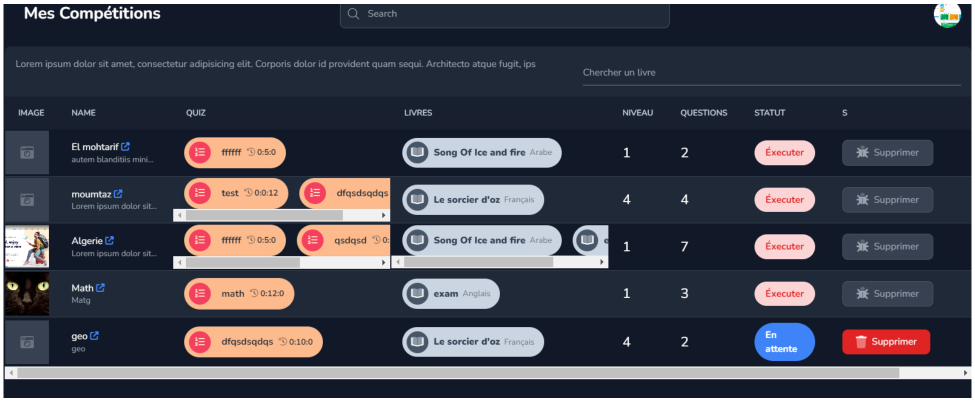
Oct. 2023

| lu | ma | me | je | ve | sa | di |
|---|---|---|---|---|---|---|
| 25 | 26 | 27 | 28 | 29 | 30 | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |

Enregistrer — Lorem ipsum dolor sit amet, consectetur adipisicing n

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Animi assumenda aut autem dicta distinctio eligendi esse, fugiat id iste itaque molestias mollitia nam obcaecati placeat quaerat reiciendis sed soluta vero

Figure A.16: new prototype competition creation page.

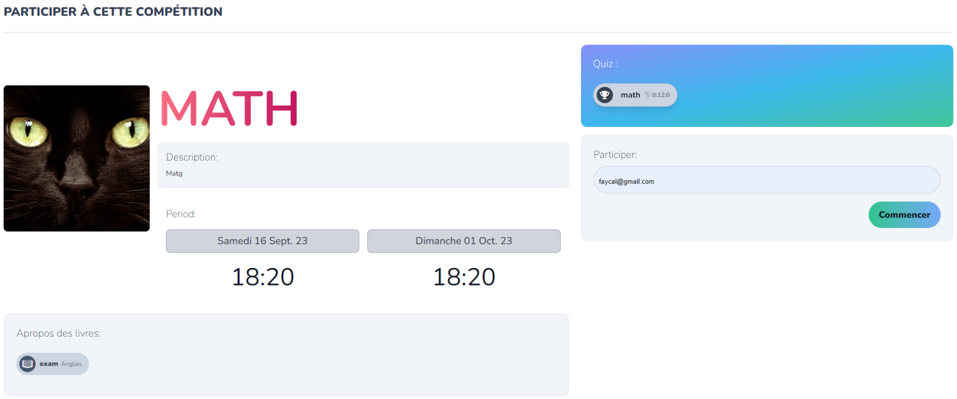


Mes Compétitions

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Corporis dolor id provident quam sequi. Architecto atque fugit, ips

| IMAGE | NAME | QUIZ | LIVRES | NIVEAU | QUESTIONS | STATUT | S |
|---|---|---|---|---|---|---|---|
| | El mohtarif<br>autem blanditiis mini... | ffffff 0:5:0 | Song Of Ice and fire Arabe | 1 | 2 | Éxecuter | Supprimer |
| | moumtaz<br>Lorem ipsum dolor sit... | test 0:0:12<br>dfqsdsqdqs | Le sorcier d'oz Français | 4 | 4 | Éxecuter | Supprimer |
| | Algerie<br>Lorem ipsum dolor sit... | ffffff 0:5:0<br>qsdqsd 0: | Song Of Ice and fire Arabe | 1 | 7 | Éxecuter | Supprimer |
| | Math<br>Matg | math 0:12:0 | exam Anglais | 1 | 3 | Éxecuter | Supprimer |
| | geo<br>geo | dfqsdsqdqs 0:10:0 | Le sorcier d'oz Français | 4 | 2 | En attente | Supprimer |

Figure A.17: New prototype competitions list.



PARTICIPER À CETTE COMPÉTITION

MATH

Description:
Matg

Period:

Samedi 16 Sept. 23 — 18:20

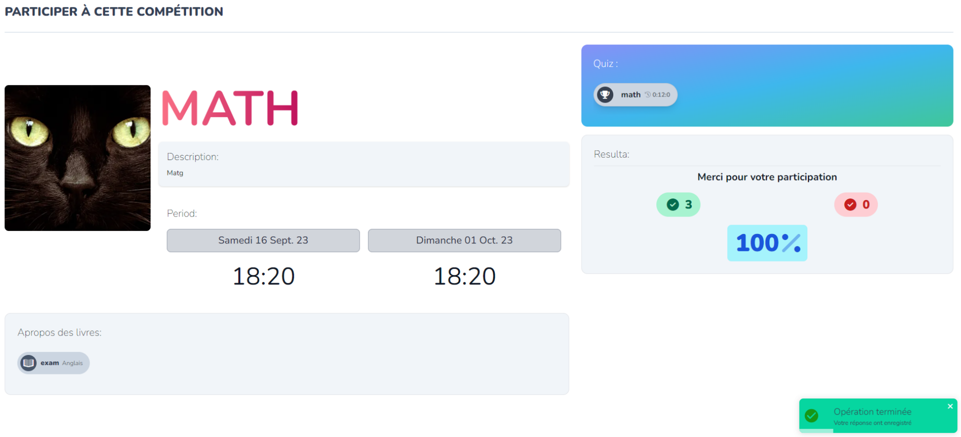
Dimanche 01 Oct. 23 — 18:20

Apropos des livres:
exam Anglais

Quiz :
math 0:12:0

Participer:
faycal@gmail.com

Figure A.18: New prototype competition start page.



PARTICIPER À CETTE COMPÉTITION

MATH

Description:

Matg

Period:

Samedi 16 Sept. 23 — 18:20

Dimanche 01 Oct. 23 — 18:20

Apropos des livres:

exam Anglais

Quiz :

math 0:12:0

Resulta:

Merci pour votre participation

✓ 3

✓ 0

100%

Opération terminée

Votre réponse ont enregistré

Figure A.19: New prototype competition end page.