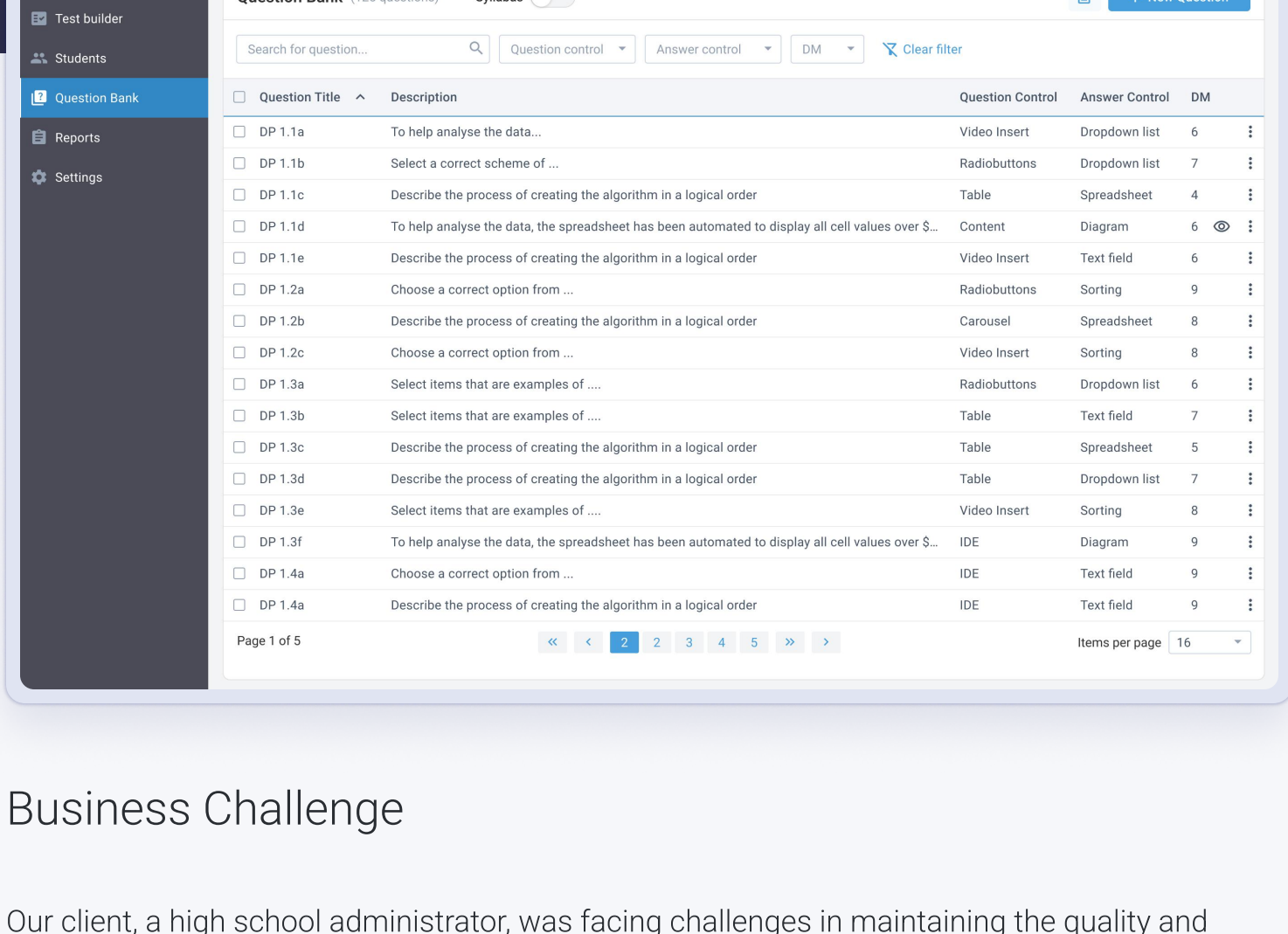


Question Bank for Online Testing Software

A question bank management system for a customized version of Examarius that lets examiners create tests from scratch or using a question database with clear hierarchy. Allows ensuring time-saving workload without loss of test quality.



Business Challenge

Our client, a high school administrator, was facing challenges in maintaining the quality and variety of their exam questions. The teachers were overburdened with multiple responsibilities, which left them with limited time to create and update test questions. Additionally, the school was looking to implement more data-driven approaches to assess student performance accurately. All in all, together with the client, we identified the following objectives:

- ✓ **Streamlined Assessment Creation:** The school aimed to create a centralized question bank accessible to all teachers. This would allow them to quickly assemble assessments by selecting relevant questions from the bank.
- ✓ **Consistent Quality:** The goal was to maintain consistent quality across assessments. By curating questions in the bank, the school could ensure that all tests adhered to the same standards.

- ✓ **Customization:** Teachers needed the ability to customize assessments based on specific topics, difficulty levels, and learning objectives.

To better understand the client's issue and to find the way to solve it, we conducted a detailed analysis of ready-made exam systems offered on the market, compared prices and features that these solutions include, and offered the best value for money.

During our analysis, we defined that, in 2024, the most common tool for assessment is an online test system or an exam platform. And, considering that more and more educational institutions choose online systems over offline learning and testing, this tendency is not prepared to go away in the future.

Choosing [Examarius](#), our white-label online test software, as a baseline for the customer's solution was the right decision. The system offers easy customization, which allowed us to implement the Question Bank that the client wanted to see in the end-product without the need to change too much functionality.

Solution

Taking into account all the clients' requirements and needs of modern educational establishments, it was decided to develop a question bank management system based on our customizable exam software. This way, a solution could help teachers to optimize the process of creating, organizing, and delivering assessments.

Implementing a **Question Bank** into Examarius allowed teachers to have a centralized database that stores a wide variety of questions for use in online testing. It serves as a critical resource for educators and institutions, enabling them to construct tests and quizzes efficiently and effectively, which was one of the main goals of our client.

The primary function of the Question Bank that we integrated is to organize questions by subject matter, difficulty level, and other relevant criteria. This systematic categorization facilitates the selection of appropriate questions for different testing scenarios, ensuring that assessments are both challenging and fair.

With a clear hierarchy in accordance with the syllabus, it makes the process of test generation flawless and automated, which ideally suited the client's requirements and needs. Moreover, it now allows users to **revisit the overall course** and to determine goals a test will evaluate.

The basic version of Examarius has three modules in order to ensure fair testing and better exam management: Admin, Examiner, Student. Here's how we customized these modules to fit the new functionality offered by Question Bank. There are two roles of the question bank management system we developed: Admin and Examiner.

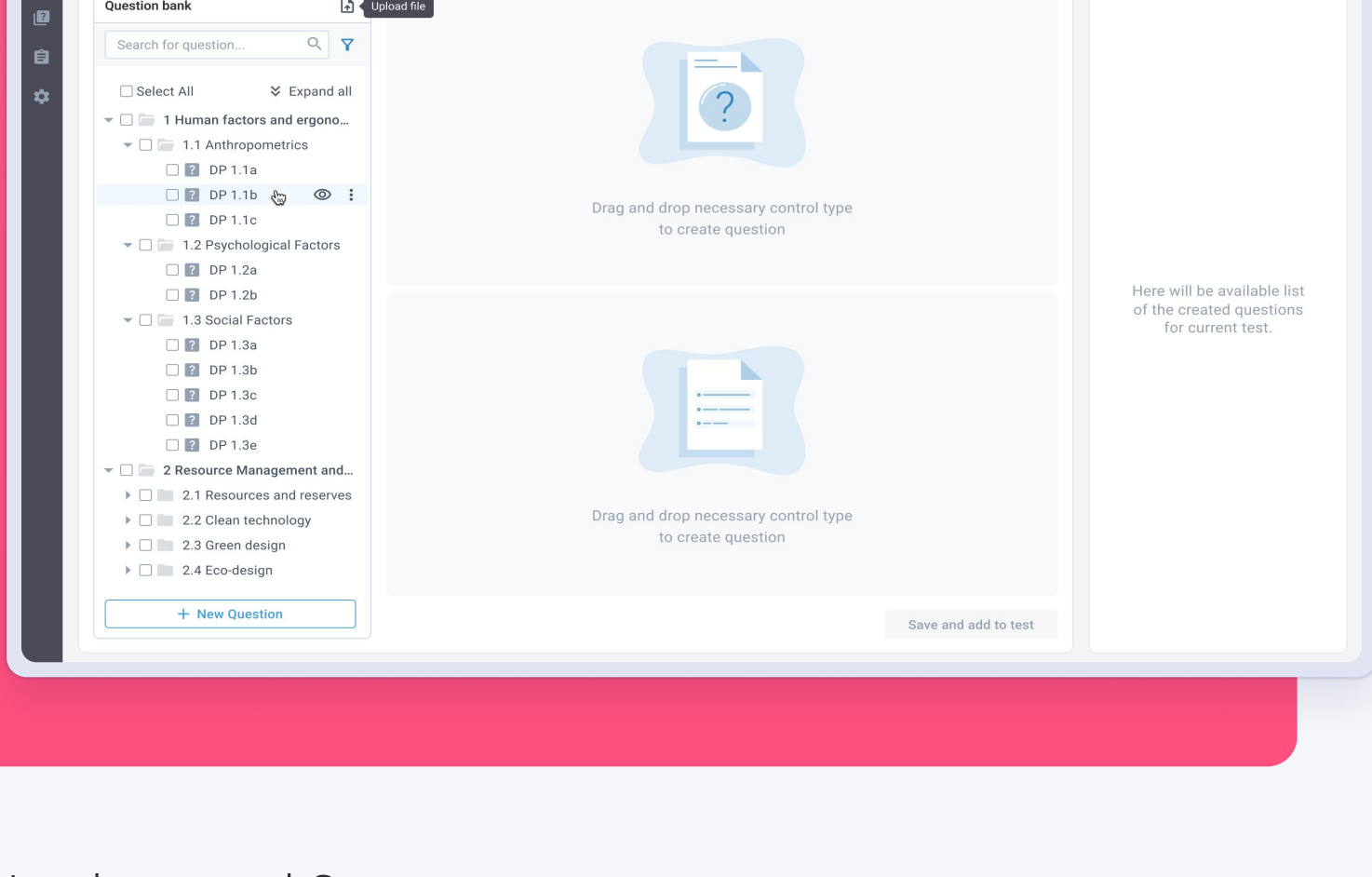
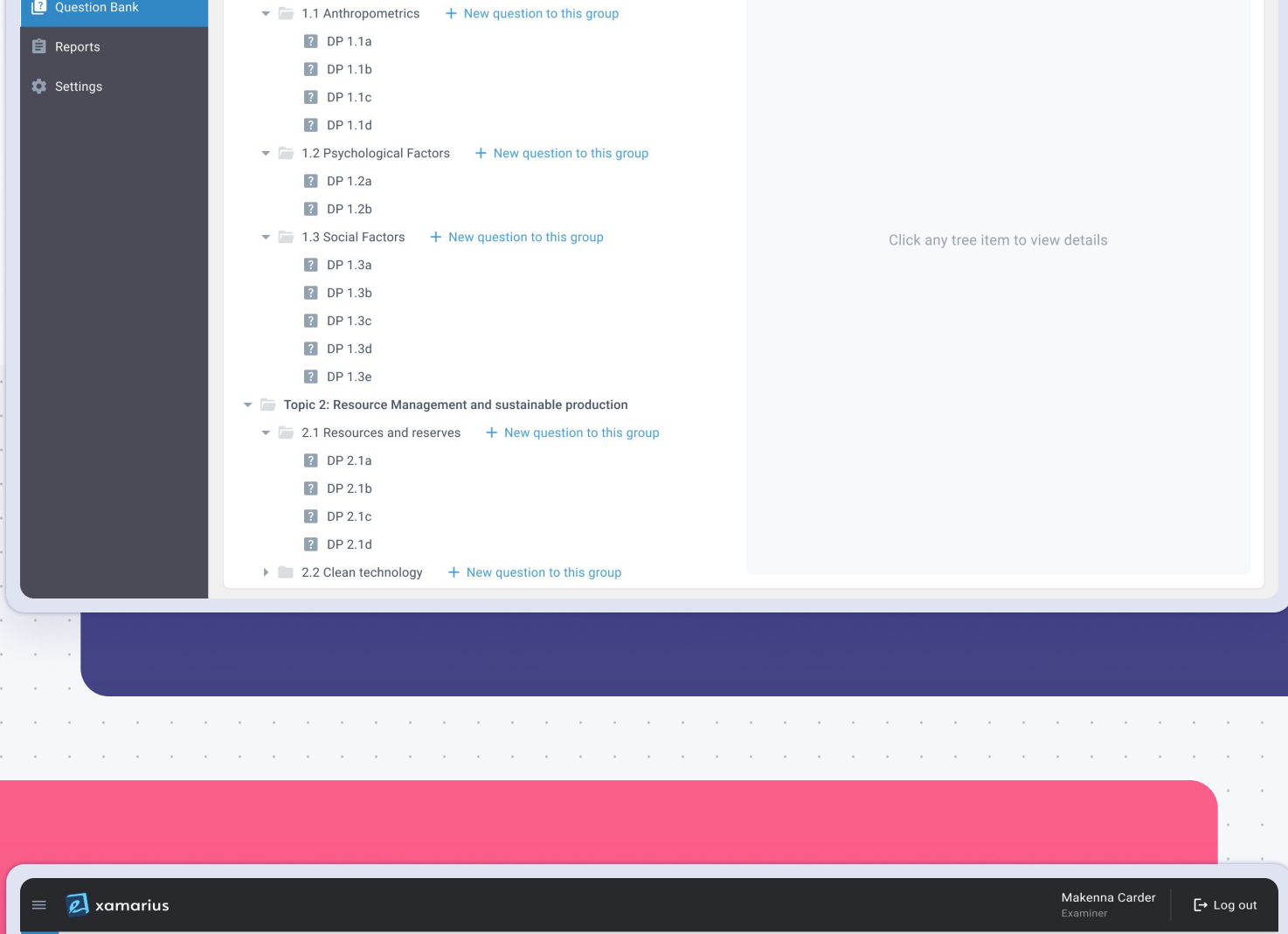
- ✓ **Admin** defines the architecture of the test bank questions according to the syllabus by setting it up with topics and groups. These users are also able to perform default features of the base version of Examarius, such as adding new students, classes and assigning examiners to them, which helps to align content and questions with relevant examiners and examinees.
- ✓ A user with the **Examiner** role can also add new questions to the question bank using lots of preassigned ready-made templates for both question and answer fields, which speeds up the process of creating tests.
- ✓ For **Students**, the advantages are more indirect but equally valuable. With the Question Bank in the online exam system, Students can be sure that they receive tests in time and that they will be of a proper quality with content relatable to their syllabus. While students may not interact with the question bank directly, the quality and variety of questions it provides significantly enhances their learning and exam preparation experience.

To give Examiners a clear preview of all topics and groups, we decided to implement two types of View: **Table View** and **Syllabus View**.

The Table View allows users to see question details (question title, description, question and answer controls, and difficulty mark), sort relevant questions by these categories or find them using a cross-search filter, and edit them in bulk or individually. The test bank questions are presented in table form by default.

The Syllabus View offers browsing all the questions in the form of a hierarchically organized tree list, so an educator can easily review the entire course. This mode also allows to collapse and unfold branches with questions for adding a new one right to the appropriate group in an intuitive way.

To speed up a test composition that lots of education institutions conduct on a regular basis, Examiners may combine question bank software with the **TestBuilder**, the basic feature that all our clients have in Examarius by default. Together, they allow educators to make tests well-designed and structured. By selecting multiple questions, the examiner may generate a new test or add them to the existing one in a click. Using intuitive drag-and-drop of ready-made controls for both questions and answers, Examiners can add a new question via the TestBuilder from scratch. All new questions will be automatically saved in the question bank for further usage.



Implemented Components

To greatly simplify and to reduce costs on the development, we customized our white-label online exam system, Examarius, with various ready-made [Webix JavaScript](#) control widgets and data widgets such as:

- ✓ **JavaScript Calendar and Time Selection UI controls** – allows instructor to select date or even exact time for upcoming tests;
- ✓ **JavaScript Tree UI widget** – lets visualize the question bank in a structured way with syllabus hierarchy;
- ✓ **JavaScript Filter UI widget** – makes filtering questions simpler.

Project in Figures

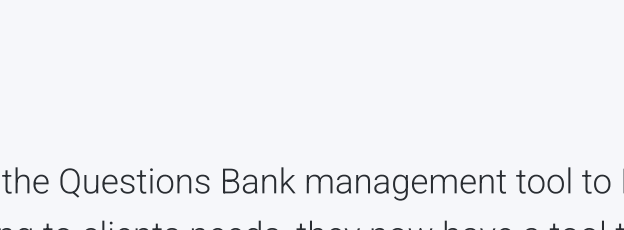
2+

Month
Duration

850+

Estimated
man-hours

Applied Technologies



Results

After we added the Questions Bank management tool to Examarius and customized the system according to clients needs, they now have a tool that allows them to gather information on the effectiveness of the training process in a clear and transparent way and measure students' educational outcomes efficiently. The system reduces examiner workload and makes creating tests effortless for teachers by using the question bank module.

Your questions and requests are always welcome!

Visit <https://xbsoftware.com/>

✉ sales@xbsoftware.com

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