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Creating a Website for Nova Tervise Studio MTÜ

Bachelor's Thesis (9 ECTS)

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Abstract:

This bachelor's thesis aims to develop a new, user-friendly and modern website for Nova Tervise Studio MTÜ that meets the need of both the company and its clients. The main goals of the new website are to simplify the class booking process, provide clear and well-structured information about yoga classes and various practices and include the possibility to integrate an e-commerce platform in the future.

The company's previous website was not visually appealing and did not offer a smooth booking experience, which caused difficulties for clients when registering for classes. Due to these issues, the company owner decided to replace the old website with a new solution. The new website is built using the following technologies: Deno 2, Deno Fresh, Supabase and Tailwind CSS.

Keywords: Website, web application, Deno 2, Deno Fresh, Supabase, Tailwind CSS

CERCS: P175 Informatics, systems theory

Veebisaidi loomine ettevõttele Nova Tervise Studio MTÜ

Lühikokkuvõte:

Bakalaureusetöö eesmärk on luua Nova Tervise Studio MTÜ-le uus, kasutajasõbralik ja kaasaegse disainiga veebisait, mis vastaks nii ettevõtte kui ka klientide vajadustele. Uue veebisaidi peamised eesmärgid on lihtsustada tundide broneerimise protsessi ning pakkuda selget ja struktureeritud teavet joogatundide ja erinevate praktikate kohta ning luua võimalus tulevikus integreerida e-poe platvorm.

Ettevõtte senine veebisait ei olnud visuaalselt atraktiivne ega pakkunud kasutajatele sujuvat broneerimiskogemust, mistõttu tekkisid klientidel raskused tundide registreerimisel. Nende probleemide tõttu otsustas ettevõtte omanik asendada vana veebilehe uue lahendusega. Tegemist on veebisaidiga, mis on loodud kasutades järgmisi tehnoloogiaid: Deno 2, Deno Fresh, Supabase, Tailwind CSS.

Võtmesõnad: Veebisait, veebirakendus, Deno 2, Deno Fresh, Supabase, Tailwind CSS

CERCS: P175 Informaatika, süsteemiteooria

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1. Introduction

In today's digital age, a well-designed and functional website is essential for any business that aims to offer quality services and maintain a strong client relationship. This is especially true for wellness and health-focused organizations, where the success of these platforms depends on more than just the service they offer. It is tied to the integration of user interface and user experience design [1].

Nova Tervise Studio MTÜ, a company that provides yoga classes and training courses, recognised the need to update its outdated website. The previous platform lacked both visual appeal and functional needs, particularly in terms of class booking, which often caused negative reactions among the instructors and clients. In response to these problems, the decision was made to develop a new website that improves user experience and the visual identity of the website.

The aim of this bachelor's thesis is to design and implement a modern, user-focused website for Nova Tervise Studio MTÜ using up to date technologies. The redesigned website aims to simplify the process of class booking, provide more clear and accessible information about the services and provide a foundation for future integration of e-commerce functionalities. The significance of this study lies in its practical applications of design and development principles to address real world challenges and to address user satisfaction within the wellness sector.

The rest of the thesis is structured as follows: Section 2 discusses about different website design principles and their influence on user experience and usability. Section 3 describes the methodology applied in this project and the reasoning behind the design and technical decisions. Section 4 specifies the functional and non-functional requirements for the website. Section 5 presents the technology stack used to create the website, along with explanations for each choice. Section 6 introduces the results with an in-depth description of the Nova Tervise Studio website, including its structure and functionalities. Finally, section 7 addresses the validating process, assessing the website's performance and outlining potential areas for future development.

Throughout the bachelor's thesis, artificial intelligence (the language model ChatGPT 4o¹) was used to improve grammatical and linguistic structure.

¹ <https://openai.com/chatgpt/>

2. Website Design Principles

Website design is an important aspect in developing a website, as its primary objective is to offer the customer an enjoyable and smooth user experience that maintains their attention. According to Steve Krug [1], a good website design is not limited to an attractive appearance, but it also includes functional and purposeful content, to limit the effort needed to understand the website's content. The most appropriate design for a given website depends on several factors, such as the company's field of activity, the website's intended functionality, and the specific needs and expectations of its target audience [1]. In this chapter, website design principles will be examined, including aspects such as usability, performance, compatibility, visual design and accessibility.

2.1 Website Performance and User Retention

When creating a website, a factor to consider is the overall speed of the website. The speed of a website affects both user satisfaction and the effectiveness of the site. A slow-loading website increases the likelihood that the user will leave before having the chance to engage with the content of the site. This can affect the business's reputation and result in losing a potential customer.

According to Google's research, when the load time of a page increases from one to three seconds, the bounce rate rises by up to 32%, meaning more users leave the site without further interaction [2]. This is particularly relevant for mobile users, as internet speeds may vary depending on network conditions [3]. To address this, many organizations aim to reduce loading times, since delays can negatively affect user engagement [3].

2.2 Cross-device Compatibility

When developing a website, it is important to ensure compatibility across different devices and web browsers so that a broader range of users can access the site without any technical limitations. Failing to provide cross-device and cross-browser compatibility may result in a loss of potential users simply because the website does not function properly on certain devices or browsers [4]. One of the developer's responsibilities is to deliver a consistent and reliable user experience regardless of the platform that is being used. Since every web browser interprets source code in a different way, it may cause problems with compatibility [5]. Generally, there is no way to test compatibility on all web browsers and operating systems, but

cross-browser compatibility is achieved when web browsers render the website consistently across all major browsers [5].

2.3 Information Hierarchy and Navigation

To ensure that the website content is clear and can be easily navigated, a well-structured hierarchy must be established. It is important that the given information is logically organised and user-centred. According to Yale [6], the sites hierarchy influences the overall user experience by determining how content is arranged and how navigation is carried out. A clear structure helps the user better understand the website's layout, reduces confusion and helps the user navigate the site. The homepage, for example, acts as a top-level guide, introducing the main sections of the site and navigation pathways. Therefore, it is important that the home page structure is clear and understandable to improve the user experience. As noted by Adchitects [4], effective site navigation also improves search engine rankings, as search engines prioritise better quality user experiences.

2.4 Colour Theory in Web Design

Choosing an appropriate colour scheme can be a complex aspect of web design, as colour interpretation can be subjective. The choice of colours should align with the overall theme of the website and reflect the identity of the business. As noted by Sik-Lányi [7], colours carry emotional meaning and can influence the way users perceive a website. For instance, green is commonly linked to nature and freshness, while red may suggest power or anger. The author notes, poor colour choices may result in a less effective user experience by creating confusion or reducing visual comfort. According to Sheng et al [8], It is generally recommended that primary and background colours are chosen to be visually balanced, while the text should have sufficient contrast against the background to support readability.

2.5 Use of Visual Content

The use of images shapes the overall user experience of a website. According to Solomon [3], while visual elements can enhance the appearance and engagement of a site, it is important to consider both their advantages and potential limitations. For instance, Solomon notes that some users may have limited internet data plans therefore, large image files may impose extra costs for users. Additionally, although images can help attract attention, they may also shift focus away from key content if not used properly. The quality of the visual elements can influence how the website is perceived, where low resolution of poorly chosen images may reduce the

site's credibility and professionalism [3]. According to Sheng et al. [8], the use of irrelevant or unclear visuals can also affect users' first impressions about the website. Therefore, it is advisable to select visuals that are relevant and purposeful to support the site's content and align with its overall goals. Moreover, an excessive number of illustrations may lead to visual clutter, which can impact overall usability. A balanced and thoughtful use of visuals helps build a trustworthy and professional impression [8].

2.6 Typography

Text size and style are relevant aspects of website design, as they can influence readability and the ease of locating key information. Inconsistencies in the font type or size may create visual distractions and make it more difficult for the user to process or find information more efficiently. The text should maintain a consistent appearance, for example using limited fonts or colours, to ensure readability and clarity. Research suggests that text placed over images or with insufficient contrast between the text and background can be difficult to read. This may impact the user's first impressions and influence how users perceive the website's quality and trustworthiness [8].

3. Methodology

The following chapter outlines the methodology used for the development of the Nova Tervise Studio website, focusing on planning, technology selection, development process, and testing strategies.

3.1 Planning and Requirements Analysis

Before the development process began, the author conducted a face-to-face interview with the business owner to understand the main requirements for the website. This phase involved gaining insight about the business goals, target audience, and specific functionalities necessary for the website. The interview resulted in a comprehensive list of both functional and non-functional requirements.

3.2 Technology Selection

Before making the decision to commit to a custom-built website, other alternatives such as Wix, Shopify and Squarespace were considered. These platforms allow the user to deploy a website in a quick and easy manner, however they also come with limitations. These include restricted database control, plugins that are locked behind paywalls and limited customization, particularly in booking options and administrative functionalities.

The author and business owner came to an agreement that a custom-built website would be an appropriate solution. This approach would provide the flexibility needed for a custom design and necessary functionalities. A database architecture was designed to support features such as user authentication, booking management and a dynamic timetable system. Additionally, enabling Row-Level Security allowed the business owner and employees to safely manage bookings and schedules directly through the website interface.

Choosing to build from scratch ensured that the platform is scalable, secure and limits the need for third-party dependencies. Based on the project requirements, modern and scalable technologies were chosen to build the platform. Deno Fresh was selected for front-end development due to its just-in-time rendering capabilities and integration with TypeScript. Deno 2 was used for back-end logic, benefiting from its secure runtime and built-in support for TypeScript. Supabase was chosen for database management and authentication. Built on PostgreSQL, Supabase provided a scalable solution for storing user data, class schedules and booking information and features like Row-Level Security enforce strict access controls

directly at the database level, making the database more secure. Tailwind CSS was used for styling, where its utility classes allowed for consistent styling with minimal custom CSS, reducing design complexity and improving page load times.

3.3 Development Process

The development process followed a similar approach to the Agile development model. Although the project was handled by a single developer, Agile methodologies were applied. Functionalities and tasks were maintained in a prioritised backlog, and features were implemented in a short sprint. After each sprint, the developed features were deployed using Deno Deploy and then demonstrated to the business owner to gather feedback.

3.4 Testing Strategies

To evaluate usability of the website, a group of participants were asked to fill out a questionnaire based on the System Usability Scale (SUS). The SUS questionnaire consists of 10 statements, with participants rating their level of agreement on a 5-point Likert scale, where 1 means “Strongly Disagree” and 5 means “Strongly Agree”. The odd-numbered statements refer to positive items and even-numbered statements refer to negative items. The final SUS score is calculated by subtracting 1 from the rating of each odd-numbered statement and subtracting each even-numbered rating from 5. The adjusted scores are then summed and multiplied by 2.5, resulting in a final score ranging from 0 to 100 [9].

To measure and optimize the performance of the website, Google Lighthouse [10] was used. Lighthouse generates reports covering four areas: performance, accessibility, best practices and SEO (search engine optimization). Each category is scored on a scale of 0 to 100, where a higher score indicates better compliance with modern web standards. A score of 90 or above is considered excellent, 50-89 indicated room for improvement, and below 50 is regarded as poor. In addition to overall category scores, Lighthouse reports performance metrics, which reflect how users perceive the loading and responsiveness of a webpage. These metrics include: First Contentful Paint – time until the first visible element is rendered, Largest Contentful Paint – time until the largest visible content is fully rendered, Speed Index – how quickly the contents of the page are visually displayed, Total Blocking Time – time that a page is unresponsive to user input, Cumulative Layout Shift – measures how often content shifts unexpectedly.

4. Application Requirements

To determine the website requirements, an interview was conducted with the business owner to discuss the company's goals, brand identity, target audience, and expectations for the new website. Based on this discussion, both functional and non-functional requirements were defined. A more detailed description of the client's requirements is provided in the following chapter.

4.1 Functional Requirements (FR)

FR1: The system must support a user account system.

The reason for this requirement is that it allows users to manage bookings and personal preferences securely. Without user accounts, it would not be possible to track individual bookings or personalize the user experience.

FR2: The system must allow users to view the class schedule.

This is necessary so that users can explore available classes, instructors and times before making a booking. It enables users to make an informed decision and helps users plan their participation.

FR3: The system must allow users to book a class.

This is one of the core functionalities of the website. Without it, the platform would not serve its main purpose of enabling users to participate in yoga or wellness sessions.

FR4: The system must send a confirmation after a booking is made.

This requirement ensures that users receive immediate feedback, which builds trust and reduces uncertainty about whether their booking was successful.

FR5: The system must be prepared for future e-commerce integration.

To allow scalability, the site structure should support the addition of an e-commerce store, enabling product or membership sales in the future.

FR6: The system must allow users to cancel or possibly reschedule a booking.

This functionality improves flexibility and user experience by allowing users to manage changes in their schedule without the need to contact the business directly.

FR7: The user must be able to create a personal account.

This allows the user to manage bookings, view their class history and upcoming classes. Without an account personalized functionality would not be possible.

FR8: The user must be able to log in and log out securely.

Secure login and logout to ensure that only authorized users can access personal data and manage bookings, protecting user privacy.

FR9: The user must be able to contact the studio through a form.

This allows the user to ask questions, provide feedback or resolve issues easily without needing to leave the website.

FR10: The user must be able to access the website from mobile devices.

This ensures that users can interact with the website conveniently, regardless of the device or screen size.

FR11: The system must allow filtering or searching classes.

This improves the usability of the class schedule, enabling users to quickly find sessions based on type, date or instructor.

FR12: The admin must be able to manage content.

This gives the studio control over the website content without needing technical assistance.

FR13: The system must allow the admin to manage user bookings.

Admins should be able to view, modify or cancel bookings if needed for customer service or operational purposes.

4.2 Non-Functional Requirements (NFR)

NFR1: Usability Requirements.

The website should provide an intuitive, easy to navigate user interface, ensuring that users of varying digital skill levels can find information and book classes.

NFR2: Performance.

The website must load quickly, with pages fully rendering within two seconds or less, to ensure users remain engaged and satisfied.

NFR3: Responsiveness.

The website must function consistently and effectively on various devices and screen sizes, including desktop computers, tablets and smartphones

NFR4: Scalability.

The architecture and technology choices should allow easy integration of new features (e.g. an e-commerce store) as the business grows.

5. Development Platforms

The development of the website for Nova Tervise Studio MTÜ was carried out using modern technologies to ensure performance, maintainability and scalability. The author chose Deno Fresh as the front-end framework, Deno 2 for back-end development and Supabase as the database management system. This section will provide a more detailed overview of these technologies and the reasoning behind their selection.

5.1 Deno Fresh

For the front-end development of the Nova Tervise Studio MTÜ website, Deno Fresh was used. Fresh is a modern web framework built on top of the Deno runtime, designed for creating high-quality, fast and dynamic web applications using JavaScript and TypeScript. Built on top of the Deno runtime, Fresh combines a routing framework with a templating engine that enables just-in-time (JIT) server-side rendering, improving performance and flexibility during page delivery. Deno Fresh internally uses Preact for rendering client-side components, enabling lightweight and fast UI updates [11].

One of the key advantages of Fresh is its ability to scale efficiently without the need for complex build steps or bundling processes. It supports partial client-side interactivity through component hydration, while keeping the overall frontend lightweight. The author chose Fresh for its simplicity, performance and tight integration with Deno, making it well suited for a small to medium sized business website like Nova Tervise Studio.

5.2 Deno 2

Deno 2 was selected for the back-end development of the Nova Tervise Studio website. Deno is a modern runtime for JavaScript and TypeScript, designed to simplify the web development process by providing an all-in-one, zero-configuration toolchain. It offers native TypeScript support, built-in utilities such as a formatter, linter, test runner and a secure-by-default execution environment [12].

These features support the development of scalable and maintainable back-end systems. Deno 2 also offers compatibility with existing JavaScript ecosystems, including support for NPM packages and package.json, which can enhance flexibility during development. Its focus on modern tooling and security makes it a suitable option for meeting the technical requirements of a small to medium-sized web application such as the one developed for Nova Tervise Studio.

5.3 Supabase (PostgreSQL and Authentication)

Supabase is an open-source backend-as-a-service (BaaS) platform that serves as an alternative to Firebase, which is a collection of tools aimed at web or mobile developers. Supabase offers a relational database management system (DBMS) called PostgreSQL along with other tools that are needed for modern web applications, such as automatically generated API (application programming interface) keys, built-in authentication, basic CRUD (Create, Read, Update, Delete) operations and Row Level Security (RLS) to manage database operations [13].

For the Nova Tervise Studio website, Supabase was chosen by the author as the backend platform to handle both database operations and user authentication. Supabase offered a scalable solution by combining database functionality with integrated user management. The platform was used to store and manage data entities, such as user accounts, class schedules and booking records.

5.4 Tailwind CSS

Tailwind CSS is a utility-first CSS framework that enables developers to build custom user interfaces efficiently by applying low-level utility classes directly in HTML markup. Unlike traditional CSS frameworks that rely on predefined components, Tailwind allows greater flexibility and encourages a component-oriented design approach [14].

In this project, Tailwind CSS was used to style the user interface of the Nova Tervise Studio website. It was chosen for its ease of use, consistent styling system and ability to simplify the front-end development process without the need to write large volumes of custom CSS.

6. Website Description

This section provides a detailed overview of the completed website developed as part of this thesis. The full source code is available on GitHub and can be accessed at: <https://github.com/Auraplus5/Nova>.

6.1 Homepage

The homepage serves as the first point of entry for users upon entering the website (see Figure 1). The homepage features a header, a full-screen background image with a title and a CTA (call-to-action) button, which directs users to the course schedule and booking section. At this stage the header component indicates that the user is not logged in and presents the option to log in (see Figure 2).

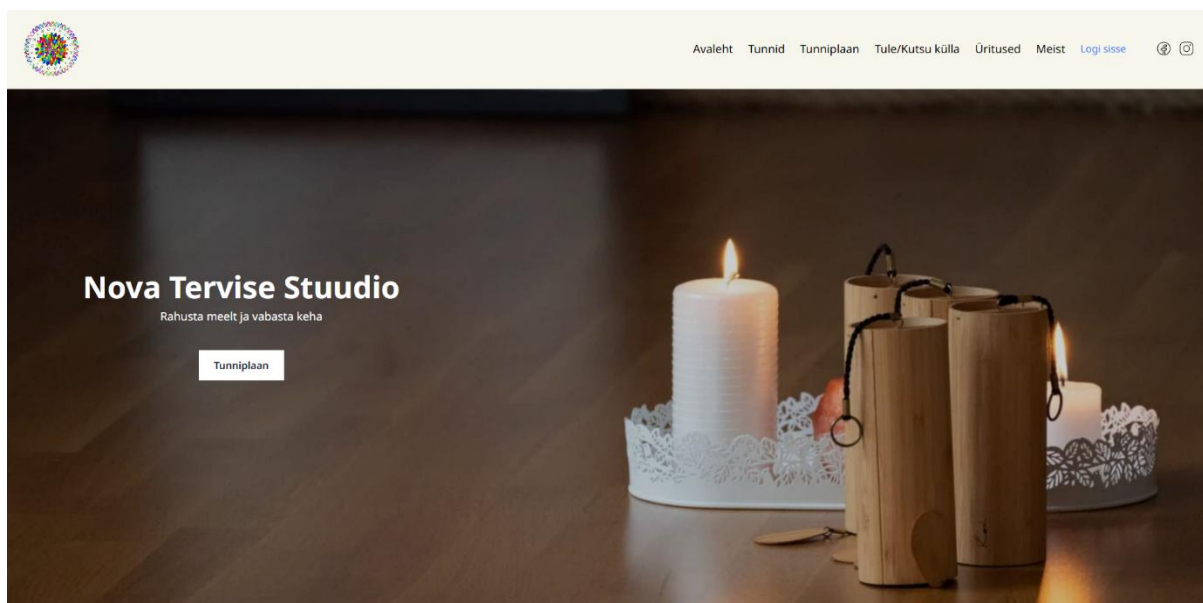


Figure 1. Homepage of the website.

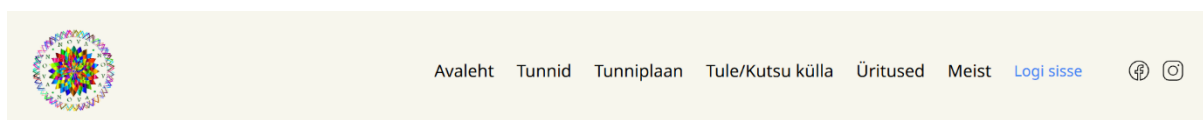


Figure 2. Website Header, where user is not logged in.

The homepage is designed to give a brief overview of the studio's offerings and functionality. It includes a section called *Tunnid* (which translates to Classes in English), showcasing a brief overview of three classes (see Figure 3).

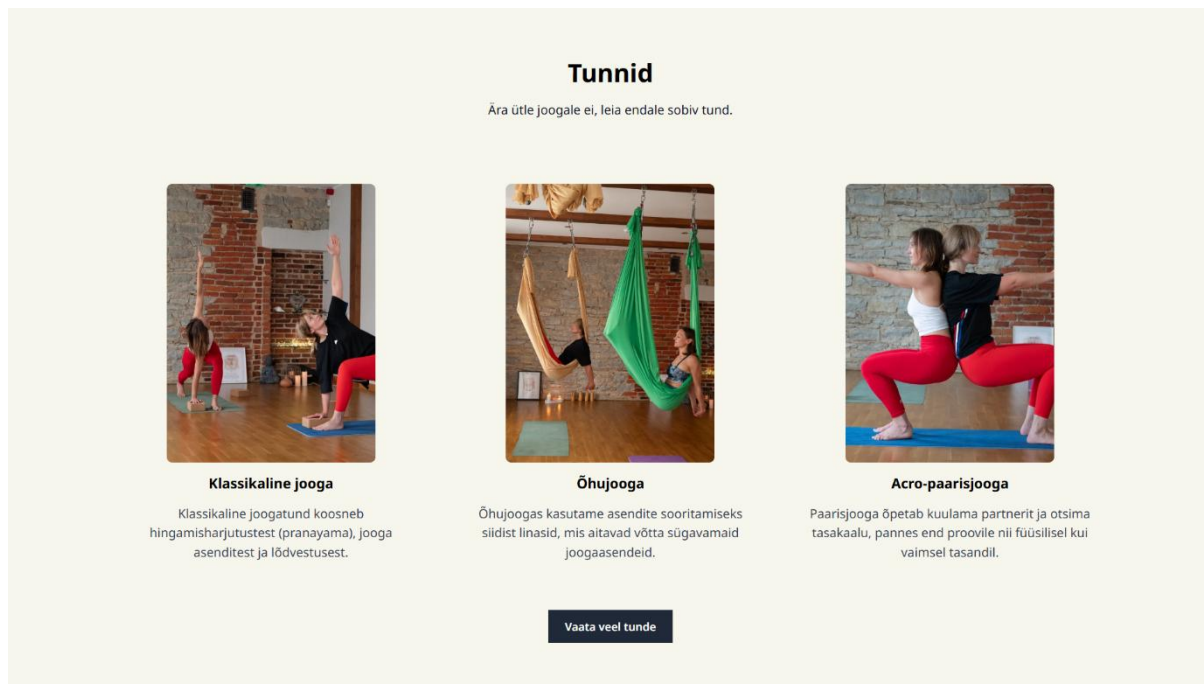


Figure 3. Homepage Classes section.

This sections also includes a CTA button that routes the user to a separate page containing detailed information of all the available classes. Moreover, the homepage features a contact form to allow the user to directly communicate with the studio, for example resolving issues with bookings. A location section is also shown, providing information to the user about the address and physical location of the studio.

6.2 Login and Sign-Up Page

One of the functional requirements was to allow the user to create a personal account. This feature enables the customer to independently manage their bookings via the website, without the need to contact the instructor directly. To create an account, users are directed to a dedicated registration form (see Figure 4), where they must provide their full name, email and a password.



REGISTREERI

Loo uus kasutaja

Nimi

E-mail

Parool

Figure 4. Registration form.

User data is securely stored in a Supabase database. Supabase Auth automatically hashes passwords using secure cryptographic algorithms such as bcrypt, before storage, ensuring user privacy and protection. RLS policies are enforced to restrict access to user-specific data. Upon successful registration, a confirmation email is sent automatically to the users provided email to verify their account. After successful verification the user is able to log in to the website.

To log into the website the user must use their registered email and password information (see Figure 5).



LOGI SISSE

Sisselogimine

E-post

Parool

Kas sul pole veel kontot? Registreeri end [siin](#)

Figure 5. Login Form.

This information is sent securely to the backend, where Supabase Auth handles authentication. If the credentials are valid, Supabase returns a JWT (JSON Web Token). This token serves as proof of authentication and contains encoded information about the user. In this project, the JWT is stored in a secure, HTTP-only cookie to protect it from client-side access. The token is included in future requests from the browser, allowing the server to validate it and authorize actions accordingly. Authenticated users can manage their bookings, while users with admin privileges are granted access to manage the timetable and oversee all bookings.

6.3 Logged-in User Interface

When the user has successfully logged in, the header provides an additional option labelled *Minu Broneeringud* (which translates to My Bookings in English). The user is also greeted by their first name and presented with the option to log out (see Figure 6).



Figure 6. Header, when the user is logged in.

My Bookings page provides the user information about their booked classes, including the class title, date, start and end time, price and the option to cancel a booking if necessary (see Figure 7).

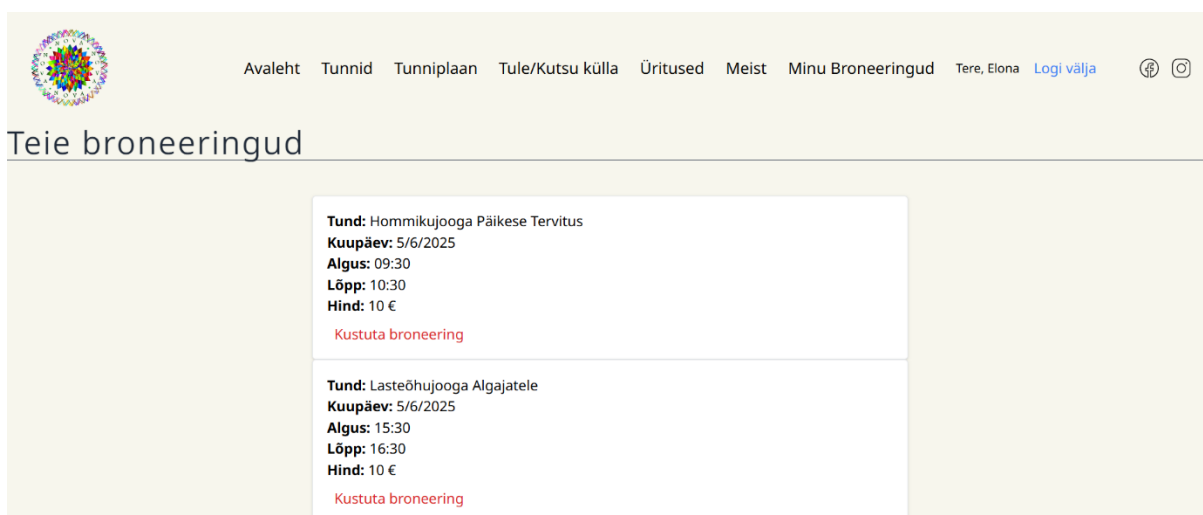
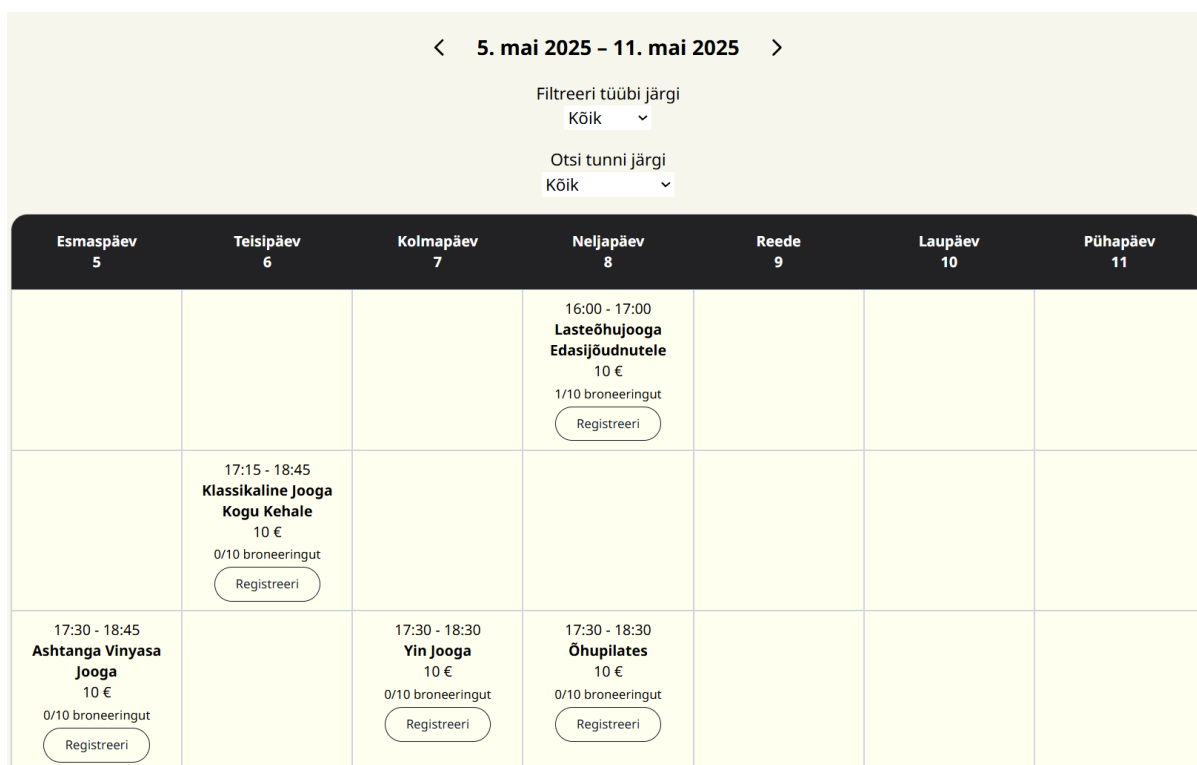


Figure 7. My Bookings page.

6.4 Timetable Page

The timetable page is one of the core components of this website. It allows the user to view the class schedule on a week-by-week basis and book a spot in a class or event. Each timetable entry includes essential information, including the start and end times, title, price, maximum number of participants and the current number of bookings. Users can also browse upcoming classes and events and apply filters based on the type of session, such as distinguishing between regular classes and special events and based on the session name (see Figure 8).



< 5. mai 2025 - 11. mai 2025 >

Filtreeri tüübi järgi
Kõik

Otsi tunni järgi
Kõik

Esmaspäev 5	Teisipäev 6	Kolmapäev 7	Neljapäev 8	Reede 9	Laupäev 10	Pühapäev 11
			16:00 - 17:00 Lasteõhujooga Edasijõudnutele 10 € 1/10 broneeringut Registreeri			
	17:15 - 18:45 Klassikaline Jooga Kogu Kehale 10 € 0/10 broneeringut Registreeri					
17:30 - 18:45 Ashtanga Vinyasa Jooga 10 € 0/10 broneeringut Registreeri		17:30 - 18:30 Yin Jooga 10 € 0/10 broneeringut Registreeri	17:30 - 18:30 Õhupilates 10 € 0/10 broneeringut Registreeri			

Figure 8. Timetable.

When pressing on the *Registreeri* (which translates to Register in English) button, a pop-up form appears, prompting the user to enter their full name and email address to complete the registration for the selected session. The form also provides details about the session, including the title, instructor, date and start and end times, ensuring that the user is fully informed before confirming their booking (see Figure 9).

The image shows a registration pop-up form with a yellow background. At the top left, the title 'Registreeri tundi' is displayed in bold black text, followed by a close button icon (an 'x' in a circle). Below the title, the class name 'Lasteõhujooga Algajatele' and location '— Elona' are centered. The date '06/05/2025' and time '15:30 - 16:30' are also centered. There are three input fields: the first is labeled 'Ees- ja perekonnanimi', the second is labeled 'E-mail', and the third is a large button labeled 'Kinnita registreerimine'.

Figure 9. Registration pop-up form.

6.5 Classes Page

The classes page provides users with detailed descriptions of all the classes offered by Nova Tervise Studio. This page serves as an informational resource where users can learn more about the content, goals, structure and health benefits of each class before making a booking. Each class is presented as a separate section that includes the class name, a brief description and other relevant details such as benefits to health. The layout design also supports future scalability, allowing new classes to be added without major design changes (see Figure 10).

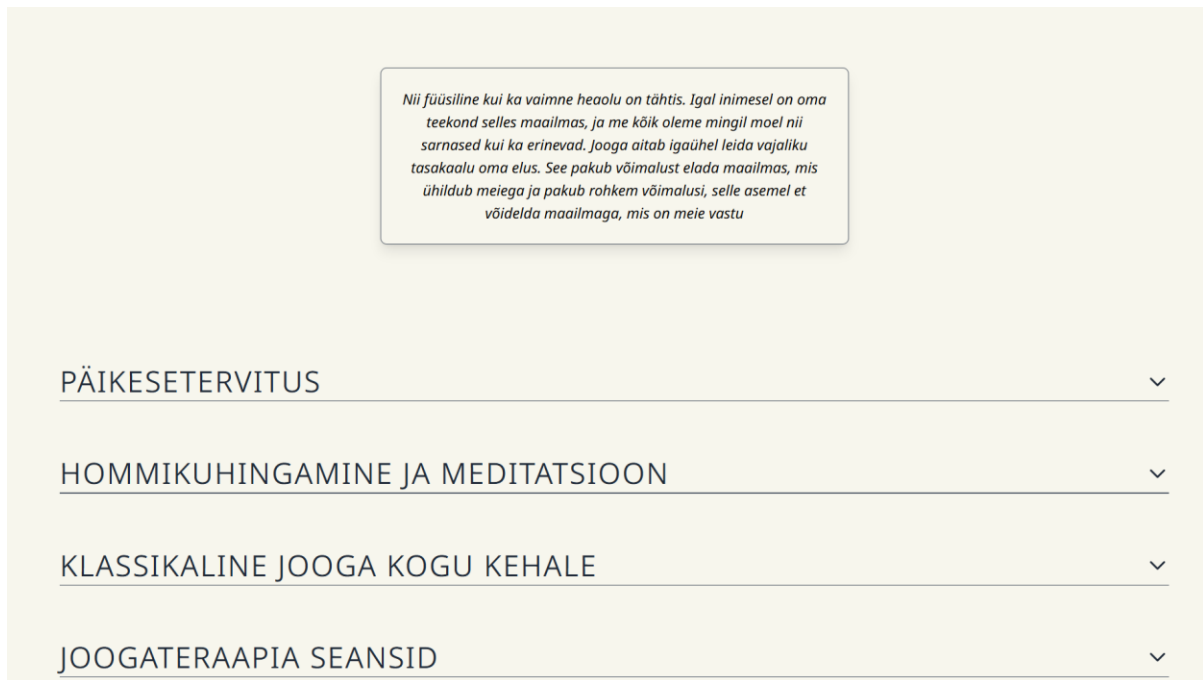


Figure 10. Classes page view, with collapsing sections.

6.6 Visit or Invite Page

The visit or invite page provides information about the services offered by Nova Tervise Studio for clients interested in booking personalized events, either at the studio or at an agreed-upon venue of the client's choosing. If interested, the client can fill out a form to communicate directly with the instructor. The form collects additional information, including special requests, the estimated number of participants and any relevant information such as allergies, helping the studio prepare for the event accordingly.

6.7 Events Page

The events page is divided into three main categories: special events, training camps and retreats. Special events are one-time activities hosted by Nova Tervise Studio, while training camps and retreats are extended programs that can span several days or even weeks.

To maintain clarity and simplicity on the main timetable, only special events are displayed, ensuring that the schedule remains easy to navigate for users. Due to the more complex and varied nature of training camps and retreats, which often require additional information and customization, the business owner decided to manage these events separately. All relevant

details and booking options for training camps and retreats are maintained in a dedicated Google Form², which also serves as the primary booking platform for these longer sessions.

6.8 About Page

The about page gives valuable information for clients who wish to learn more about their class instructor. The page provides a detailed overview of the instructor's qualifications, educational background, core values and personal interests. This helps build trust and credibility, allowing clients to connect more personally with the instructor.

6.9 Admin View

To gain access to the administrative page, the user must have administrator privileges, which are set in Supabase. When an administrator logs in, the website header displays an additional navigation option labelled *Admin* (see Figure 11).



Figure 11. Admin header.

The administrator page consists of two primary components: the ability to add a new classes or events to the timetable, and the ability to manage existing sessions and their associated bookings. To add a new class or event, the administrator must fill out a form that requires input such as the instructor's name, session title, date, start and end date, maximum number of participants, session price and the type of session (see Figure 12).

² <https://docs.google.com/forms>

Lisa tund tunniplaani

Tunni juhendaja nimi

Tunni või ürituse nimetus

Tunni või ürituse kuupäev

Alguseg

Lõppaeg

Maksimaalne broneeringute arv

Hind

Registreeringu tüüp

Lisa tund

Figure 12. Administration form to add a new session to the timetable.

Within the timetable management page, the administrator can view a list of users who have booked for a specific session (see Figure 13). They also have the ability to edit booking details, remove certain participants from the session or remove bookings entirely, ensuring flexibility in handling scheduling changes or cancellations.

Elona	Hommiiku Meditatiivne Hingamine	5/6/2025	08:45:00	09:30:00	0 €	Tund	Kevin Alak - kevinalak@gmail.com	Eemalda broneering	Kustuta Muuda
Eeva	Yin Jooga	5/7/2025	17:30:00	18:30:00	10 €	Tund	Broneeringud puuduvad		Kustuta Muuda

Figure 13. Admin timetable view.

7. Validation

This section discusses the validation and testing of the website, along with feedback from the business owner. Moreover, confirming that both the functional and non-functional requirements were met, and outlines potential further developments.

7.1 Testing

Google Lighthouse [10] was used to evaluate the performance of various webpages across the Nova Tervise Studio website. Since the Chrome User Experience Report (CrUX) did not contain sufficient real-world speed data for the site, Lighthouse testing was conducted instead. The audits were performed in an incognito browser session, with environment settings configured to simulate a mid-tier mobile CPU and a fast 4G network and disabling network cache.

The Lighthouse results showed a strong technical performance, for both desktop and mobile, with high scores across all categories: performance, accessibility, best practices and SEO. However, some performance issues were observed on mobile, particularly with slower Largest Contentful Paint loading times.

For the Landing Page, the Lighthouse performance metrics were as follows:

- Desktop View:
 - First Contentful Paint: 0.4s
 - Largest Contentful Paint: 0.6s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0.001
 - Speed Index: 0.4s
- Mobile View:
 - First Contentful Paint: 1.0s
 - Largest Contentful Paint: 2.1s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0.002
 - Speed Index: 1.0s

A summary of the Lighthouse audit results for the Landing Page is presented in Table 1.

Table 1. Landing Page Lighthouse audit.

Category	Desktop View	Mobile View
Performance	100	99
Accessibility	100	100
Best Practices	100	100
SEO	100	100

For the Classes Page the Lighthouse performance metrics were as follows:

- Desktop View:
 - First Contentful Paint: 0.3s
 - Largest Contentful Paint: 0.5s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0.001
 - Speed Index: 0.3s
- Mobile View:
 - First Contentful Paint: 1.2s
 - Largest Contentful Paint: 2.0s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0
 - Speed Index: 1.0s

A summary of the Lighthouse audit results for the Classes Page is presented in Table 2.

Table 2. Classes Page Lighthouse audit.

Category	Desktop View	Mobile View
Performance	100	98
Accessibility	100	100
Best Practices	100	100
SEO	100	100

For the Timetable Page the Lighthouse performance metrics were as follows:

- Desktop View:
 - First Contentful Paint: 0.3s
 - Largest Contentful Paint: 0.3s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0.034
 - Speed Index: 0.3s
- Mobile View:
 - First Contentful Paint: 1.0s
 - Largest Contentful Paint: 1.0s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0.004
 - Speed Index: 1.0s

A summary of the Lighthouse audit results for the Timetable Page is presented in Table 3.

Table 3. "Timetable Page" Lighthouse report.

Category	Desktop View	Mobile View
Performance	100	100
Accessibility	100	100
Best Practices	100	100
SEO	100	100

For the Visit or Invite Page the Lighthouse performance metrics were as follows:

- Desktop View:
 - First Contentful Paint: 0.3s
 - Largest Contentful Paint: 0.5s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0.003
 - Speed Index: 0.3s

- Mobile View:
 - First Contentful Paint: 1.4s
 - Largest Contentful Paint: 2.8s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0.001
 - Speed Index: 1.1s

A summary of the Lighthouse audit results for the Visit or Invite Page is presented in Table 4.

Table 4. "Visit or Invite Page" Lighthouse report.

Category	Desktop View	Mobile View
Performance	100	95
Accessibility	100	100
Best Practices	100	100
SEO	100	100

For the Events Page the Lighthouse performance metrics were as follows:

- Desktop View:
 - First Contentful Paint: 0.3s
 - Largest Contentful Paint: 0.4s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0
 - Speed Index: 0.3s
- Mobile View:
 - First Contentful Paint: 1.0s
 - Largest Contentful Paint: 1.7s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0
 - Speed Index: 1.0s

A summary of the Lighthouse audit results for the Events Page is presented in Table 5.

Table 5. "Events Page" Lighthouse report.

Category	Desktop View	Mobile View
Performance	100	100
Accessibility	100	100
Best Practices	100	100
SEO	100	100

For the About Page the Lighthouse performance metrics were as follows:

- Desktop View:
 - First Contentful Paint: 0.3s
 - Largest Contentful Paint: 0.4s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0
 - Speed Index: 0.3s
- Mobile View:
 - First Contentful Paint: 0.9s
 - Largest Contentful Paint: 1.7s
 - Total Blocking Time: 0ms
 - Cumulative Layout Shift: 0
 - Speed Index: 0.9s

A summary of the Lighthouse audit results for the Events Page is presented in Table 6.

Table 6. "About Page" Lighthouse report.

Category	Desktop View	Mobile View
Performance	100	100
Accessibility	100	100
Best Practices	100	100
SEO	100	100

Further browser compatibility testing was conducted using a tool called PowerMapper [15]. The results indicated that there were no compatibility issues across major browsers, including

Microsoft Edge, Mozilla Firefox, Safari, Opera, Chrome. Additionally, the website is fully compatible with both iOS and Android mobile platforms.

The website is designed for easy navigation. On desktop, users can access any page with a single click through the header menu. On mobile devices, the navigation is accessible via a hamburger menu, requiring two clicks: one to open the menu and another to select a route. This menu displays a list of available pages, ensuring access across all devices. The header is visible at the top of each page and includes the company logo, which redirects users to the homepage when clicked. Additionally, users can register a new account using a verified e-mail address, allowing access to view and manage upcoming bookings.

7.2 User Experience Feedback

The website's feedback was evaluated using System Usability Scale. A total of 10 participants, aged between 20 and 55, were asked to complete the SUS questionnaire after interacting with the website. Based on the participants' responses, the calculated SUS score was 92, which is considered to be a good result [16]. This result suggests that users found the website intuitive and easy-to-navigate, supporting the overall goal of creating a user-friendly platform for Nova Tervise Studio.

The business owner of Nova Tervise Studio MTÜ was also asked to provide feedback for the website. Overall, the owner was satisfied with the result, noting that the new platform aligns with the business goals. Appreciation was given to the booking management system and user registration process. The ability for instructors to manage bookings directly through the website was seen as a significant improvement. Additionally, the simplified single-step registration and booking flow was also highlighted, addressing a usability issue from the previous website, which required users to navigate a multi-step process.

The author validated that the website corresponds to the set functional and non-functional requirements through a combination of testing methods, including manual verification, automated performance audits (using Google Lighthouse), and user feedback using the System Usability Scale. Functional requirements such as user authentication, class bookings and admin content management were confirmed to work as intended. Non-functional requirements such as responsiveness, performance, and usability were also met, as demonstrated by the Lighthouse scores and positive user feedback. Furthermore, the selected technologies provide

a scalable foundation, allowing for future integrations. These results indicate that the website aligns with the practical needs of both end-users and the business owner.

7.3 Future Improvements

While the current version of the website meets the core functional requirements, it is not considered final. The author and the business owner have agreed to continue collaboration for future developments. As the website delivers a service, one of the improvements would be to integrate a payment system. This would streamline the booking process further for both users and instructors and lay the foundation for future e-commerce functionality.

The business owner also mentioned the plan of implementing a membership program, allowing users to purchase memberships and view their status within their account dashboard. Another planned feature is the introduction of an office yoga service, which would require integrating Zoom into the platform to support remote sessions.

Additionally, since currently the business has 3 employees, the website will need an updated administrator interface for managing staff. Specifically, there should be a way to add new employees through the website without having to manually assign roles directly in the database reducing administrative overhead.

8. Conclusions

The goal of this bachelor's thesis was to design and develop a modern, user-friendly website for Nova Tervise Studio MTÜ that improves class booking, provides clear information to the user, and lays the foundation for future feature integration. The project successfully replaced the outdated website with a fully functional, responsive platform that meets the identified business and user needs.

The website was built using modern technologies, including Deno Fresh, Deno 2, Supabase, and Tailwind CSS, chosen for their performance and scalability. Functional and Non-functional requirements, such as user registration, booking management, responsiveness, and usability were validated through testing, user feedback, and performance audits. The website achieved good usability scores and Lighthouse performance metrics across desktop and mobile platforms.

Feedback from both users and the business owner confirmed that the new platform improves the booking experience and supports administrative tasks more effectively than the previous system. While the current version of the website meets the core functionalities, further improvements are planned, including payment integration, a membership program, Zoom integration for remote sessions, and a more flexible employee management interface.

The platform provides a strong foundation for further developments and long-term growth for Nova Tervise Studio.

The website is accessible at: <https://novastudio.deno.dev/>.

The website source code is available on GitHub: <https://github.com/Auraplus5/Nova>.

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