Training Project Presentation

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Company Profile

Minda Corporation Limited is a holding company. The company manufactures auto components/accessories from various locations in India. For over six decades, Spark Minda (erstwhile MINDA Group) has a major presence in Global Automotive Industry and is one of the leading manufacturers of Automotive Components for the OEMs.

I got the opportunity to work in the Web Development Department under the IT Section of Spark Minda and it was a wonderful experience. As the company is fairly large scale, the flow of work was defined in a set manner according to industry standards and the quality of code written was really fine.

Introduction

The project I made is based on something called a “Content Management System” or “CMS”, something I’ll explain in the coming slides.

In the beginning I got to work on an already on going project that included the concept of a CMS, and as I wasn’t familiar with it, I couldn’t contribute much. I was given resources to learn the basics and working of a content management system, and learning through those allowed me to understand the work going on in the current project, and learn more about how it worked deeply.

I was later given a task to create a template based on a CMS that could be freely used as a starting point of any basic website made for future projects. The key point being, all the features of a content management system should be available and working properly.

Content Management System

A Content Management System or CMS is a software which is used for creating, managing and editing a website even if you do not have any specialized technical skills or knowledge. With CMS, you can develop and design a website without even having to write the code. In short, a CMS website is a website which is developed by using a content management system. CMS not only helps in managing the text or images which are being displayed on the website, they also help in tracking the user sessions, handling the search queries, collecting visitor feedback and comments, hosting forums on the website etc.

Rather than developing and building a system which can help in creation of web pages or store images, CMS can be useful for handling all types of infrastructure work, while the website developer can concentrate on the customer facing areas of the CMS website.

Advantages of CMS

1. Updating CMS website as per your own requirements and terms is possible
2. No Coding knowledge required to update the content on the website
3. Simplifies the redesigning of the website
4. Provides an all-inclusive internet marketing strategy
5. Multiple Access and Collaboration
6. Affordable and Time saving Maintenance
7. Makes the making of similar components easier, hence is time-efficient

Tech Stack

1. HTML - A markup language for documents designed to be displayed in a web browser.
2. CSS - A style sheet language used for describing the presentation of a document written in a markup language.
    - Styled-Components
3. Javascript
    - React.js
    - Next.js
4. Netlify-CMS
5. Github

HTML

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

Github

GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere.It offers the distributed version control and source code management (SCM) functionality of Git, plus its own features. It provides access control and several collaboration features such as bug tracking, feature requests, task management, continuous integration and wikis for every project.

Netlify CMS

Static + Content Management
The speed, security, and scalability of a static site, while still providing a convenient editing interface for content.

An integrated part of Git workflow
Content is stored in a Git repository alongside the code for easier versioning, multi-channel publishing, and the option to handle content updates directly in Git.

An extensible CMS built on React
Netlify CMS is built as a single-page React app. Create custom-styled previews, UI widgets, and editor plugins or add backends to support different Git platform APIs.

JavaScript

JavaScript (JS) is a lightweight, interpreted, or just-in-time compiled programming language with first-class functions. While it is most well-known as the scripting language for Web pages, many non-browser environments also use it, such as Node.js, Apache CouchDB and Adobe Acrobat. JavaScript is a prototype-based, multi-paradigm, single-threaded, dynamic language, supporting object-oriented, imperative, and declarative (e.g. functional programming) styles.

As a multi-paradigm language, JavaScript supports event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM). However, the language itself does not include any input/output (I/O), such as networking, storage, or graphics facilities, as the host environment (usually a web browser) provides those APIs.

CSS

CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts.This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file which reduces complexity and repetition in the structural content as well as enabling the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

The name cascading comes from the specified priority scheme to determine which style rule applies if more than one rule matches a particular element. This cascading priority scheme is predictable.

React.js

React (also known as React.js or ReactJS) is an open-source, front end, JavaScript library for building user interfaces or UI components. It is maintained by Facebook and a community of individual developers and companies. React can be used as a base in the development of single-page or mobile applications. React's main task is rendering data in the dom, but can be lifted up by many libraries such as react-router or material-ui. It is declarative, efficient, and flexible JavaScript library for building user interfaces. It lets you compose complex UIs from small and isolated pieces of code called “components”.

Next.js

Next.js is a React Framework.

It is known for the best-in-class "Developer Experience" and many built-in features, such as:

- An intuitive page-based routing system (with support for dynamic routes)
- Pre-rendering, both static generation (SSG) and server-side rendering (SSR) are supported on a per-page basis
- Automatic code splitting for faster page loads
- Client-side routing with optimized prefetching
- Built-in CSS and Sass support, and support for any CSS-in-JS library
- Development environment with Fast Refresh support
- API routes to build API endpoints with Serverless Functions
- Fully extendable

Working

As I have explained all the components of the project, now it's time to explain how all those components are used to create a working Content Management System.

First, all the UI of the project is coded in Next.js, which is basically build on React, arguably the most popular javascript framework. It has the advantages of server-side routing and is a static site generator which is essential for making a CMS using Netlify CMS.

The combination of the technology used is part of an architecture called Jamstack. It is an architecture designed to make the web faster, more secure, and easier to scale. It builds on many of the tools and workflows which developers love, and which bring maximum productivity.

The core principles of pre-rendering, and decoupling, enable sites and applications to be delivered with greater confidence and resilience than ever before.

Working Continued

After using Next js for generating a blank platform to work and code on, it is then paired with to netlify CMS.

All the configurations required to get it working are provided in the `yaml.config` file, present in the admin folder. It is where we have to define what service we're using to store and update content. For my project I used github, since it is widely used and every project is made on github, so its better than attaching a different service.

We then log in to the Netlify CMS service online and allow for netlify to configure your repository on github. Over there we also set up login and password for the login service of the admin that will have right to change the content of the website only using the User Interface provided by Netlify.

And then we code according to our requirements and host the CMS using a hosting service. Since Netlify also provides hosting, I used that for this project.

Workflow of the project

- ➔ The Admin visits the Content Management System hosted on the internet.
- ➔ The looks and working of the website is like any other static website, but since this is a template, it includes minimal styling, since it will be used as a starting point for various projects and the styling of each project will be different, hence styling it would only make it difficult while actual usage later on.
- ➔ If there is something that needs editing, deletion or an already made component that need replicating, the admin logs in by adding `/admin` at the end of the link. After that a login prompt appears where the preset login and password is used to log in.
- ➔ After logging in, the admin is greeted with a user interface that includes all the component types declared in the config file, and allows for them to be edited, added or deleted on the website.

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- ➔ After the admin performs the required function, the entered changes are then updated in the github repository configured earlier.
- ➔ All the data is saved in `.md` files. These are called markdown files, that can define how the text will be outputted based on the symbols used around the text entered in it. For example: writing inside [ ] will turn the text into a link and so on.
- ➔ After the markdown file is updated on github, the hosting service Netlify constantly check the repository for any changes and soon as they are found, it creates another build of the website and starts hosting the updated build. This process usually takes 2-4 minutes, which is considerably fast considering how an entire component can be made without writing a single line of code.
- ➔ The content updated in the `.md` file then goes through a markdown loader, and all the content is passed on in the form of objects, hence all the references made in the code are dynamic.

Website prior to any changes

https://netlifycms-nextjs-templat | Content Manager

netlifycms-nextjs-template.netlify.app/blog

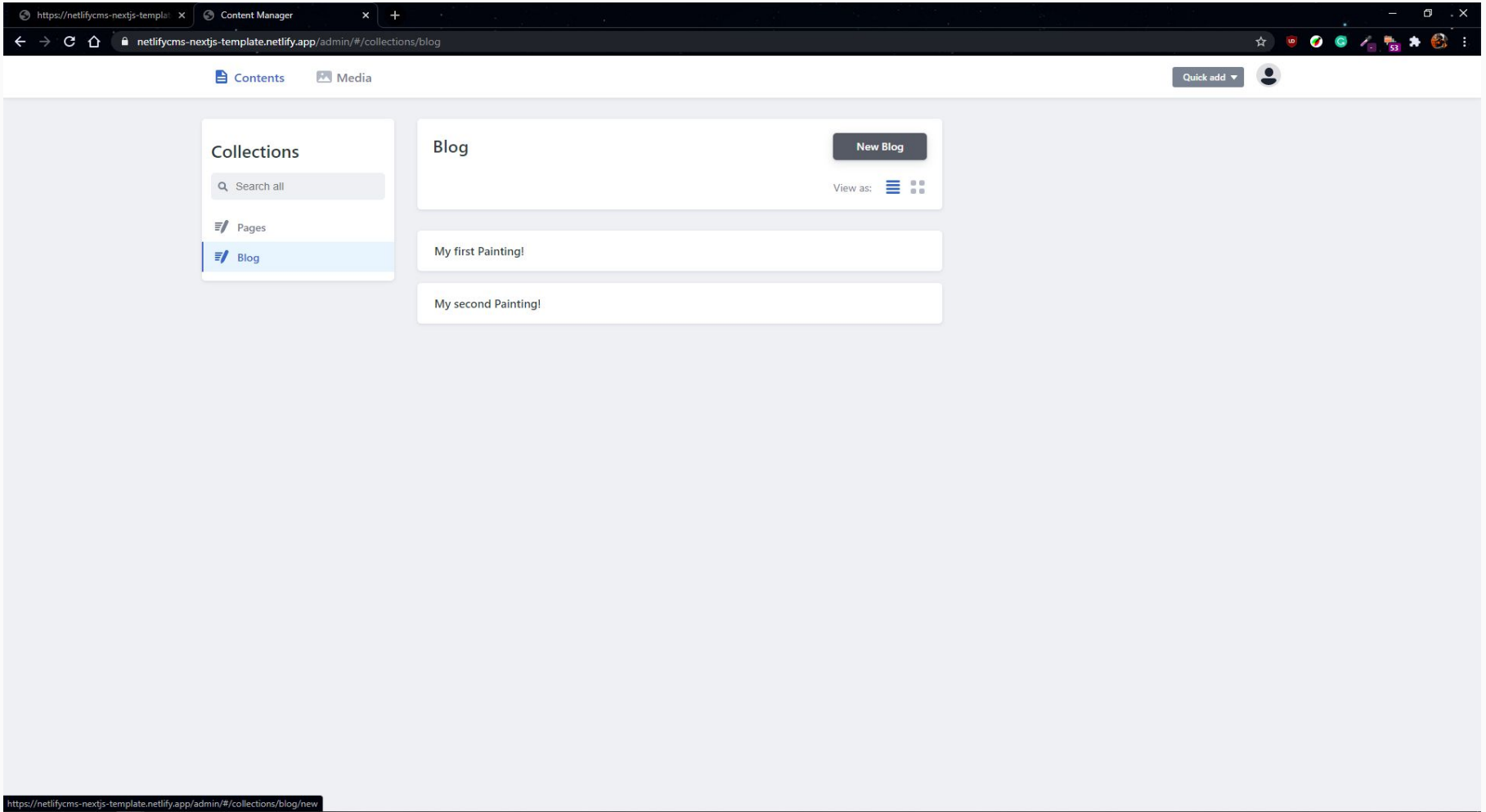
Blog

My first Painting!

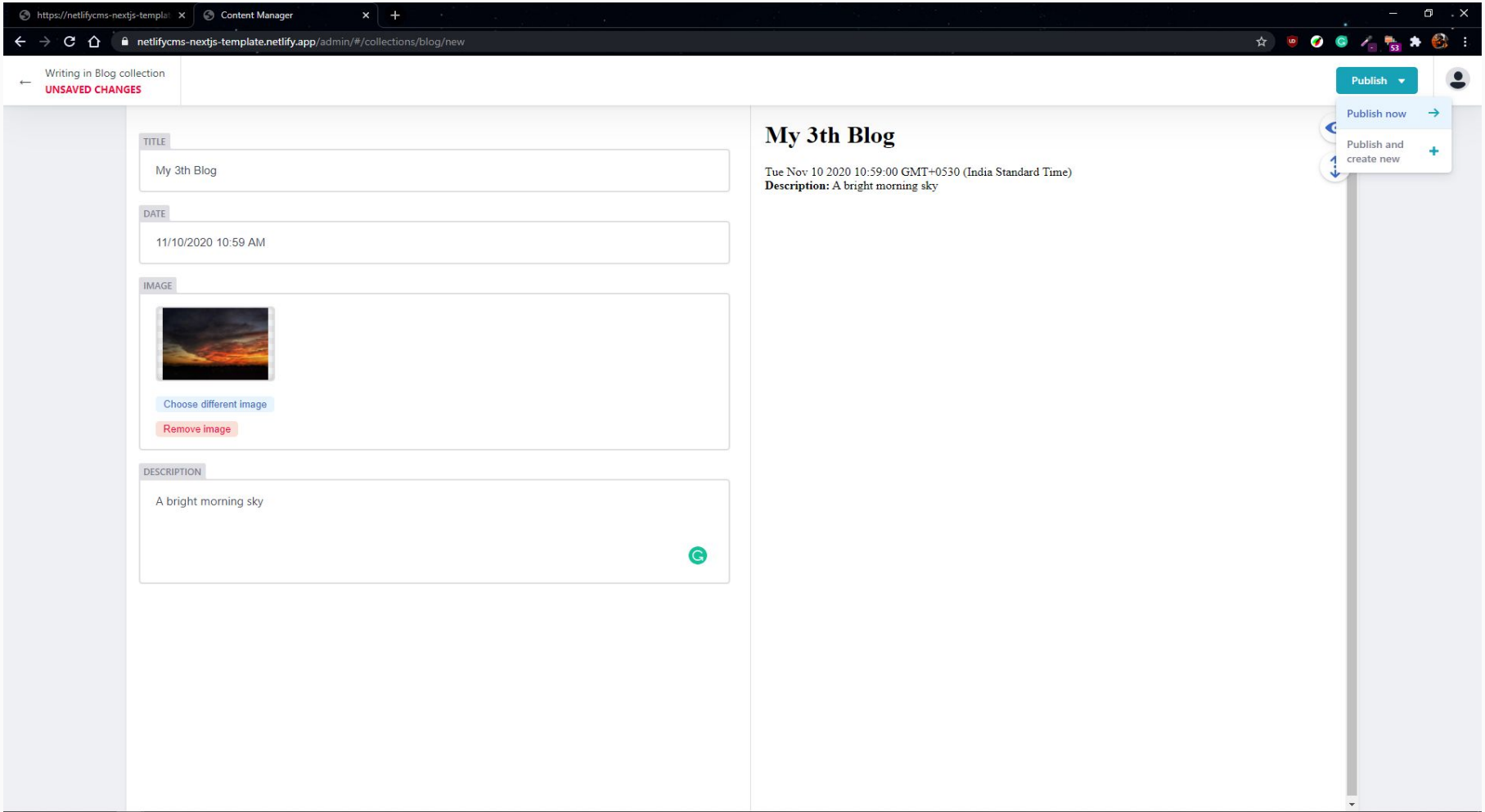
My second Painting!

Home
About
Projects
Blog
Page 4

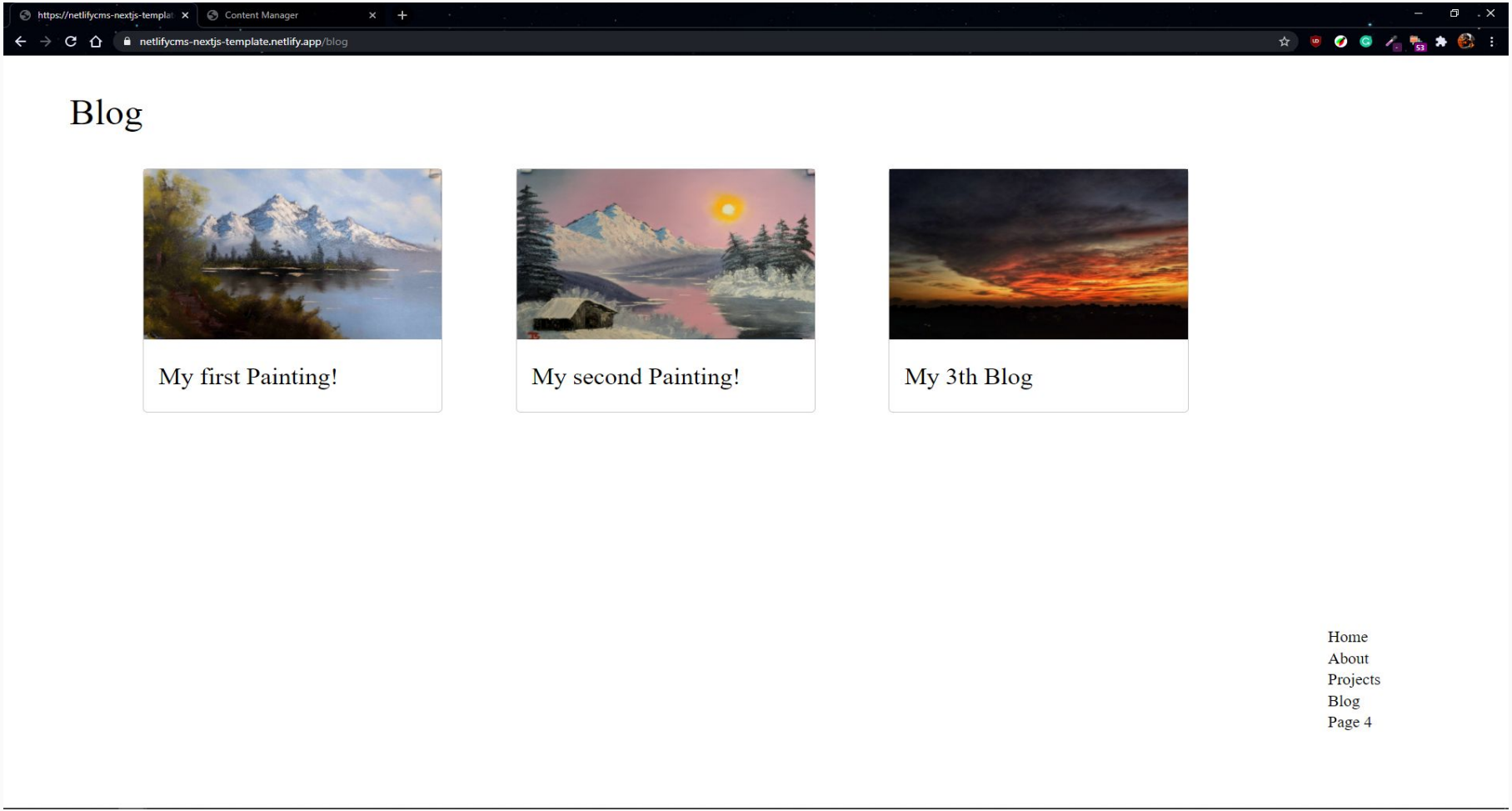
Logging in as admin by adding /admin at the end of the link and clicking on the ‘New Blog’ button.



Adding the details of the Blog Component and Publishing it



Published changes are observed on the website in a couple of minutes.



Thank You