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How to Build a Blogging Website

Rajdeep Patel[1], Akash Patil[2]
Parul University, Vadodara, Gujarat, India

Abstract: ***This paper explores the variegated domain of blogging, with focusing on the platform OmniSpectra. Here, I present an in-depth explanation of website's UI/UX design, usage, architecture, and backend mechanisms. The study explores the unique characteristics of OmniSpectra that distinguishes it from other popular blogging websites, highlighting its inventive method in nurturing inclusive and compelling virtual communities of both content consumers and content creators. The paper will show in-depth workings of different techniques such as blog recommendation, data collection and curation that are used in the website to provide a benchmark user experience. The paper investigates the website's role in shaping individual's narrative and perception based to users' interactions to different blogs, this has been achieved by getting a constant sentiment analysis feedback from users as well as the content created by the creators using AI models. All in all, after reading this paper, the reader will get a high-level idea of how to create a blogging website and add to it different modules according to their specific requirements. All this is explained by taking the example of OmniSpectra.***
Keywords: Blogging, Recommendation, Data Collection, Sentiment Analysis, User Feedback

I. INTRODUCTION

A. Background and Significance

"Data is the new oil," said Clive Humby. Internet as a source of raw material -which as some inherent value- will easily replace earth in terms of sheer amount of wealth it will produce not only for the creators but for anyone who is and will be remotely associated with it. In other words, it would have the same effect on the people in future, as the oil and people associated with oil such as chemical and petroleum industry has in present day. First ever blog was published by Justin Hall in 1994, since than the scale of blogging has increased exponentially. According to WebTribunal there are 600 million blogs on the internet today, with over 2 billion blog posts published each year and predicted to increase in the future. Thus, there is an easy opportunity to capitalize on the market size and every company including legacy conglomerates as well as startups are starting their own blogs. The underlying motive to build blogs is to create personalized distribution, as it is said that future will be owned by the ones who owns distribution and blogs are one of the most effective and efficient to create and scale distribution. The paper focuses on creating websites that can be used to create these distributions.

The paper sheds light on some features that can be included in any blog to create an enriching experience for the content consumer as well as content creator. Techniques such as, similar blog posts recommendation, data collection for providing the creator with analytics of their content, also how to monetise as a creator on the platform. User feedback analysis by manual methods such as feedback forms and automated methods such as time spent on a particular blog. Also, tuning the recommendation algorithm based on user and content sentiment analysis.

B. Overview of MERN Stack

MERN stack is a collection of four technologies namely: MongoDB, Express.js, React, and Node.js. These technologies are combinedly among the most popular technologies used to develop web applications. Due to wide adaptability and comparatively robust nature of MERN stack, it was the first choice for me to build this application. Also, the huge community support of all the technologies makes it easy to tackle errors and bugs. Also, along with MERN stack Tailwind CSS was also used for styling certain components of the application. Additionally, technologies such as text-summarization model from hugging face and other pretrained models from TensorFlow were used, which are discussed in detailed in latter chapters.

II. LITERATURE REVIEW

1) Hans, Sahil & Maqsad, Shaik & Swami, Aditya & Kumar, Ashish. (2021). [4]

In this paper, the authors have described what blogging is, what are the benefits of it, what are the opportunities provided by it, and how to compose a blog post on own. The authors have also highlighted the importance of blogging as a medium in the era of internet. The paper gives a little overview of what is blog and blog website and some of its characteristics.

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2) Abdullah Arslan (2023) [5]

In this paper, the author has reviewed multiple researches showing how blogging in EFL (English as foreign language)/ESL (English as second language) has affected the students. The students using blogging to learn English has benefitted irrespective of the student being the reader of the blog or writer of the blog. But this paper does not give any information on how reading or writing blog helped the student in learning English.

3) Vaishnavi Vijay Rahate (2023) [3]

The author aims to unveil the hidden key behind the rising popularity of blogging as a medium for expressing emotions, thoughts, and opinions. Apart from this, blogging has also given a platform for technical writers who display their technical prowess by posting on certain highly technical topics and helping others understand a topic in a better way. Even though, this paper gives require context on how blogs are perceived by population and its psychological effects on them, but it lacks in providing the information about how the user interacts with a blog and some practices to hold the attention of the user for a longer time. Also, there was no mention about blogging as a platform.

4) Deepti Kapri, Rosy Madaan, A. K Sharma, Ashutosh Dixit [6]

The authors proposed an architecture for searching in the index of blog summaries which provides the most relevant blogs on the top. The architecture consists of summarizers, indexer, searcher, and rank calculator module. It introduces techniques to calculate similarities between different keywords in the summary, number of views and likes and based on these similarities it ranks different posts and thus make indexing easy, providing more accurate results for relevant searches.

5) Akarsh Shrivas, Aniket Pawar, Pratham Mishra, Prof. Satish Chadokar [7]

This paper demonstrates real life use of MERN stack in developing a web application. It shows the significance of all the libraries and different components used for making an application. Although, the paper explains the use of MERN stack by taking e-commerce website as an example, the high-level use case of the technologies made clear how to design any application for MERN stack.

Table 1. Comparison between above mentioned papers

Paper	Provided Information	Unavailable Information
Hans, Sahil & Maqsad, Shaik & Swami, Aditya & Kumar, Ashish. (2021). [4]	How to write a blog in for better reach. Mentions how to use blog in future and its importance.	How to improve blog as a platform from the perspective of the developer.
Abdullah Arslan (2023) [5]	Benefits of writing and reading blog for learning English as ESL/EFL.	How the structure of the blog (from author's and developer's perspective) affects the reader.
Vaishnavi Vijay Rahate (2023) [3]	How a writer and reader can benefit from blog as medium	How a developer can help in increasing the benefits that can be reaped by readers.
Deepti Kapri, Rosy Madaan, A. K Sharma, Ashutosh Dixit [6]	How to setup search functionality in the website to provide most relevant posts.	No mention of how to implement similar structure for recommending posts without explicit search.
Akarsh Shrivas, Aniket Pawar, Pratham Mishra, Prof. Satish Chadokar [7]	How to use MERN to build a web application	Design Blog app using with respect to MERN stack

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III. STRUCTURING THE BLOG WEBSITE

A. Overview of Website Structure

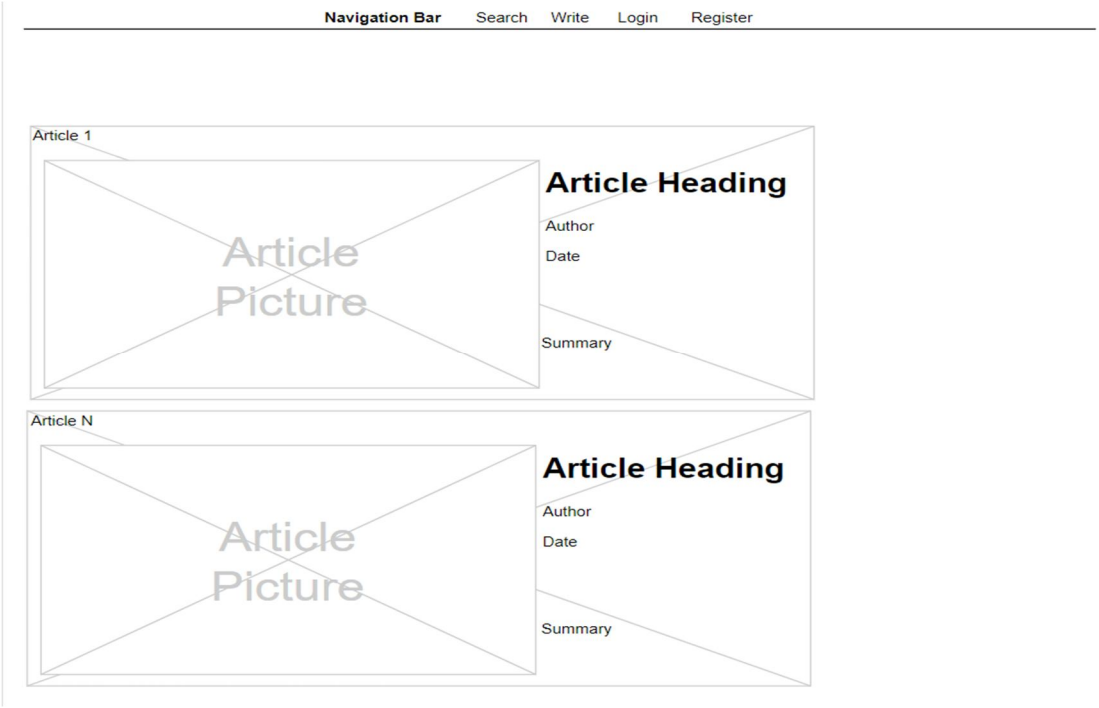

Fig 3.1 Explore Page

Add the functionalities of search in the search option. All the articles should be visible in a fixed format and should show the given details. Upon clicking on any of the article cards, a new page would open where the viewer would be able to see the whole article.

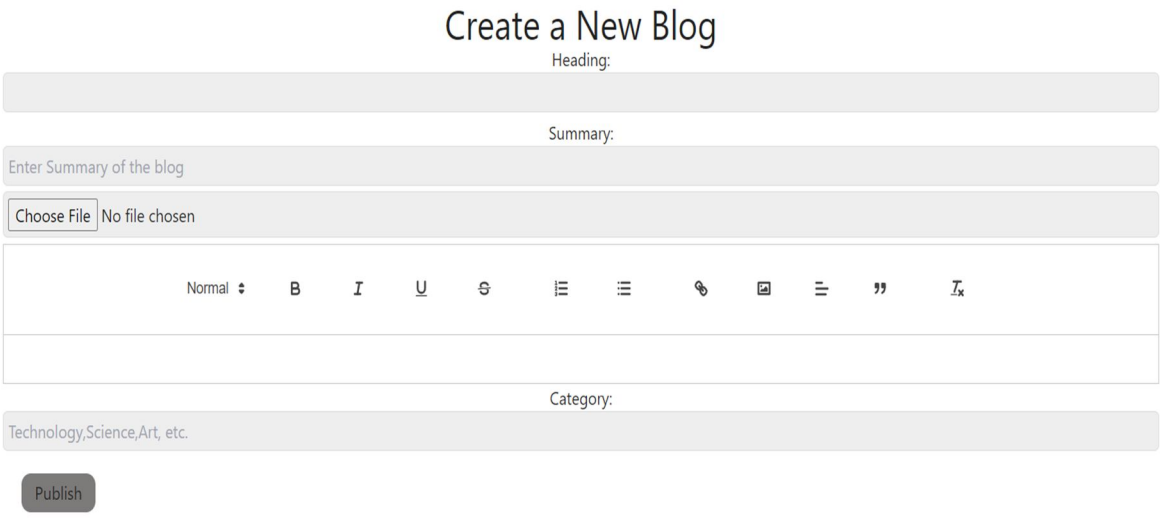

Fig 3.2 Write Page

Fig 3.2 is the basic structure for required details to be stored in MongoDB, the images inserted inside the content box provided just above category will be stored in MongoDB and the image provided as file using choose file option will be stored separately.

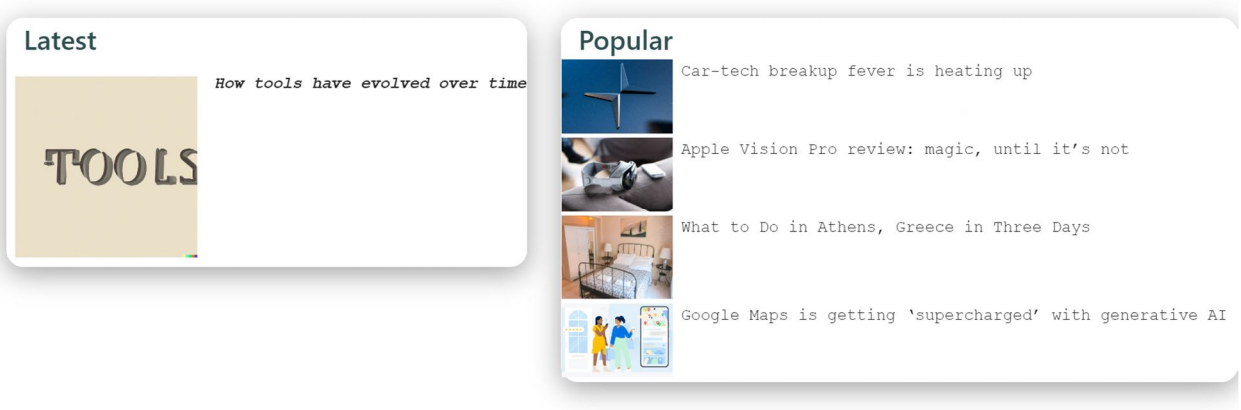

Fig 3.3 Latest and Popular Posts

On home page, a div shows the latest blog on the website and other div consists of top 2 most popular blogs on the website. The popular component constantly renders to check if there is any change in number of views of top blog posts.

B. Importance of well-structure Architecture

All elements within OmniSpectra are crafted to provide a minimalist experience, ensuring that the reader's mind is not burdened with superfluous components like extravagant designs and animations. These elements have the potential to hinder overall information retention. It is imperative that the user is not inundated with an excessive number of posts on the screen simultaneously. The web flow is designed to be intuitive, encouraging users to spend more time on the website. For instance, commonly used functions such as login, register, and write are strategically positioned for easy accessibility, facilitating a seamless user experience.

IV. DOS AND DON'TS IN DEVELOPMENT

Consider the following key considerations when developing a blog application:

1) Avoid overwhelming the user with a multitude of posts directly on the homepage.
2) Instead of organizing posts by categories, present them based on a recommendation engine.
3) Maintain consistency in the website's content by refraining from offering the option to change the font-family.
4) Incorporate extensive backend functionalities, particularly those focused on data collection. Examples include tracking views, likes, dislikes, and read time.

A. Some Common Pitfalls and How to Avoid Them

1) Avoid getting trapped in tutorial hell: start by building a single page and continue from there, because while following the tutorial there would only be limited modification one could make without disrupting the whole project.
2) ChatGPT is the best helper: Ask every little error or doubt to it, and if the response is too high level, ask it to dumb it down.
3) ChatGPT would only take you so far: At the end of the day, it is only a language model and, its trained-on data that it minimum 6-12 months old and hence can provide outdated results.
4) Do not temporarily fix an issue: If you find any bug, then do not fix it temporarily, try to solve all its current and future dependencies.

V. MAJOR COMPONENTS OF THE BLOGGING APP

There are some necessary components that make a blogging website match industry standard, some of those, namely, explore page, recommendation system and content management are explained in detail in the subsection of this section. Also, a special component -summarizer-that can be considered as a necessary feature in near future.

A. *Explore Page*

The Explore page serves as the initial point of interaction for users with the website's content, underscoring the necessity for meticulous design. As a developer, the primary objective should be to encourage users to click on a blog featured on the Explore page during their first interaction, discouraging deliberate searches to find preferred content. A boilerplate design for the explore page is illustrated in Fig 3.1.

B. *Recommendation System*

Where there is content, a recommendation system should be in place. Manual searching is a laborious task, and a recommendation engine aims to alleviate this burden. Typically, such websites would benefit from a content-based recommendation system, necessitating the training of models for similar users and similar blogs. Recommendations are then generated based on these models. Moreover, collaborative filtering can be employed to suggest content based on what other users are engaging with on the website. However, the implementation details of these models are beyond the scope of this paper.

C. *Content Management*

At a broad level, a blogging website serves the dual purpose of facilitating readers to peruse blogs and empowering authors to seamlessly publish, edit, and remove their content. The entire process should be intricately designed to ensure the synchronization of Create, Read, Update, and Delete functionalities. Additionally, an authorization mechanism must be implemented, restricting the privileges for updating and deleting to the specific author of the blog.

VI. CHALLENGES AND CONSIDERATIONS

Some of the challenges that the developer can face while developing a blogging application are:

1) *Lack of Initial Requirement Analysis:* All the requirements should be laid out before starting the development process. Such as selection of database, theme, and technologies.
2) *Decide the Scope of the Project Before Hand:* Defining the scope of the project and following it will prevent you from getting distracted during development.
3) *Scaling Issues:* According to this paper, the website will not be able to scale past few hundreds of users.
4) *Hosting Issues:* There is no mention of how to host the webapp in this paper as it is optional and differs for each developer, although choose the database based on its support for cloud deployment.
5) *Retraining Limitations:* Based on the number of active users, it will be upon the developer to decide on when to retrain the similar blogs model and similar user model, since both data will constantly grow and model will require to train on those data too, so it would be both a challenging decision and task to execute.

VII. CONCLUSION

In conclusion, this research paper provides a holistic view of development of blogging website, with focus on a specific implementation of the platform, OmniSpectra. The paper provided all the necessary guidelines and instructions regarding the pre-development and development processes. Process such as how to design, architect, conceptualize and develop the application was carefully explained using the reference of OmniSpectra. Along with the technical details, the paper also provides insights about users' behaviour and how to capitalize on it to boost the website's performance. Apart from web development, introduction and basic implementation of data collection and handling is demonstrated in the paper, which provides the developer with enough resources to equip the website with ai models trained on that data. Use case of recommendation system and sentiment analysis in OmniSpectra is also referenced here. Additionally, the paper bluntly mentions the problems and limitations of the processes described in this paper, which can provide the reader a clear picture of the scope of the paper and a realistic view on the web development process as a beginner. In essence, this research paper serves as a comprehensive guide for aspiring developers and entrepreneurs, offering insights, best practices, and a nuanced understanding of the multifaceted world of blogging platforms, using OmniSpectra as a prime exemplar.

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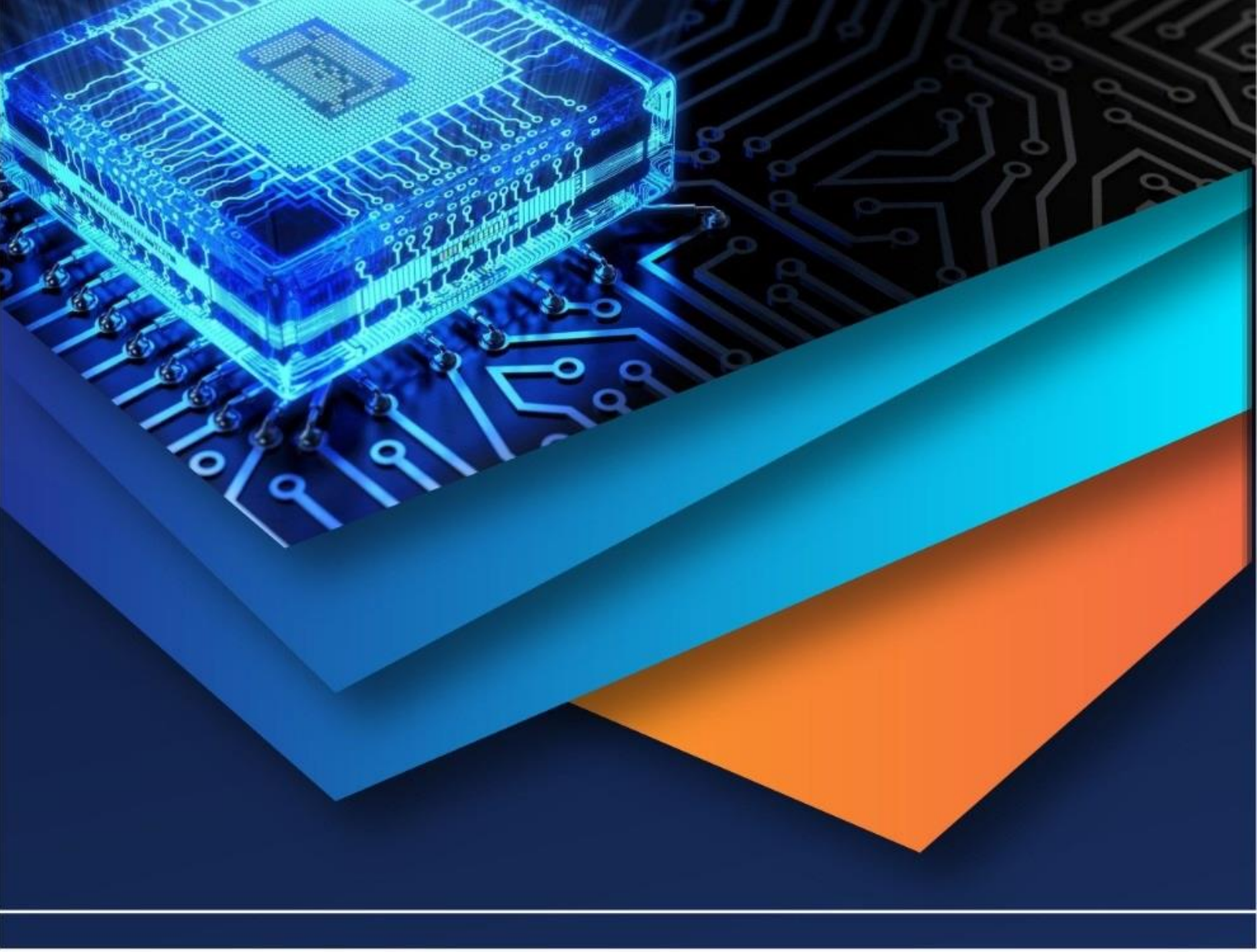

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