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Design and Implementation of Administered Blogging Application using ASP.NET Core MVC Features

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Abstract:

Blog is an application that is intended to self-assist various content writers to share and educate the world with their opinion about any topic. It is a platform for readers and writers, which is used to share information, ideas, and experiences. A blog is a platform where users can share their thoughts about a particular topic and create a community. Blogs not only create a community but also assist in SEO (Search Engine Optimization) which affects a website's ranking. Nowadays many companies /enterprises implement blogs into their websites. Many blogging websites already exist but monitoring the content is not what has been done until now. Any person can post anything whether it may be sensitive towards a community and a group of people. In this paper we are going to implement a blogging application that is administered at an admin level and the content written by any person is checked and reviewed for the sensitive content. Reviewing the blog is done manually and automated through sentiment analysis apis which analyses the text and gives response as positive, neutral or negative based on the sentiment of the text. In this paper we have implemented a web-based application which is developed using ASP.NET Core MVC architecture with code first approach using migrations. The admin is provided the privilege to monitor the blog posts for any negative content. The application provides a user interface which is implemented using HTML, CSS, Bootstrap, JavaScript and jQuery. MS SQL is used for the database purpose including authentication and data saving.

Keywords – Blogging, ASP.NET, MVC, Total blocking time, TTI, Largest Contentful paint Sentiment analysis, Light House, Speed Index, Cumulative layout shiftWYSIWYG etc.

I. INTRODUCTION

This paper is based on a blogging platform that is executed using the Model-View-Controller (MVC) Architectural or Design Pattern with ASP.NET. Thecommunication throughout the application relies on these three components which are the Model, the Viewand the Controller. The application consists of various features. They are

- Registration/Login system,
- a content editor based on WYSIWYG pattern for a user to write and edit blogs and,
- an admin dashboard to approve or disapprove blogs which is done either manually or automated using a sentiment analysis web API.

The flow of the application starts by user logging to website home page. Inorder to create blogs user needs to be registered first. After doing authentication check on a registered user, they can log in to thewebsite for managing their blogs, creating new blogs and editing them for improvisation. The Admin is manually set beforehand in the database and given privileges to monitor the blogs. Admin can approve the blogs that are submitted by the user to be published on the website or disapprove the blog if it contains the any

sensitive content related to any community, or anything that will create a discomfort in the society. Admin can provide a feedback for the blog author if it is not approved based on the content in it. Also the approval of the blog is done using sentiment analysis. The text in the blog is sent to an external api as request and the response of the api request can be positive, negative or neutral based on the sentiment of the text. All the features of application are developed using model, view and control where model is the data, view corresponds to the user interface and control refers to the logic and flow of application.

II.   LITERATURE REVIEW

[1] Blog writing as a pedagogical device for coaching writing ability to Indian college students of M.A. First semester of (English Literature). A qualitativestudycould be undertaken to discover success/drawbacks of this studying/coachingdevice to decorate their English writing ability.The case study interrogates the applicability of this participatingweblog pedagogy in improving the studyingsystem and discoverthe connectionamongrunning a blog behavior, studyingresultsand educational performance.[2]It attemptsto showwhether or notthere may be any impactwithinside the writing ability of the scholars taught the use of Web weblog (online) and that of these taught withoutthe use of it (offline). This looks atturned intolabeled as quasi-experimental studies. The pattern of this studiesturned intosixty-fourcollege students of X Unggulan Classes (XU1 and XU2) on the secondary facultydegree in relevant java. Between the start and the cease of the look at, they had been given 3 months of treatment. The outcomesconfirmed that there has been an essentialimpactwithinside the writing capacity of the scholars taught the use of Web weblog and that of these taught withoutthe use of it.[3] The study investigates the effectiveness of on-linerunning a

blog for students' man or woman and organization writing abilities. The contributorshad been divided into individuallearners and organizationlearners. They produced pre-writing and post-writing samples viarunning a blog practice. The observecarried out lasted for 14 weeks in order thatrunning a blogwill be optimized. The consequences of the studyscreen that not likeconventionalmethods of enhancing writing abilities, running a blog has revolutionized EFL pedagogy and methodology (studying and teaching). Blogging-primarily based totally writing exercise is extraparticipatory and interactive in that freshmen can dramatically enhance their writing abilities in phrases of content, phrase choice, style, language mechanics and the like. The learner-blogger will becomeconscious that the arbiter is now not the lecture room teacher, the target market or readership.

[4] An attempt to provide information about the impact of group-related cognitive biases on web interface design evaluation. In particular, based on a randomized controlled experiment with more than 500 test subjects, it can be proved that the evaluation of the web interface by the judges can easily manipulate the phenomenon of social influence, and it is possible to evaluate the people of the web interface in social. Context is very susceptible to information society influences, resilience, beliefs, and conservative biases. The research results indicate that the web interface design of the evaluation organization should be done consciously by the individual. Judge in an environment free from social influence.[5] The main purpose of this application is to develop a website specifically for farmers to interact with the government. The application is developed using asp.net MVC. On this website, before starting planting, farmers need to enter data about the land, the crops planted, and the estimated cost of

planting.[8]Various database encryption options in SQL Server are available in which ,case it works best. In the prevailing world, data is more important than costly hardware.Encrypting sensitive data is one of the greatest methods to deal with the rising security needs. According to recent research, the using encryption has risen, as has the range of objectives it has been used to solve the most prevalent reasons for using encryption.[9] In order to use generic repository patterns to create an abstraction layer between the data access layer and the business layer of the application,the data store can be used to operate the application and provide automated unit testing or test-driven development (TDD).[11] Analyzing tweets is done using three models, unigram, tree kernel and feature based to analyze the sentiment of the tweets for and provide useful insights of the same.

III. OBJECTIVES

The main objectives of the paper are:

- To develop and design a user-friendly web-based blogging application that is administered using ASP.NET and MVC 5
- User authentication for logging into website.
- Provide a dynamic content editor for writing/ editing blogs.
- To provide admin with a privilege to approve and disapprove publishing of blogs based on the post content
- Provide automated blog approval by analyzing the sentiment of the blog content.
- Providing a feedback by admin to the author for disapproving the publishing of the blog.

IV. METHODOLOGY

The application communicates through three different components known as the Model, View and Controller. The Model contains all the different types of data required for the application like, username, password and email-id. The View is the actual page that users can see and interact with.

Finally, the Controller, validates certain items from the view and assists in routing and rendering pages. For the frontend work, HTML, CSS, Bootstrap and a bit of JavaScript have been implemented and for the backend work, C# and SQL Queries have been used.

Consider an example of the backend work. In the the Registration Model where data like First Name, Last Name and Email have been store. The Controller uses the Registration View (a.cshtml file) and validates this with the Model to make sure certain constraints have been satisfied. Using the example of the login page, validation with the database is done to make sure the user exists. This is a basic idea of how every View will work communicate with the rest of the program. Security will be provided to the web-application by making use of SSL certification. Any additional features required in the future can easily be added to the application. Responsivenesswhich is a highly vital feature for every application nowadays is also provided to adapt to any screen size using Bootstrap 5 and CSS.

Additionally, the application is continuously tested for the known bugs and are immediately rectified for the smooth functioning of website.Once any user creates a blog it is submitted to the admin for the approval. Admin after reviewing the content approves the blog if not found sensitive about some community or a group and is published on website, if disapproved the admin gives feedback to the user about the blog not being published. The automated blog approval the content in the blog after submitted by the author will be sent as request over the sentiment analysis api. The api analyses the content in the post using text analysis models and NLP to determine the sentiment and emotion of the post. It sends a response as a JSON object with the sentiment value as positive, negative and neutral. If the value is negative, then the blog is disapproved, and feedback is provided to author about the content.

V. PROPOSED MODEL

The system architecture as proposed in this paper consists of User Module and Admin module which include authentication, blog publishing and monitoring, content editor for writing blogs and providing a user friendly interface.The below figure 1 gives the architectural view of the system. This includes the working of the entire web application, server, database and the modules required. The Blogs written by the user can be viewed on the home page of the website only after the approval of the admin. The user can view his blogs whether published or unpublished on user home page(Figure 6).
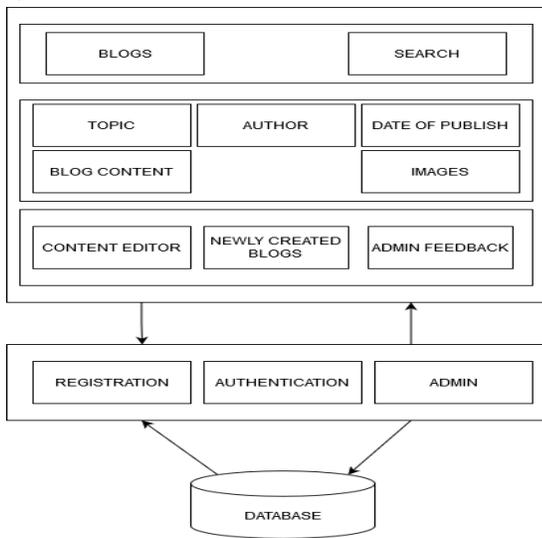
Figure 1: System Architecture

*Admin Module:*Figure 2 shows the flow of the admin functions Purpose is to display all the blogs that are written by the users that are submitted for the approval and to be published. Input is to click blog article to read it or click on approve and publish to publish the blog or click on disapprove for not allowing the article to be published based on the sensitive content written inside it.
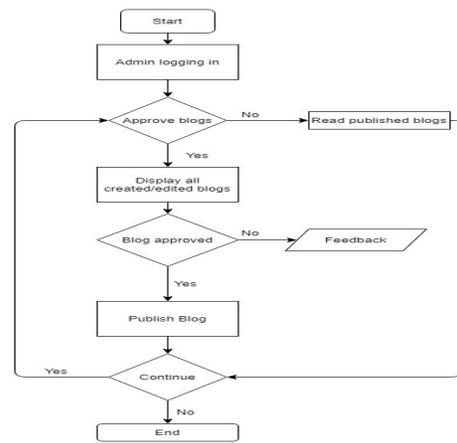
Figure 2: Admin Flowchart

*User Module:*Figure 3 shows the flow of the user module. Purpose is to display all the blogs that are written by the user and create/edit his blogs. Input is to click blog article to read it or click on create blog to write a new blog. Function is redirection from user home page to create page. Once the blog is submitted for approval it redirects to user home.
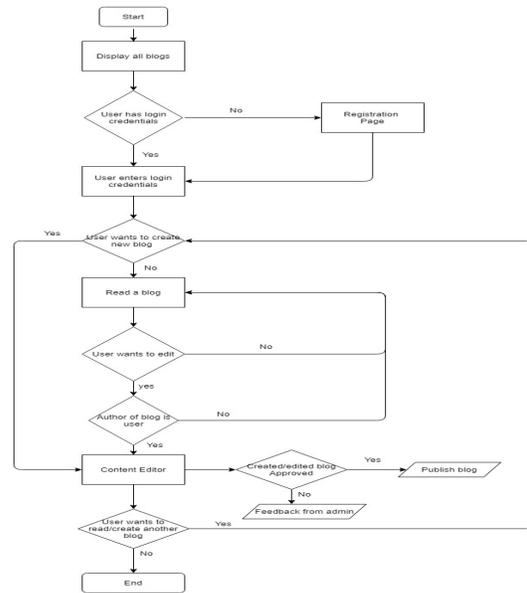
Figure 3: User Flowchart

VI. RESULTS AND DISCUSSION

The application implemented in this paper provides a reliable method to share the information and read other people's views without any hesitation because of the monitoring of the blogs. Any topic which has sensitive content of any type is not published resulting in lowering risk hate crimes, riots and any type of anti-social activities.

The different views of the application are as:

1. *Home Page:*It is the landing page of the website where all the approved blogs are published for any user to read.
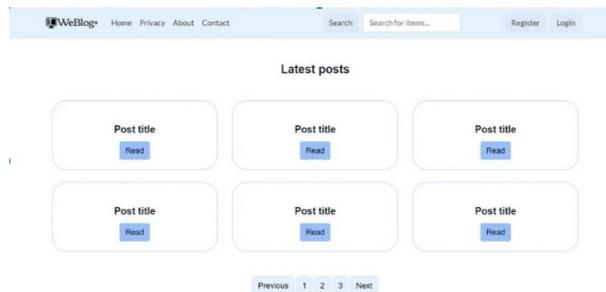
Figure 4: Website Landing page

2. *User :* The user has different modules to view, create and edit his blogs. Also, the user can delete his blogs.
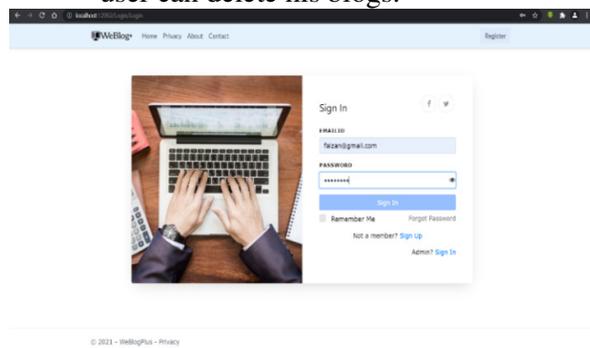

Figure 5: User Login Page
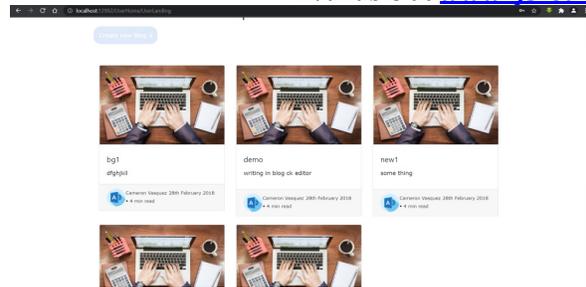

Figure 6: User Homepage
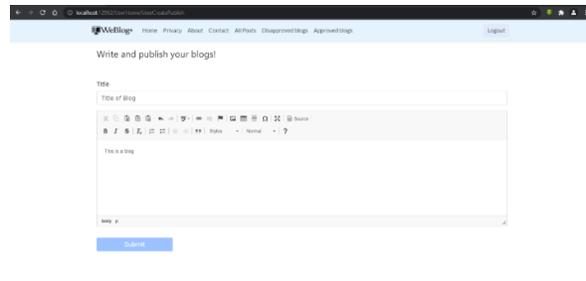

Figure 7: User Content Editor page
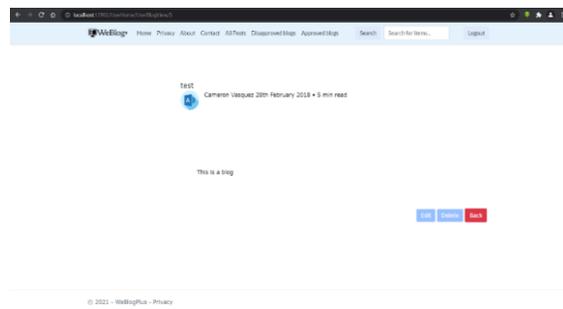
Figure 8: User Blog View Page

3. *Admin*: The admin has various modules for approving and disapproving the blogs that are written by users.
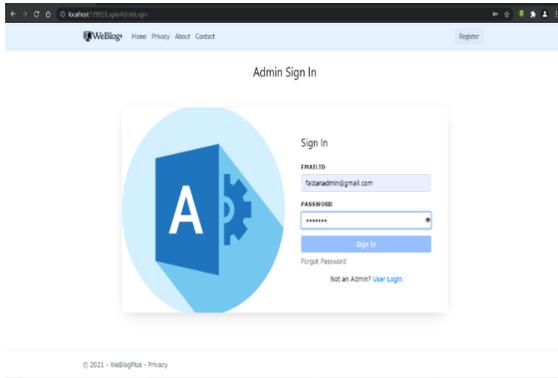
Figure 9: Admin Login Page
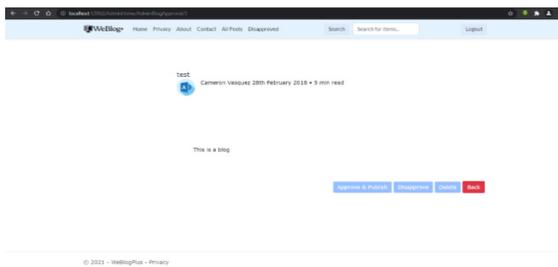
Figure 10: Admin Approve and Publish page

The Performance analysis of the application is well depicted in figure 11 and are as follows:

Evaluation metric

Light House:

Lighthouse is an open-source, automated tool which is used to improve the quality of the web pages. It can be used for any webpage, public or requiring information. It has audits forprogressive web apps, performance, SEO,accessibility and more

First Contentful Paint:

First Contentful Paint (FCP) is a time stamp when the browser first renders any content from DOM i.e. text, image, SVG etc. It is the first time when user can start consuming the webpage. The first contentful paint of our project is 2.5 seconds

Speed Index:

Speed Index (SI) is a performance metric used for page loading. It shows how fast the contents of a webpage are visibly populated. SI is the average time for displaying the visible parts of the web page. The Speed index of our project is 3.0s

Largest Contentful Paint:

Largest Contentful Paint is a performance metirc that that computes the time yaken by the website to show the largest content on the user screen, which is complete and ready for user interaction.

Time to interactive:

TTI is the total amount of time taken by webpage to become a full interactive page i.e. displays full content, event handlers are registered.Time to Interactive as 2.9s

Total Blocking Time:

The Total Blocking Time (TBT) performance metric measures the total time for which the main thread is blocked to prevent responsiveness. The total blocking time is 30ms

Cumulative Layout Shift:

CLS is the performance metric that for every unexpected layout shift measures the largest burst of layout shift scores for the entire lifespan of a webpage.

Performance:

Performance is referred to the downloading speed of webpages and rendering them to the user's web browser.The performance of our website is 92%

Search Engine Optimisation:

The Lighthouse search engine optimization (SEO) audit scans your page, tests for things that matter to search engines, and gives you a score so you can see specific areas for improvement. SEO matters because it's how you get more relevant users viewing your content.
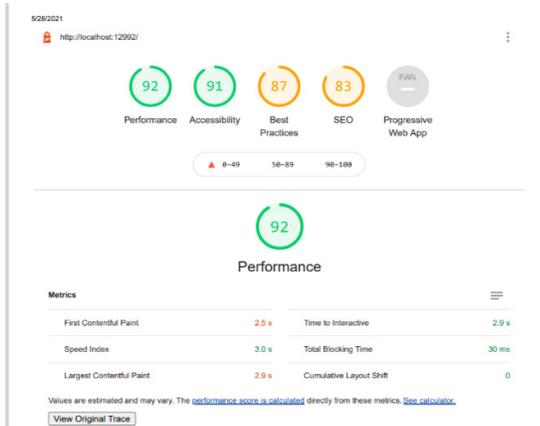
Figure 11: Performance Analysis

VII.   CONCLUSION AND FUTURE WORK

Blog is an application that is intended to self-assist various content writers and guest bloggers to share and educate the world with their opinion about any topic. It is a platform for readers and writers, which is used to share information, ideas, and experiences. Blogs are very common nowadays and is incorporated in many websites. But the blogs are not monitored for the sensitive content. This application is developed in a notion to provide a hassle-free content writing and reading of blogs without any issue of hate speeches, racism and other major prevailing sensitive issues.The User creates a blog which is then submitted for approval. Once the blog is approved it gets published and is shown in the landing page of the website. On clicking the blog, it opens the whole content of the blog.Implementing category system for type of blogs is an enhancement that can be done, and more dynamic blog content is to be added like videos, gifs, animations. Adding Speech to text can help users to give input easily to the blogs to improve accessibility. Giving an option to add short videos to the blogs. Adding recommendations for users and including Text and Image moderation for sensitive content.

REFERENCES

[1].   Sunita Agarwal, "New Resources of Teaching: Blog writing as a Pedagogical Tool," Proceedings of International Academic Conferences 5407714, International Institute of Social and Economic Sciences. 2017

[2].   Arochman, Taufik & Yosintha, Rolisda." EFFECT OF USING WEB-BLOG ON WRITING INSTRUCTION FOR ENGLISH LANGUAGE LEARNERS". Journal of Languages and Language Teaching. v. 8, n. 4, p. 336-347, oct. 2020. ISSN 2621-1378.

[3].   Hashem A. Alsamadani," The Effectiveness of Using Online Blogging for Students' Individual and Group Writing", International Education Studies; Vol. 11, No. 1; 2018

[4].   Soper, Daniel.," Informational Social Influence, Belief Perseverance, and Conservatism Bias in Web Interface Design Evaluations". IEEE Access. 8. 218765-218776. 10.1109/ACCESS.2020.3042777. 2020.

[5].   A. Yaganteeswarudu and Y. VishnuVardhan, "Software appication to prevent suicides of farmers with asp.net MVC," 7th International Conference on Cloud Computing, Data Science & Engineering - Confluence, Noida, India, 2017, pp. 543-546, doi: 10.1109/CONFLUENCE.2017.7943210. 2017

[6].   Aljawarneh, Shadi & Alawneh, Ali & Jaradat, Reem,"Cloud security engineering: Early stages of SDLC". Future Generation Computer Systems. 74. 2016. 10.1016/j.future.2016.10.005.

[7].   E. B. Kristanto, S. Andrayana, and B. Benramhman, "Application of Waterfall SDLC Method in Designing Student's Web Blog Information System at the National University: Application of Waterfall SDLC Method in Designing Student's Web Blog Information System at the National University", mantik, vol. 4, no. 1, pp. 472-482, May 2020.

[8].   Sourav Mukherjee. "Popular SQL Server Database Encryption Choices", International Journal of Computer Trends and Technology (IJCTT). Volume 66 Number 1. December 2018

[9].   Mukesh Prajapati, "ASP.NET MVC - GENERIC REPOSITORY PATTERN AND UNIT OF WORK", International Journal Of All Research Writings, vol. 1, no. 1, pp. 23-30, 2019.

[10]. S. M. Srinivasan and R. S. Sangwan, "Web App Security: A Comparison and Categorization of Testing Frameworks," in IEEE Software, vol. 34, no. 1, pp. 99-102, Jan.-Feb. 2017, doi: 10.1109/MS.2017.21

[11]. Kuo, Y.-C & Belland, B.R. & Kuo, Y.-T." Learning through blogging: Students'Perspectives in collaborative blog enhanced learning communities." Educational Technology and Society. 20. 37-50,2017.

[12]. Varsha Sahayak, Vijaya Shete, Apashabi Pathan,"Sentiment Analysis on Twitter Data".International journal of innovative research in advanced Engineering Issue 1,Vol 2, 2015.

[13]. Apoorv Agarwal, Boyi Xie, Ilia Vovsha, Owen Rambow, Rebecca Passonneau, "Sentiment Analysis of Twitter Data" Department of Computer Science, Columbia University, New York, 2009.

[14]. Siddharth Singh,"MVC Framework: A Modern Web Application Development Approach and Working ", International Research Journal of Engineering and Technology (IRJET) ,Volume: 07 Issue: 01 | Jan 2020

[15]. Sonal J. Patel & Pooja D. Pancholi," Implementation and Comparison of MVC Model in ASP.net Framework and PHP Framework",OCT. – DEC. 2018

[16]. D. J. Reifer, "Web development: estimating quick-to-market software," in IEEE Software, vol. 17, no. 6, pp. 57-64, Nov.-Dec. 2000

[17]. Gupta P, Govil MC "MVC Design pattern for the multi framework distributed applications using XML, spring and struts framework". 2010

[18]. C. Barry and M. Lang, "A survey of multimedia and Web development techniques and methodology usage," in IEEE MultiMedia, vol. 8, no. 2, pp. 52-60, April-June 2001.