# Software User Manual for News Hub

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#### 1. Introduction

**NewsHub** is a platform designed to enhance user interaction by allowing readers to consume, engage, and contribute news content seamlessly. Users can either read news, write articles, or manage the platform based on their roles. The platform is ideal for readers and writers who enjoy interactive content and wish to be part of a collaborative news space.

# 2. System Requirements

- Operating System: Windows 10 or later / macOS X 10.14 or later
- **Processor**: Intel i5 or higher
- **Memory**: 4 GB RAM minimum, 8 GB recommended
- Storage: 1 GB of available space
- Additional Requirements: Internet connection for user access and content updates

#### 3. Installation Guide

- 1. Download the project repository from GitHub or the official website.
- 2. Open the project in Visual Studio.
- 3. Ensure that SQL Server is installed on your machine for the database.
- 4. Run the migrations to set up the database structure.
- 5. Build the project in Visual Studio.
- 6. Launch the application in the browser using IIS Express or Kestrel.

### 4. Technologies Used

- ASP.NET Core MVC: A model-view-controller framework for building robust serverside applications.
- C#: The primary programming language for server-side logic.
- Razor Pages: Provides server-side rendering of HTML and smooth integration with backend logic.
- JavaScript & jQuery: For dynamic, client-side interactions.
- Chart.js: A JavaScript library used for creating responsive, animated graphs and charts.
- Bootstrap: A CSS framework for ensuring the design is responsive across various devices.
- FontAwesome: Icon library used for buttons, navigation, and other UI elements.

#### 5. Architecture and Design

#### 5.1. Model-View-Controller (MVC)

The **News Hub** website is built using the **Model-View-Controller** (**MVC**) architectural pattern, which allows for a clear separation of concerns:

- Model: Represents the data and business logic (e.g., articles, users, comments, etc.).
- **View:** Responsible for displaying the data to the user through the front-end using Razor pages, HTML, CSS, Bootstrap, and JavaScript.
- **Controller:** Handles user input, interacts with the model, and returns the appropriate views.

This structure ensures a scalable and maintainable application design.

```
Connected Services
                                                                                             A 🛅 Models
                                                  Controllers
  ₽₽ Dependencies
                                                                                           Repository
                                                  🚞 Enums
🕨 🐧 🕽 🛮 Properties

△ ■ Migrations

                                                                                           ViewModels

▶ △ ⊕ www.root

                                              🗸 🐧 🛅 Models
                                                                                            🗸 🐧 🛅 Views
    Controllers
                                                 ▶ A C# Article.cs
  ▶ ≜ C# AccountController.cs
                                                                                              🕨 \right 🛅 Admin
  ▶ A C# AdminController.cs
                                                 ▶ & C# ArticleController.cs
                                                                                              D Article
                                                ▶ & C# Comment.cs
  ▶ & C# CategoryController.cs
                                                                                              ▶ a  Category
                                                ▶ a C# ErrorViewModel.cs
  ▶ ≜ C# CommentController.cs
                                                                                              ▶ A  Comment
                                                 ▶ ≜ C# NewsContext.cs
  ▶ a C# HomeController.cs
                                                                                              D A ■ Home
                                                 ▶ ≜ C# UniqueEmailAttribute.cs
  ▶ AC# TagController.cs
                                                                                                A 📉 NewFolder
                                                 D ← C# User.cs
  ▶ A C# UserController.cs
                                                                                              🗸 🐧 🛅 Shared
```

#### 5.2. Dependency Injection

The project follows the principle of **Dependency Injection (DI)** to manage dependencies between different components. By injecting services (like the database context or logging services) into controllers, the system becomes more flexible, testable, and easier to maintain. ASP.NET Core's built-in Dependency Injection framework is used to manage these services.

```
🗸 \right 📄 Repository
  ▶ & C# ArticleRepository.cs
  ▶ & C# CategoryRepository.cs
  ▶ & C# CommentRepository.cs
                                                   ublic static void Main(string[] args)
  ▶ & C# |ArticleRepository.cs
                                                      var builder = WebApplication.CreateBuilder(args);
  ▶ A C# ICategoryRepository.cs
  ▶ & C# ICommentRepository.cs
                                                      // Add services to the container
  ▶ & C# IUserRepository.cs
                                                     builder.Services.AddControllersWithViews();
  ▶ & C# UserRepository.cs
🗸 🐧 🚞 ViewModels
                                                     builder.Services.AddScoped<IArticleRepository, ArticleRepository>();
                                                     builder.Services.AddScoped<ICategoryRepository, CategoryRepository>();
  ▶ & C# ArticleCategoryWithImgViewModel.cs
                                                      builder.Services.AddScoped<IUserRepository, UserRepository>();
  ▶ A C# ArticleWithCommentViewModel.cs
                                                      builder.Services.AddScoped<ICommentRepository, CommentRepository</pre>
  ▶ A C# ArticleWithUserViewModel.cs
  ▶ a C# CommentWithUserViewModel.cs
  ▶ & C# ExampleViewModel.cs
```

#### 5.3. Authentication and Authorization

For user authentication and session management, **Cookie Authentication** is implemented. This allows the system to:

- Securely store user login information in cookies.
- Authenticate users for accessing restricted areas (e.g., writers' dashboard, admin panel).
- Manage roles (reader, writer, admin) to grant access to appropriate resources.

By using **Cookie Authentication**, the site ensures that only authorized users can perform specific actions, adding an extra layer of security to the platform.

```
user.Role = Enums.Role.Writer;
var roleName = Enum.GetName(typeof(NewsHup.Enums.Role), user.Role);

_userRepository.Add(user);
_userRepository.SaveChanges();

ClaimsIdentity claimsIdentity = new(CookieAuthenticationDefaults.AuthenticationScheme);
claimsIdentity.AddClaim(new Claim("Id", user.Id.ToString()));
claimsIdentity.AddClaim(new Claim("Name", user.Name.ToString()));
claimsIdentity.AddClaim(new Claim("Email", user.Email.ToString()));
claimsIdentity.AddClaim(new Claim("ProfileImg", user.UserImage.ToString()));
claimsIdentity.AddClaim(new Claim(ClaimTypes.Role, roleName));
ClaimsPrincipal claimsPrincipal = new(claimsIdentity);
HttpContext.SignInAsync(CookieAuthenticationDefaults.AuthenticationScheme, claimsPrincipal);
```

# 6. Database Design

The database consists of four main tables: **Articles**, **Categories**, **Comments**, and **Users**. These tables are designed to support the functionality of a news website where users can write and comment on articles, and each article belongs to a specific category. The relationships between these tables include:

- One-to-Many between Users and Articles (a user can write many articles).
- One-to-Many between Categories and Articles (each article belongs to one category).
- One-to-Many between Articles and Comments (each article can have many comments).
- One-to-Many between Users and Comments (a user can post many comments).

### 5.1. Tables Overview

### 1. Articles Table

Table Name: Articles

• Purpose: Stores all the articles written by users.

Column Name	Data Type	Description
Id	int (PK)	Primary key, unique identifier for each article.
Title	varchar(255)	The title of the article, must be at least 3 characters.
Content	text	Main content of the article, must be at least 20 characters.
ImageUrl	varchar(255)	URL of the article's image (optional).
PublishDate	datetime	Date when the article was published, defaults to current date and time.
UserId	int (FK)	Foreign key referring to the user who wrote the article.
CatId	int (FK)	Foreign key referring to the category of the article.

# • Relationships:

UserId references the Users table.

o Catld references the Categories table.

# 2. Categories Table

• Table Name: Categories

• Purpose: Stores the categories to which articles can belong.

Column Name	Data Type	Description
CategoryId	int (PK)	Primary key, unique identifier for each category.
CategoryName	varchar(255)	Name of the category (e.g., Sports, Politics).

# • Relationships:

o One category can have multiple articles.

# 3. Comments Table

• Table Name: Comments

• Purpose: Stores user comments on articles.

Column Name	Data Type	Description
Id	int (PK)	Primary key, unique identifier for each comment.
UserId	int (FK)	Foreign key referring to the user who wrote the comment.
ArticleId	int (FK)	Foreign key referring to the article the comment belongs to.
CommentText	text	The content of the comment, required field.
CommentDate	datetime	Date when the comment was made, defaults to current date and time.

# • Relationships:

- UserId references the Users table.
- o ArticleId references the Articles table.

# 4. Users Table

• Table Name: Users

• **Purpose**: Stores information about the users who can write articles or post comments.

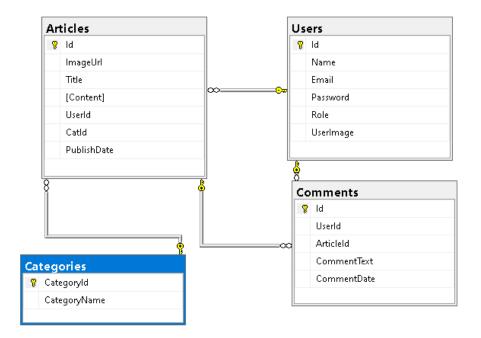
Column Name	Data Type	Description
Id	int (PK)	Primary key, unique identifier for each user.
Name	varchar(20)	The name of the user, must be between 3 to 20 characters long.
Email	varchar(255)	Email address of the user, must be unique.
Password	varchar(255)	User's password, must meet the complexity requirements.

UserImage	varchar(255)	URL of the user's profile image (optional).
Role	enum	Role of the user (e.g., Reader, Writer, Admin).

# Relationships:

- o A user can write multiple articles.
- o A user can post multiple comments.

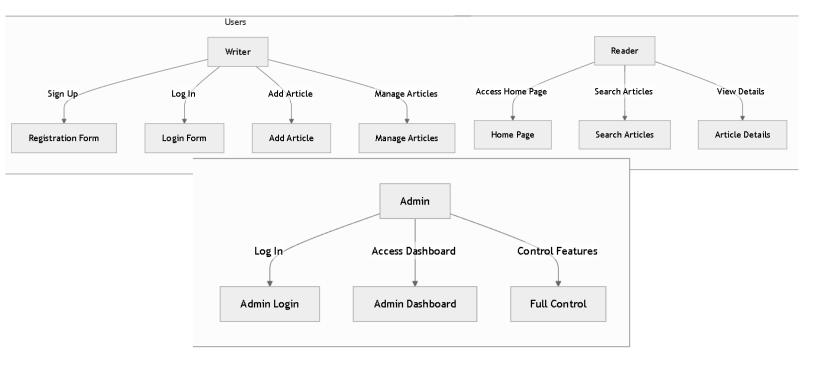
# 5.2. Tables Diagram



# 7. User Types

- Readers can access the site by simply navigating to the home page, searching for articles, and viewing details without any login required.
- Writers must sign up for an account by filling out the registration form, or log in using their credentials then can add his article and manage them.

 Admins can log in with administrator credentials to access the dashboard and get fully control.



# 8. User Roles and Permissions

#### 8.1 Admin

- Full access to all resources.
- Can manage users, categories, and articles.
- Admins can see the full dashboard with all statistics and detailed information.

# 8.2 Writer

- Limited access to article management.
- Writers can create and edit their own articles but cannot manage other users or categories.

#### 8.3 Reader

- View-only access to public content.
- Readers cannot edit any information or access the admin dashboard.

#### 9. User Interface Guide

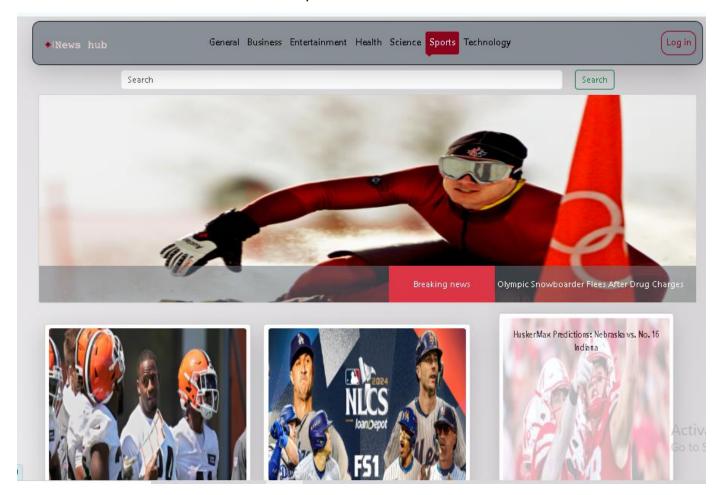
- Main Menu: Provides quick access to home, search bar, and user profiles.
- Article List: A page where users can search for and browse articles by category or keyword.
- Article Details Page: Contains the full content of an article, including author information, comments, and publish date.
- Writer Dashboard: A space where writers can create new articles, edit existing ones, or delete them.
- Admin Dashboard: Displays user counts, article statistics, and category management options.

# 10. How to Perform Tasks

#### 10.1. Reader Tasks

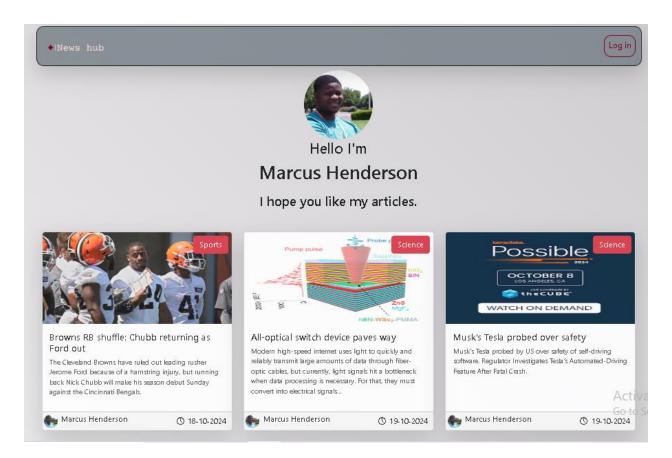
# 1. Viewing Articles

- Navigate to the home page to browse the latest articles or use the search bar.
- Click on an article to open and read its details.



# 2. Viewing Writer Profiles

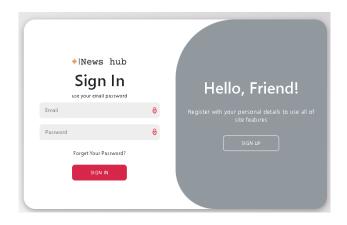
 Click on a writer's name from an article to view their profile and other published works.

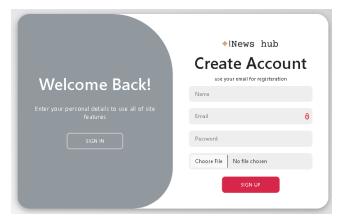


#### 10.2. Writer Tasks

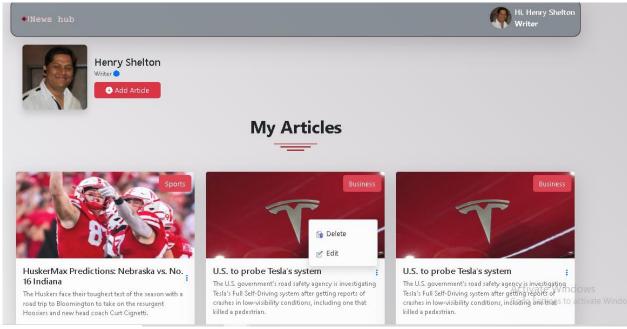
# 1. Creating an Article

 Sign Up / Log In: Writers must first sign up and log in to access the writer dashboard.



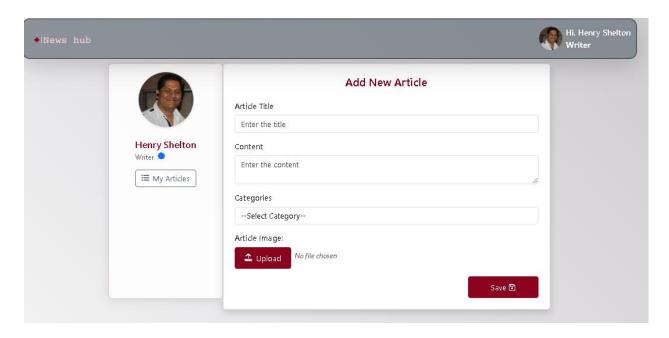


 Navigate to Dashboard: After logging in, navigate to the writer dashboard.



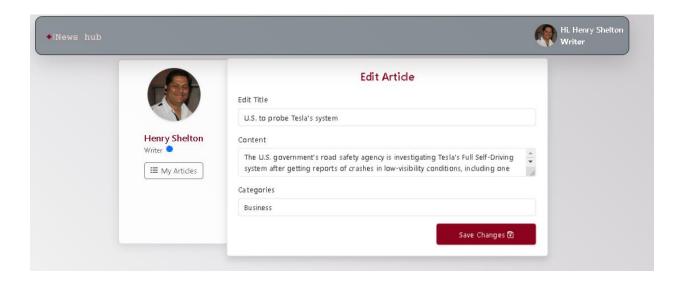
# Create New Article:

- Click on "Create New Article."
- Fill in the article title, content, select the category, and set the publish date.
- Optionally, upload an image to accompany the article.
- Click "Publish" to finalize the article creation.



# 2. Editing an Article

- o From your profile, click on the article you wish to edit.
- Update the content, category, or image as necessary.
- Save the changes to update the article.

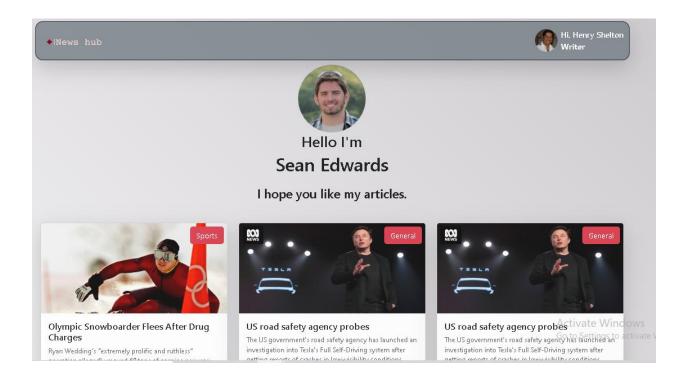


# 3. Deleting an Article

- o In the writer dashboard, locate the article you want to delete.
- Click on "Delete" to permanently remove the article from the system.

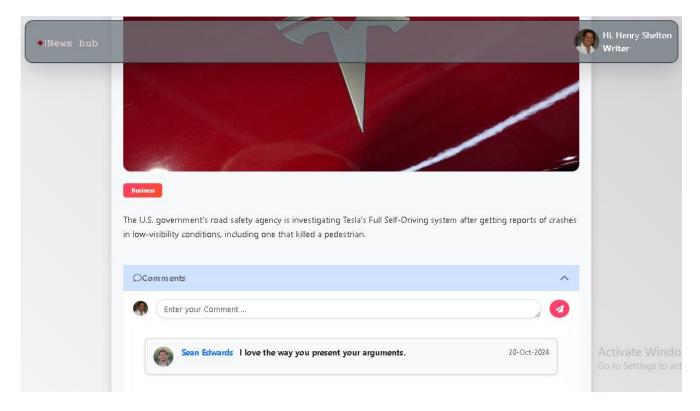
# 4. Viewing Profiles and Articles

- Writers can view their own profile and the profiles of other authors.
- Explore the articles authored by others.



# 5. Adding Comments

 Writers can add comments on articles written by other authors to engage with the content

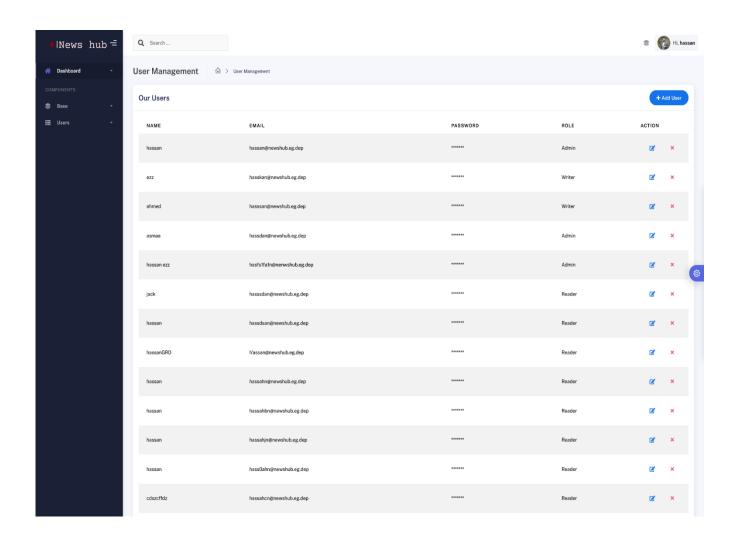


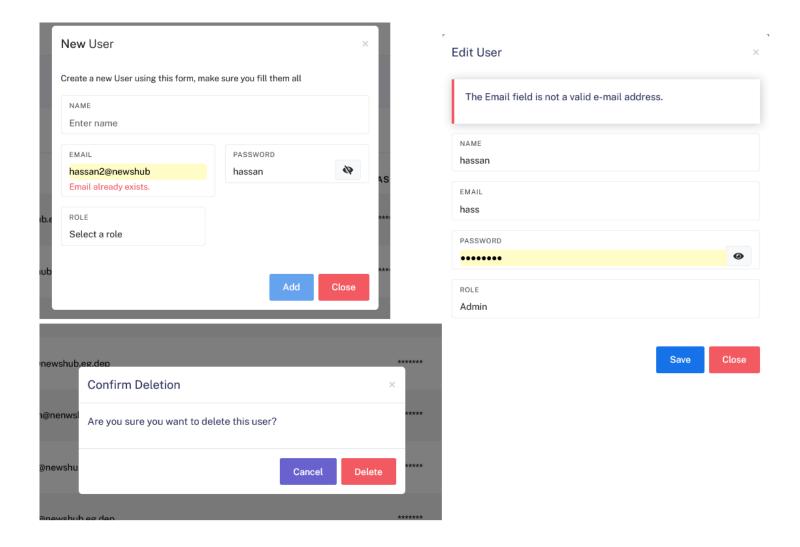
#### 10.3. Admin Tasks

### 1. User Management

The User Management feature allows admins to:

- View a list of all users, including their email, password (masked for security), and role (Reader, Writer, Admin).
- Add new users by filling in their name, email, and selecting a role.
- Edit existing users by clicking on the edit icon next to their name. The edit form allows changing the user's name, email, password, and role.
- Delete users by clicking on the delete icon, which brings up a confirmation prompt.
- Screenshot: [a screenshot showing the user management interface]

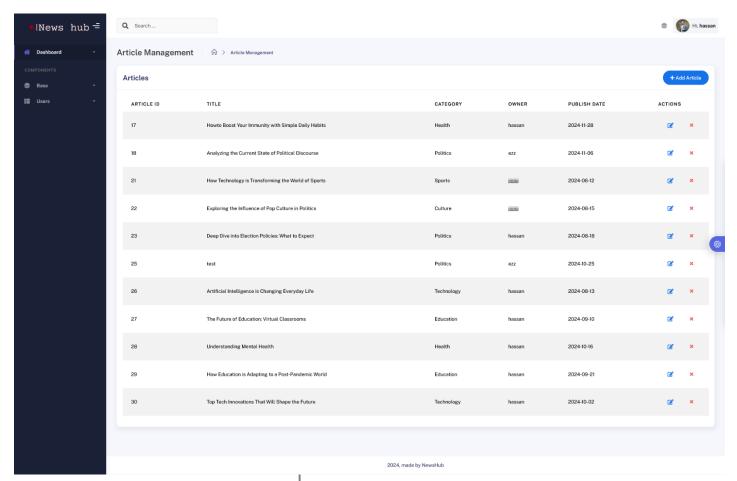


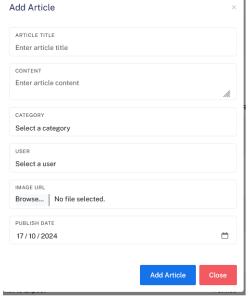


# 2. Article Management

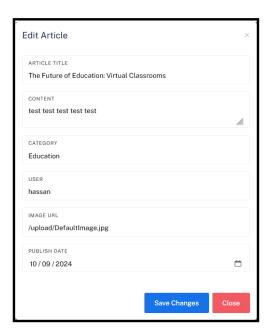
Admins can manage articles through a simple interface:

- View all articles.
- Create new articles by entering the title, selecting a category, and adding content.
- Edit the content, category, or title of existing articles.
- Delete articles that are outdated or no longer needed.
- Screenshot: [screenshot showing the article management interface]





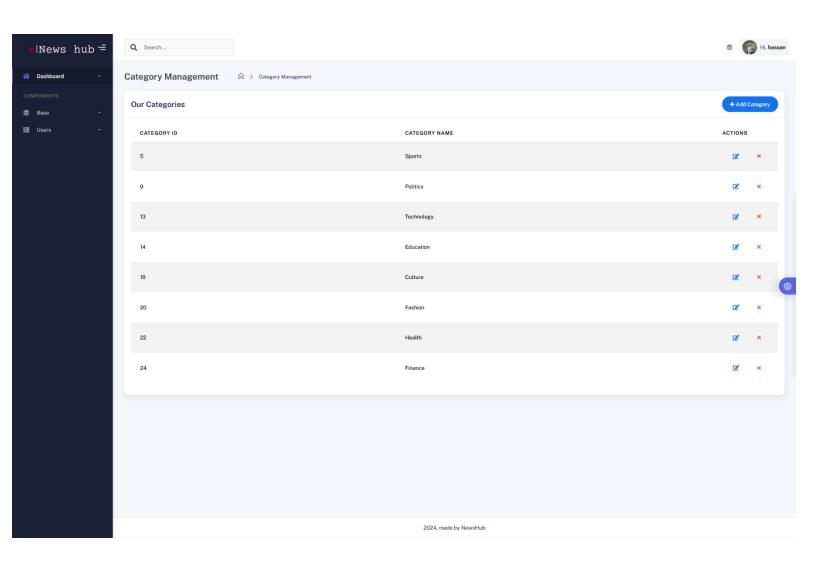


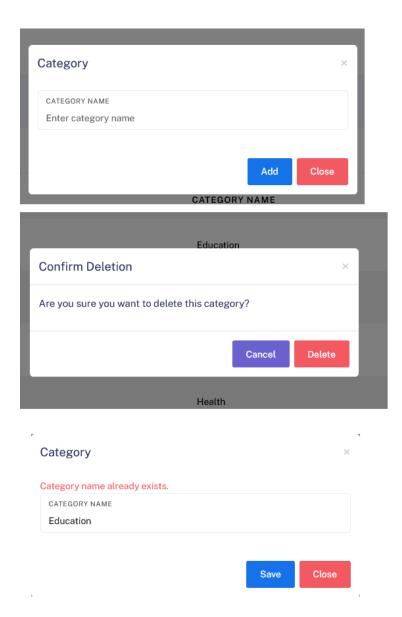


# 3. Category Management

Admins can create, edit, and delete categories to better organize articles. Categories are displayed in a hierarchical manner for easy access.

• Screenshot: [screenshot showing the category management interface]

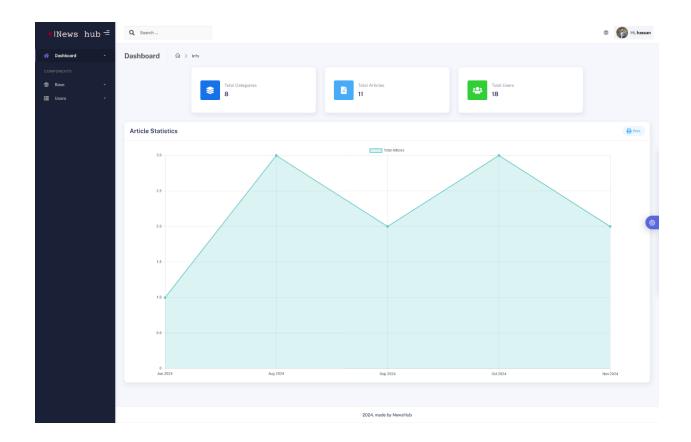




### 4. Dashboard and Statistics

The dashboard gives admins a quick overview of the activity within the NewsHub platform.

- Article Statistics graph displays the total number of articles over time.
- Categories and Users are displayed as numerical widgets at the top of the dashboard.
- The dashboard is fully responsive and adjusts its layout to different screen sizes using Bootstrap.
- Screenshot: [ a screenshot of the main dashboard with statistics]

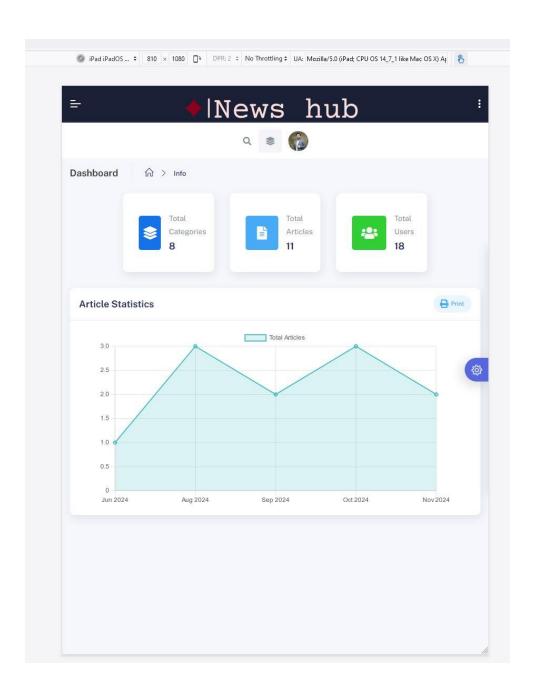


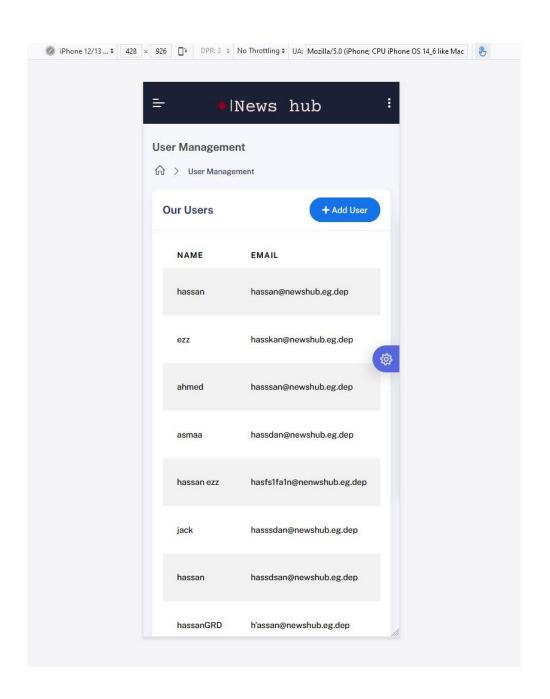
# 11. Design and Integration Features

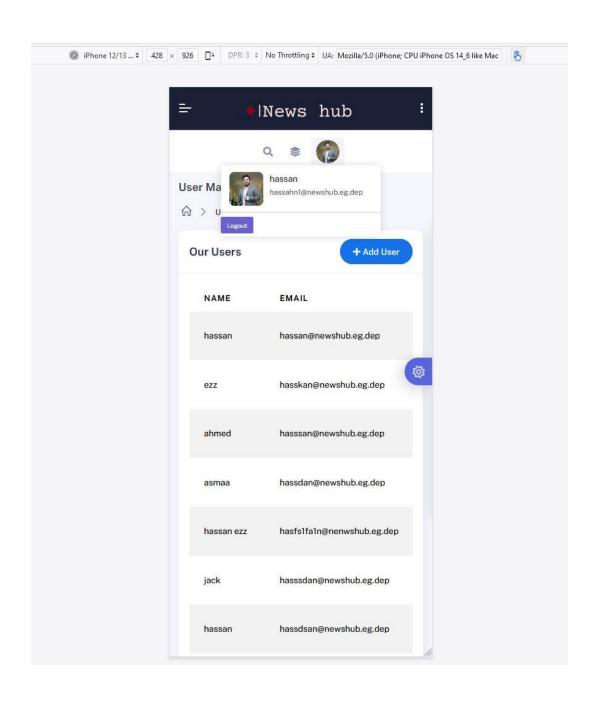
# 11.1. Responsive Design

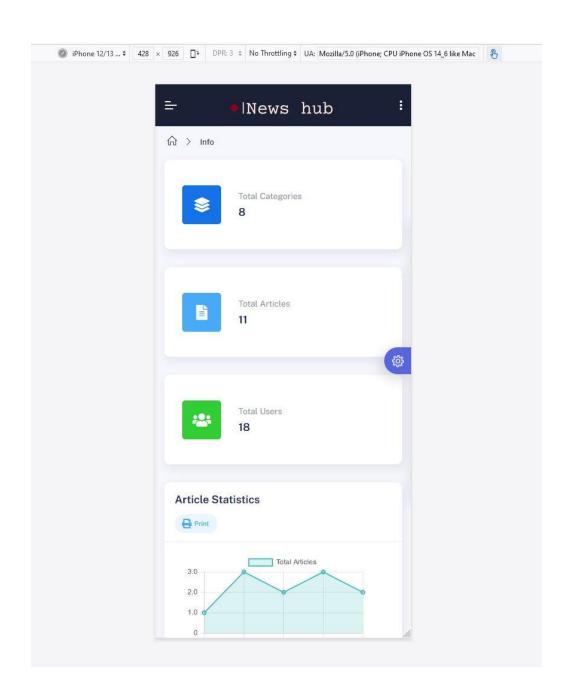
The entire application is designed to be responsive using Bootstrap. This ensures:

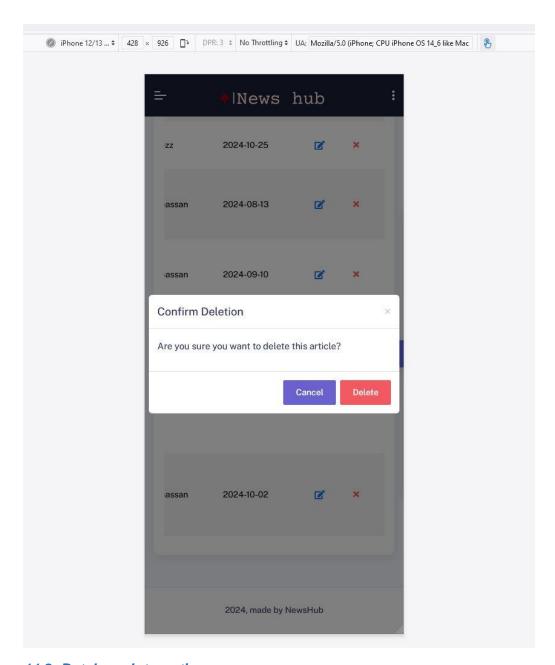
- The dashboard is functional across all device sizes (mobile, tablet, and desktop).
- The layout (sidebars, charts, forms) adjusts automatically to fit the screen size.
- The navigation and sidebars collapse into dropdowns on smaller screens to enhance usability.
- Screenshots: [a screenshots showing the responsive design on mobile/tablet]









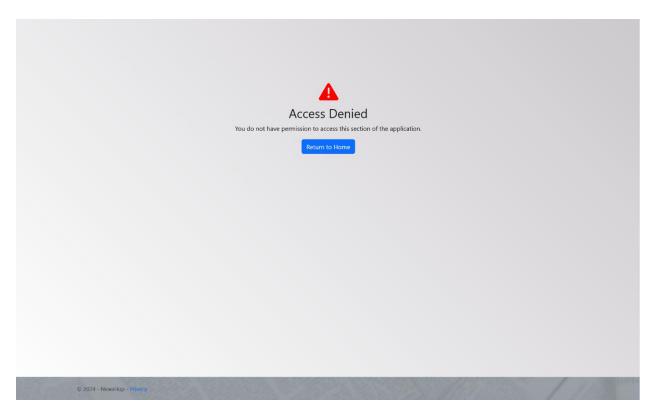


# 11.2. Database Integration

The project likely uses Entity Framework or another ORM to handle database interactions. User, Article, and Category entities are stored in the database, and relationships are managed through foreign keys.

### 11.3. Security Features

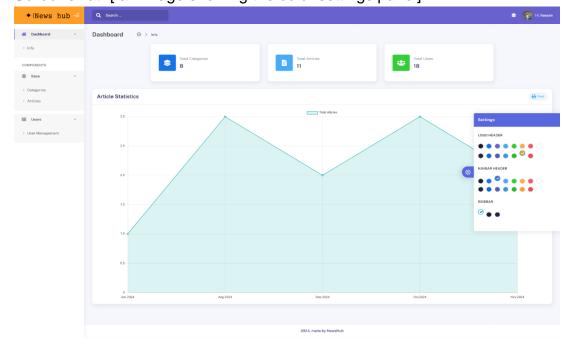
Authentication is managed through the AccountController and admin controller using standard ASP.NET authentication mechanisms (likely cookies or tokens). Authorization restricts access to certain views based on user roles (Admin, Writer, Reader).



# 11.4. Dynamic Color Settings

The platform includes a dynamic theme customization feature, allowing admins to change the logo header, navbar header, and sidebar color from the settings panel.

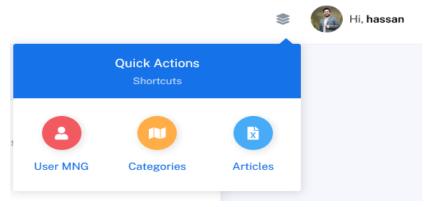
• Screenshot: [ an image showing the color settings panel]



#### 11.5. Quick Access Action Panel

A quick action panel is accessible to admins, providing easy shortcuts to User Management (User MNG), Categories, and Articles.

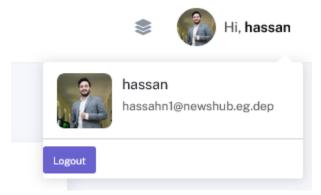
Screenshot: [ an image showing the quick access actions]



# 11.6. Logout Functionality

Users can securely log out using the user profile dropdown.

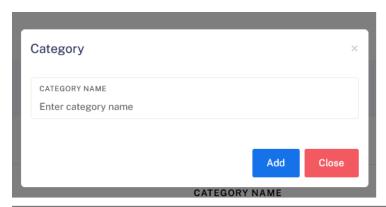
Screenshot: [an image showing the logout feature]



### 11.7. CRUD Operations

Complete Create, Read, Update, and Delete (CRUD) operations for managing users, articles, and categories.

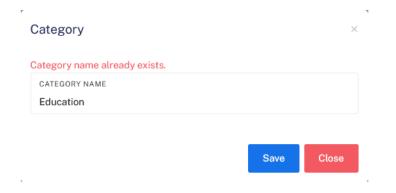
• **Screenshots**: [images showing user, article, and category CRUD operations]

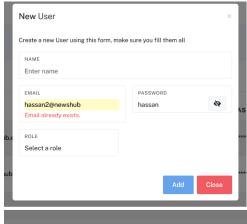


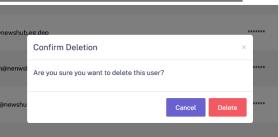
Confirm Deletion ×

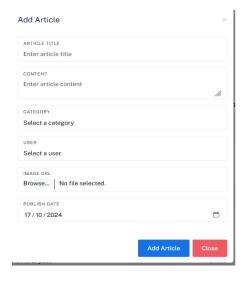
Are you sure you want to delete this category?

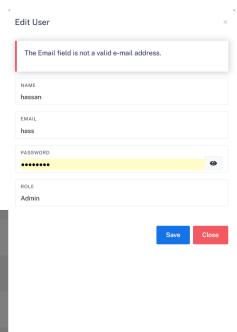
Cancel Delete



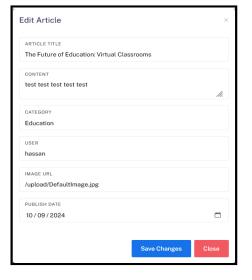








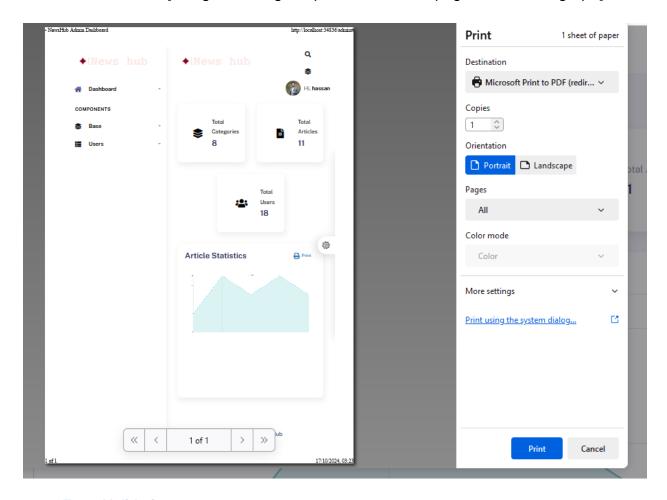




#### 11.8. Print Feature & Article Statistics

Admins can print statistics using the built-in print feature. The Article Statistics graph provides a visual representation of the number of articles created over time.

• Screenshot: [ image showing the print feature and page of statistics graph]



#### 11.9. Form Validation

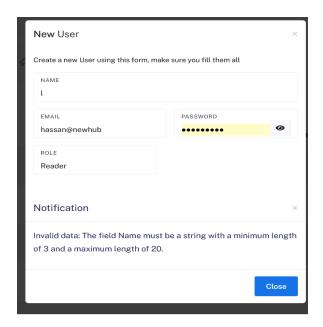
The NewsHub Admin Dashboard also includes comprehensive validation mechanisms to ensure data integrity and user input accuracy. Various forms, including user registration, article creation, and category management, have robust validation checks such as:

- **Email format validation**: Ensures that users input a properly formatted email address.
- Required fields validation: Ensures that key fields like username, email, article title, and category name are not left blank.
- Password complexity validation: Enforces rules for creating secure passwords.

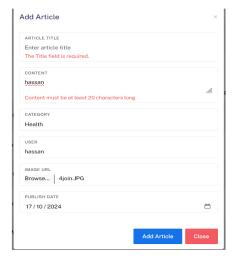
- Role validation: Ensures valid roles are selected (Admin, Writer, Reader).
- Real-time validation: Error messages are displayed instantly when incorrect data is entered.

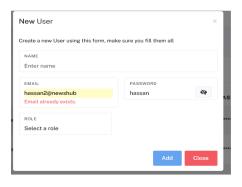
These validation checks enhance security and improve user experience by guiding users to input correct and secure data.

• **Screenshot**: [ images showing the various validation messages and form error states, such as invalid email format, required fields, or password strength checks]

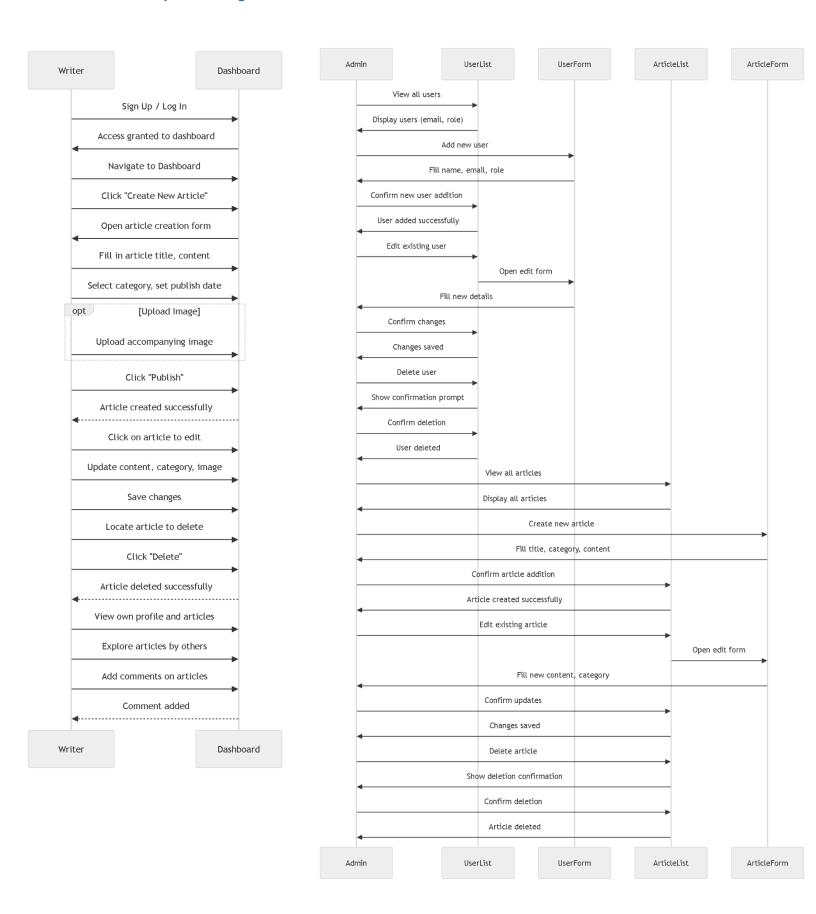








### 11.10. Sequence Diagram



# 12. Troubleshooting

Problem: I can't log in as a writer or admin.

**Solution**: Ensure that you're using the correct credentials. Use the "Forgot Password" option to reset your password.

Problem: Articles are not displaying correctly.

**Solution**: Check your internet connection. If the problem persists, clear your browser cache or restart the application.

#### 13. FAQ

Q: How do I register as a writer?

A: Click the "Sign Up" button on the homepage, fill out the form, and submit your registration.

Q: Can I edit or delete my comments on an article?

A: Currently, comments cannot be edited after posting.

Q: Who can manage the website content?

A: Only admins have the ability to manage users, articles, and categories.

### 14. Upcoming Features

In future updates, the NewsHub will introduce several new functionalities aimed at improving user experience and providing more flexibility in managing the platform.

- Change User Image: Admins and users will be able to upload and change their profile pictures directly through the dashboard, enhancing personalization options.
- **Filter by Date**: A filter feature will be introduced for articles and users, allowing admins to sort records by date. This will provide a clearer view of activity trends over specific periods.

- **Filter Users by Activity**: This feature will enable admins to filter users based on their activity level, making it easier to manage and monitor inactive or highly active users.
- **Forgot Password**: A "Forgot Password" feature will be introduced, allowing users to securely reset their password if they forget it. The system will send a password reset link to the user's email, providing a seamless and secure way to regain account access.