NEWS PORTAL SYSTEM

A PROJECT REPORT

Submitted by

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in partial fulfillment of requirements for the award of the course

CGB1201 - JAVA PROGRAMMING

In

COMPUTER SCIENCE AND ENGINEERING

K. RAMAKRISHNAN COLLEGE OF TECHNOLOGY

(An Autonomous Institution, affiliated to Anna University Chennai and Approved by AICTE, New Delhi)

SAMAYAPURAM – 621 112

NOVEMBER- 2024

K. RAMAKRISHNAN COLLEGE OF TECHNOLOGY (AUTONOMOUS)

SAMAYAPURAM – 621 112

BONAFIDE CERTIFICATE

Certified that this project report on **“ONLINE PORTAL SYSTEM”** is the bonafide work of **HARSHINI K(2303811710422061)** who carriedout the project work during the academic year 2024 - 2025 under my supervision.

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EXTERNAL EXAMINER

DECLARATION

I declare that the project report on **“NEWS PORTAL SYSTEM”** is the result of original work done by us and best of our knowledge, similar work has not been submitted to **“ANNA UNIVERSITY CHENNAI”** for the requirement of Degree of **BACHELOR OF ENGINEERING**. This project report is submitted on the partial fulfilment of the requirement of the completion of the course **CGB1201- JAVA PROGRAMMING.**

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Signature

harshini. k.

HARSHINI K

Place: Samayapuram

Date: 02.12.2024

ACKNOWLEDGEMENT

It is with great pride that I express our gratitude and in-debt to our institution "**K.Ramakrishnan College of Technology (Autonomous)**", for providing us with the opportunity to do this project.

I glad to credit honourable chairman **Dr. K. RAMAKRISHNAN**, **B.E.,** for having provided for the facilities during the course of our study in college.

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I express our deep expression and sincere gratitude to our project guide **Mr. M. SARAVANAN, M.E.,** Department of **COMPUTER SCIENCE AND ENGINEERING,** for his incalculable suggestions, creativity, assistance and patience which motivated us to carry out this project.

I render our sincere thanks to Course Coordinator and other staff members for providing valuable information during the course.

I wish to express our special thanks to the officials and Lab Technicians of our departments who rendered their help during the period of the work progress.

VISION OF THE INSTITUTION

To serve the society by offering top-notch technical education on par with global standards

MISSION OF THE INSTITUTION

- Be a center of excellence for technical education in emerging technologies by exceeding the needs of the industry and society.
- Be an institute with world class research facilities
- Be an institute nurturing talent and enhancing the competency of students to transform them as all-round personality respecting moral and ethical values

VISION OF DEPARTMENT

To be a center of eminence in creating competent software professionals with research and innovative skills.

MISSION OF DEPARTMENT

M1: Industry Specific: To nurture students in working with various hardware and software platforms inclined with the best practices of industry.

M2: Research: To prepare students for research-oriented activities.

M3: Society: To empower students with the required skills to solve complex technological problems of society.

PROGRAM EDUCATIONAL OBJECTIVES

1. PEO1: Domain Knowledge

To produce graduates who have strong foundation of knowledge and skills in the field of Computer Science and Engineering.

2. PEO2: Employability Skills and Research

To produce graduates who are employable in industries/public sector/research organizations or work as an entrepreneur.

3. PEO3: Ethics and Values

To develop leadership skills and ethically collaborate with society to tackle real-world challenges.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1: Domain Knowledge

To analyze, design and develop computing solutions by applying foundational concepts of Computer Science and Engineering.

PSO 2: Quality Software

To apply software engineering principles and practices for developing quality software for scientific and business applications.

PSO 3: Innovation Ideas

To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems

PROGRAM OUTCOMES (POs)

Engineering students will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

ABSTRACT

The News Portal System is a Java-based application designed to provide users with a categorized platform for browsing and managing news articles. It incorporates Object-Oriented Programming (OOP) principles and uses Java AWT for its graphical user interface. The system is divided into two primary user roles: administrators and regular users. Administrators can manage articles by adding, viewing, or organizing them within predefined categories, while regular users can browse and read articles based on their interests. The portal features secure user authentication with a login and registration mechanism, ensuring that each user has a unique profile. Administrators have exclusive access to content management functions, while users have a streamlined browsing experience. The backend efficiently stores user data and categorized articles using ArrayList and HashMap, ensuring quick access and scalability. This project emphasizes modularity, usability, and security, providing a solid foundation for further enhancements. Future upgrades could include advanced search functionality, personalized user profiles, multilingual support, and a mobile application, making the portal more versatile and accessible to a broader audience.

ABSTRACT WITH POs AND PSOs MAPPING

CO 5 : BUILD JAVA APPLICATIONS FOR SOLVING REAL-TIME PROBLEMS.

ABSTRACT	POs MAPPED	PSOs MAPPED
This News Portal application using AWT for the graphical user interface (GUI). It allows users to log in, register, and view articles based on categories. There are two types of users: admin and regular users. The admin can add articles, view articles by category, and manage the portal, while regular users can only view articles. The program includes functionality for user registration with basic validation for special characters in usernames and passwords. The application is structured around several frames: the login screen, registration window, article viewing, and admin management interfaces. Articles are categorized and stored in a HashMap, with each category containing a list of articles.	**PO1 -3** **PO2 -3** **PO3 -3** **PO4 -3** **PO5 -3** **PO6 -3** **PO7 -3** **PO8 -3** **PO9 -3** **PO10 -3** **PO11-3** **PO12 -3**	**PSO1 -3** **PSO2 -3** **PSO3 -3**

Note: 1- Low, 2-Medium, 3- High

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CHAPTER 1

INTRODUCTION

1.1 Objective

The objective of the News Portal System is to provide an efficient platform for managing and consuming news articles in various categories. The system serves as a centralized solution for both administrators and regular users, enabling seamless interaction with categorized news content. Administrators can manage articles by adding or organizing them, while regular users can browse and read news effortlessly. By integrating a secure login and registration mechanism, the system ensures authorized access and safeguards user data. The project emphasizes simplicity, usability, and modular design to cater to diverse user needs. With predefined categories like Sports, Technology, Politics, Entertainment, and General News, the portal ensures that articles are well-organized for easy access. Key features include a responsive graphical user interface, efficient storage using Java's ArrayList and HashMap, and robust event-driven programming using Java AWT. These aspects collectively enhance the user experience and operational efficiency. The News Portal System also showcases the application of Object-Oriented Programming (OOP) principles such as encapsulation, polymorphism, inheritance, and abstraction to create a scalable and maintainable solution. With its user-friendly interface and secure functionality, the system aims to provide a reliable tool for managing and delivering news content. It also lays a strong foundation for future enhancements, including personalized user features and advanced search capabilities.

1.2 Overview

The News Portal System is a Java-based application designed to manage and display news articles across multiple categories, such as Sports, Politics, Entertainment, and Technology. It provides distinct functionalities for two types of users: administrators and regular users. Administrators can add and manage articles, while regular users can browse and read articles in their preferred categories.The system employs Java AWT (Abstract Window Toolkit) for creating an interactive graphical user interface. It uses ArrayList and HashMap for efficient data storage and retrieval of user and article information.With secure login and registration mechanisms, the system ensures that user data is protected and unauthorized access is prevented. The project emphasizes modular design, applying Object-

Oriented Programming (OOP) principles to create a scalable and maintainable system. This ensures that the system is both robust and user-friendly, making it a valuable tool for news management and consumption.

1.3 Java Programming Concepts

Basic Concepts of OOPS

- Encapsulation: User and article data are encapsulated in the User and Article classes, ensuring that sensitive information is accessed only through appropriate methods.
- Inheritance**:** The system is designed to extend user roles (e.g., Admin) with additional functionalities, demonstrating inheritance in action.
- Polymorphism**:** Different user portals (openAdminPortal() and openUserPortal()) perform specific tasks based on the logged-in user's role.
- Abstraction**:** Complex operations like action handling and data management are abstracted through interfaces and method calls, simplifying the implementation process.

Project-Related Concepts

- Event-Driven Programming**:** Java AWT handles user interactions like login attempts, button clicks, and menu selections, showcasing event-driven programming.
- Data Structures**:** The use of ArrayList for managing users and articles, and HashMap for categorizing articles by topics, ensures efficient storage and retrieval of information.
- Secure Input Validation: The system validates user credentials and input fields to prevent unauthorized access and special character usage.

  This blend of OOP principles and practical concepts ensures that the News Portal System is modular, secure, and efficient.

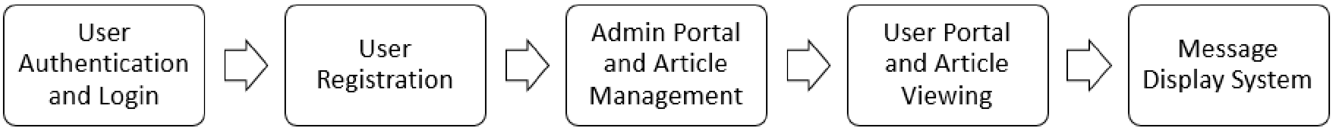
CHAPTER 2

PROJECT METHODOLOGY

2.1 Proposed Work

The proposed work for the News Portal System is designed to create a seamless experience for both regular users and administrators. The system requires users to log in using valid credentials, while new users can register easily through a simple interface. Administrators are provided with tools to manage articles, including adding new content and viewing articles by category. Regular users can browse and read articles across multiple categories such as Sports, Entertainment, and Technology. The system employs efficient data structures like ArrayList and HashMap for managing users and articles, ensuring quick access and retrieval. Input validation ensures security by restricting the use of special characters in usernames and passwords. Additionally, a message display system provides feedback for successful or failed actions. The proposed solution is interactive, user-friendly, and designed with modularity and security as primary considerations.

2.2 Block Diagram


User Authentication and Login
User Registration
Admin Portal and Article Management
User Portal and Article Viewing
Message Display System

CHAPTER 3
MODULE DESCRIPTION

3.1 User Authentication and Login Module

This module ensures secure access to the system by validating user credentials during login. Users enter their username and password, which are checked against stored data. If valid, users are directed to their respective portals based on their roles (admin or regular user). Invalid credentials trigger an error message, ensuring feedback for user actions. This module guarantees a secure and role-based login process, central to the system's functionality.

3.2 User Registration Module

The registration module enables new users to create an account with a unique username and password. Input validation ensures that special characters are not allowed, maintaining data integrity and security. Successful registration adds the user to the system and confirms it with a message. The module ensures the system is accessible to new users while maintaining strict data entry protocols.

3.3 Admin Portal and Article Management

This module allows administrators to manage news content effectively. Admins can view articles categorized by topic and add new articles to the system. They can navigate through categories and perform content updates seamlessly. The logout option ensures secure termination of admin sessions. The module is designed to provide comprehensive control over article management for administrators.

3.4 User Portal and Article Viewing

Regular users can access this module to browse articles categorized into different topics. By selecting a category, users can view detailed content, including article titles and descriptions. The portal ensures easy navigation and an intuitive reading experience. A logout option enables users to end their sessions securely, maintaining system integrity.

3.5 Message Display System

. This module provides feedback for user actions, ensuring clarity and interactivity. Success or error messages are displayed in a simple popup window after login attempts, registration, or article management actions. Users must acknowledge the message before proceeding. This ensures users are informed about the outcomes of their actions, enhancing the system's usability.

CHAPTER 4

CONCLUSION & FUTURE SCOPE

4.1 CONCLUSION

The News Portal System demonstrates a robust implementation of a content management application that caters to diverse users. With its intuitive interface and role-based functionality, it simplifies the process of accessing and managing news articles. Administrators can efficiently manage content by adding and categorizing articles, ensuring the platform remains updated and organized. Regular users benefit from a seamless browsing experience, where articles are easily accessible under predefined categories. The use of Java AWT for the graphical interface combined with OOP principles like encapsulation and inheritance ensures that the system is both modular and maintainable. The inclusion of input validation during user registration and secure login ensures data integrity and prevents unauthorized access. Additionally, the message display system provides immediate feedback, enhancing the user experience. The modular design of the system allows for scalability and future enhancements. By implementing a structured methodology and applying fundamental programming concepts, the project achieves its objective of creating a functional and efficient news portal. In conclusion, the News Portal System is a successful integration of software engineering principles and user-centric design. It bridges the gap between content creators (administrators) and readers, providing a platform that is not only functional but also scalable for future enhancements.

4.2 FUTURE SCOPE

The News Portal System has significant potential for enhancement to improve functionality and user experience. One promising extension is the introduction of an advanced search feature, enabling users to quickly locate articles using keywords or tags. Adding user profiles would allow personalization of news feeds based on individual preferences and interests, improving engagement. A mobile-friendly version of the portal could expand accessibility, ensuring a seamless experience for users on various devices. Multilingual support would further broaden the system's reach, allowing users to access content in their preferred language. Analytics for administrators could provide insights into user behavior, helping them identify popular articles or categories and refine content strategies. Community features, like comment sections or article discussion forums, could foster interaction and engagement among users. Cloud storage integration would ensure better scalability and reliability, allowing the system to handle growing content and user demands effectively. These enhancements position the News Portal System as a dynamic platform capable of evolving to meet future needs.

REFERENCES

Java Books:

1."Head First Java" by Kathy Sierra and Bert Bates

This book is a great resource for beginners learning Java, with a focus on object-oriented programming concepts and real-world application development.

2. "Effective Java" by Joshua Bloch

A deeper dive into best practices for writing clean, maintainable Java code. It covers advanced topics like Java collections, concurrency, and design patterns that could be applied to more complex payroll systems.

Websites:

1. GeeksforGeeks - Java Tutorials

- URL: https://www.geeksforgeeks.org/java/
- A comprehensive collection of tutorials on Java, covering topics like classes, objects, inheritance, encapsulation, and more. Great for learning the core concepts of Java and applying them in projects like NEWS PORTAL SYSTEM.

2. W3Schools - Java Tutorial

- URL: https://www.w3schools.com/java/
- A beginner-friendly resource that offers tutorials on Java programming, including object-oriented principles and core Java concepts.

YouTube Links:

1. Java for Beginners - Java Brains

- URL: https://www.youtube.com/c/CodeWithHarry
- CodeWithHarry provides easy-to-follow Java programming tutorials, covering everything from basic concepts to more advanced topics, suitable for all skill levels.

APPENDIX A (SOURCE CODE)

```
import java.awt.*;
import java.awt.event.*;
import java.util.ArrayList;
import java.util.HashMap;

public class NewsPortal extends Frame implements ActionListener {
    // Components for Login
    TextField usernameField, passwordField;
    Button loginButton, registerButton;
    static ArrayList<User> userList = new ArrayList<>();
    static HashMap<String, ArrayList<Article>> articles = new HashMap<>();
    static ArrayList<Article> deletedArticles = new ArrayList<>();
    static User loggedInUser = null;
// Main Method
    public static void main(String[] args) {
        userList.add(new User("admin", "admin123", true)); // Default admin user

        // Pre-populate categories
        articles.put("Sports", new ArrayList<>());
        articles.put("Entertainment", new ArrayList<>());
        articles.put("Technology", new ArrayList<>());
        articles.put("Politics", new ArrayList<>());
        articles.put("Normal News", new ArrayList<>());

        new NewsPortal();
    }
// Constructor for Login Frame
    NewsPortal() {
        setLayout(new FlowLayout());
```

```
      setTitle("News Portal Login");

      add(new Label("Username:"));
      usernameField = new TextField(20);
      add(usernameField);
      add(new Label("Password:"));
      passwordField = new TextField(20);
      passwordField.setEchoChar('*');
      add(passwordField);
      loginButton = new Button("Login");
      registerButton = new Button("Register");
      add(loginButton);
      add(registerButton);

      loginButton.addActionListener(this);
      registerButton.addActionListener(e -> new RegistrationWindow());

      setSize(300, 200);
      setVisible(true);
  }
// Handle Login
  public void actionPerformed(ActionEvent e) {
      String username = usernameField.getText();
      String password = passwordField.getText();

      for (User user : userList) {
          if (user.getUsername().equals(username) && user.getPassword().equals(password)) {
              loggedInUser = user;
              dispose();
              if (user.isAdmin()) {
                openAdminPortal();
            } else {
                openUserPortal();
            }
            return;
        }
    }
    new MessageWindow("Invalid credentials!");
}
// Admin Portal
void openAdminPortal() {
    Frame adminFrame = new Frame("Admin Portal");
    adminFrame.setLayout(new BorderLayout());

    List categoryList = new List();
    TextArea articleDisplay = new TextArea();
    Button viewArticlesButton = new Button("View Articles");
    Button addArticleButton = new Button("Add Article");
    Button logoutButton = new Button("Logout");

    // Populate category list
    articles.keySet().forEach(categoryList::add);

    // View Articles Button Logic
    viewArticlesButton.addActionListener(e -> {
        String selectedCategory = categoryList.getSelectedItem();
        articleDisplay.setText("");
        if (selectedCategory != null && articles.containsKey(selectedCategory)) {
            for (Article article : articles.get(selectedCategory)) {
                articleDisplay.append("Title: " + article.getTitle() + "\n");
                articleDisplay.append("Content: " + article.getContent() + "\n\n");
            }
        } else {
            articleDisplay.append("No articles in this category.");
        }
    });
// Add Article Button Logic
    addArticleButton.addActionListener(e -> new AddArticleWindow());

    // Logout Button Logic
    logoutButton.addActionListener(e -> {
        adminFrame.dispose();
        new NewsPortal();
    });

    Panel adminPanel = new Panel(new GridLayout(1, 2));
    adminPanel.add(categoryList);
    adminPanel.add(articleDisplay);

    Panel buttonPanel = new Panel();
    buttonPanel.add(viewArticlesButton);
    buttonPanel.add(addArticleButton);
    buttonPanel.add(logoutButton);

    adminFrame.add(adminPanel, BorderLayout.CENTER);
    adminFrame.add(buttonPanel, BorderLayout.SOUTH);

    adminFrame.setSize(600, 400);
    adminFrame.setVisible(true);
  }
```

```
// User Portal
 void openUserPortal() {
     Frame userFrame = new Frame("User Portal");
     userFrame.setLayout(new BorderLayout());

     List categoryList = new List();
     TextArea articleDisplay = new TextArea();
     Button logoutButton = new Button("Logout");

     articles.keySet().forEach(categoryList::add);

     categoryList.addItemListener(e -> {
         String selectedCategory = categoryList.getSelectedItem();
         articleDisplay.setText("");
         if (articles.containsKey(selectedCategory)) {
             for (Article article : articles.get(selectedCategory)) {
                 articleDisplay.append("Title: " + article.getTitle() + "\n");
                 articleDisplay.append("Content: " + article.getContent() + "\n\n");
             }
         } else {
             articleDisplay.append("No articles in this category.");
         }
     });
    logoutButton.addActionListener(e -> {
         userFrame.dispose();
         new NewsPortal();
     });

     userFrame.add(categoryList, BorderLayout.WEST);
     userFrame.add(articleDisplay, BorderLayout.CENTER);
    userFrame.add(logoutButton, BorderLayout.SOUTH);

    userFrame.setSize(600, 400);
    userFrame.setVisible(true);
 }
// Registration Window
 class RegistrationWindow extends Frame {
    TextField regUsernameField, regPasswordField;
    Button submitButton, cancelButton;

    RegistrationWindow() {
        setLayout(new FlowLayout());
        setTitle("Register New User");

        add(new Label("Username:"));
        regUsernameField = new TextField(20);
        add(regUsernameField);

        add(new Label("Password:"));
        regPasswordField = new TextField(20);
        regPasswordField.setEchoChar('*');
        add(regPasswordField);
        submitButton = new Button("Register");
        cancelButton = new Button("Cancel");
        add(submitButton);
        add(cancelButton);

        submitButton.addActionListener(e -> {
            String username = regUsernameField.getText();
            String password = regPasswordField.getText();
```

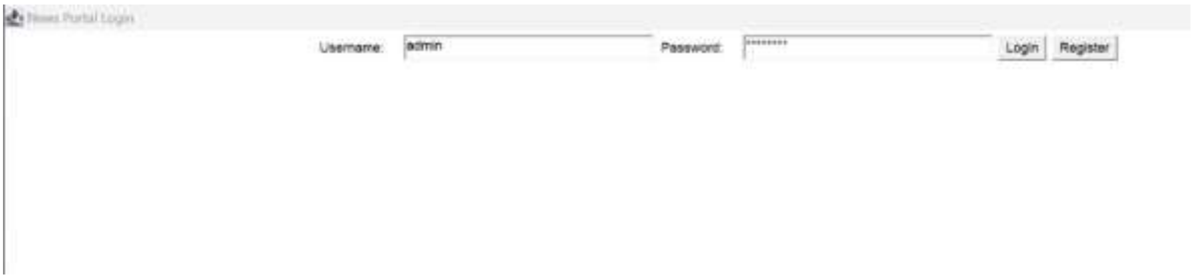
```
                if (!isValidInput(username) || !isValidInput(password)) {
                    new MessageWindow("Special characters are not allowed in username or password!");
                    return;
                }
                if (!username.isEmpty() && !password.isEmpty()) {
                    userList.add(new User(username, password, false));
                    new MessageWindow("Registration successful!");
                    dispose();
                } else {
                    new MessageWindow("Please enter all fields.");
                }
            });

            cancelButton.addActionListener(e -> dispose());

            setSize(300, 200);
            setVisible(true);
        }
    }
    // Add Article Window
    class AddArticleWindow extends Frame {
        TextField titleField, categoryField;
        TextArea contentArea;
        Button submitButton, cancelButton;

        AddArticleWindow() {
            setLayout(new FlowLayout());
            setTitle("Add Article");
```

```
add(new Label("Title:"));
titleField = new TextField(20);
add(titleField);

add(new Label("Category:"));
categoryField = new TextField(20);
add(categoryField);

add(new Label("Content:"));
contentArea = new TextArea(5, 20);
add(contentArea);
submitButton = new Button("Submit");
cancelButton = new Button("Cancel");
add(submitButton);
add(cancelButton);

submitButton.addActionListener(e -> {
    String title = titleField.getText();
    String category = categoryField.getText();
    String content = contentArea.getText();

    if (!title.isEmpty() && !category.isEmpty() && !content.isEmpty()) {
        articles.putIfAbsent(category, new ArrayList<>());
        articles.get(category).add(new Article(title, category, content));
        new MessageWindow("Article added successfully!");
        dispose();
    } else {
        new MessageWindow("All fields are required!");
    }
```

```
            });
            cancelButton.addActionListener(e -> dispose());

            setSize(400, 300);
            setVisible(true);
        }
    }
    // Message Window
    class MessageWindow extends Frame {
        MessageWindow(String message) {
            setLayout(new FlowLayout());
            add(new Label(message));
            Button closeButton = new Button("Close");
            closeButton.addActionListener(e -> dispose());
            add(closeButton);
            setSize(250, 100);
            setVisible(true);
        }
    }

    // Utility method to check for special characters
    boolean isValidInput(String input) {
        return !input.matches(".[!@#$%^&(),.?\":{}|<>].*");
    }
}
// User class
class User {
    private String username;
    private String password;
    private boolean isAdmin;
    public User(String username, String password, boolean isAdmin) {
        this.username = username;
        this.password = password;
        this.isAdmin = isAdmin;
    }

    public String getUsername() {
        return username;
    }

    public String getPassword() {
        return password;
    }

    public boolean isAdmin() {
        return isAdmin;
    }
}
// Article class
class Article {
    private String title;
    private String category;
    private String content;

    public Article(String title, String category, String content) {
        this.title = title;
        this.category = category;
        this.content = content;
    }
    public String getTitle() {
        return title;
    }

    public String getCategory() {
        return category;
    }

    public String getContent() {
        return content;
    }
}
```

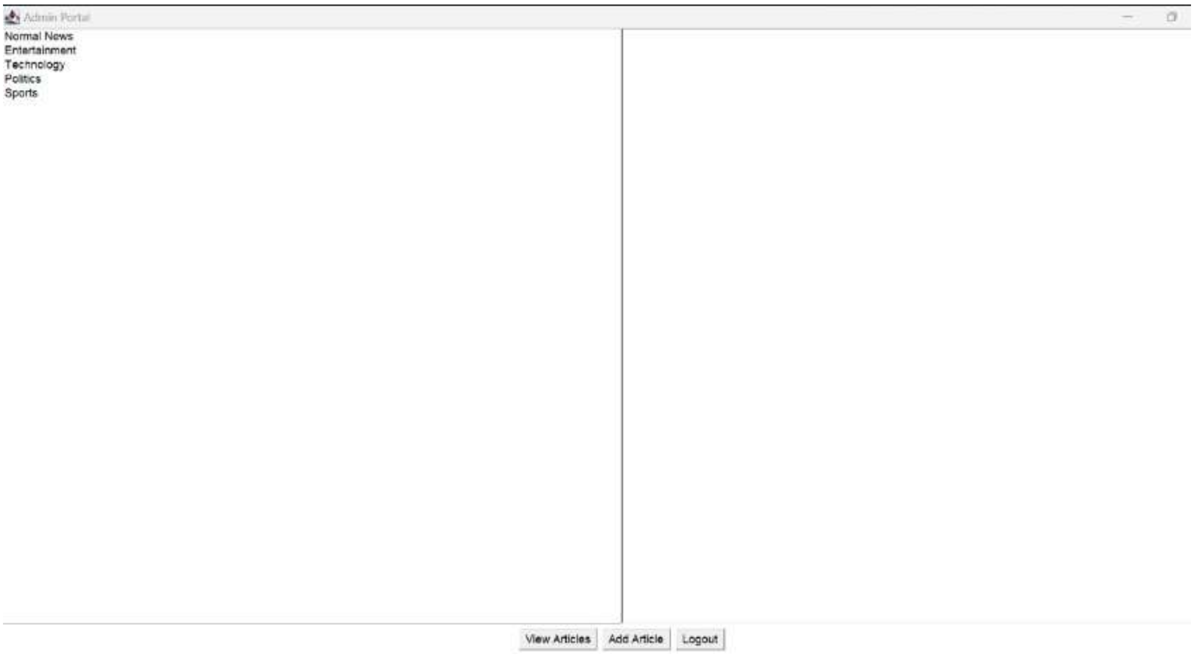
APPENDIX B

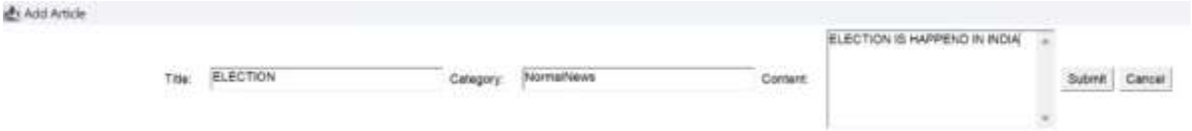
(SCREENSHOTS)



Username: admin

Password: ********

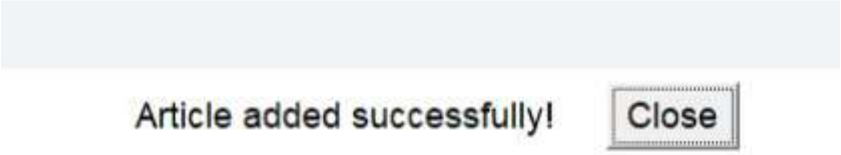




Title: ELECTION

Category: NormalNews

Content: ELECTION IS HAPPEND IN INDIA



Article added successfully!