

Course Name: Basics of Programming 2
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Project Title: Simple Blogging Console Application
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Introduction

In our daily life, we want to save memories and express our emotions. Many people try to remember significant events and their feelings about them. So that, I created a simple blogging app that allows users to write and manage their thoughts and experiences. This application is based on object-oriented programming to create real-life entities as classes. The program consists of six classes: Vector, Post, User, Blogger, Reader, and BlogSystem. Each class has its specific responsibilities, with crucial features including a basic user authentication system and data management for saving posts.

Program Interface

To start the program, the user runs the compiled C++ program from their command line or development environment. The main menu is displayed upon execution, presenting options for signing up, logging in, and exiting. The program terminates when the user chooses to log out, displaying a final message and an execution summary

Program Execution

Main Menu Options

1. Sign Up: Allows a new user to create an account by providing their full name, email address, contact information, username, password, and role (Blogger/Reader)
2. Log In: Existing users can log in using their username and password. Depending on the role (Blogger or Reader), different menus are displayed
3. Exit: Terminates the program

Blogger Menu

1. Create a BlogPost: Bloggers can create a new post by entering the date, time, keywords, and content
2. Edit a Blog Post: Bloggers can edit an existing post by specifying the post index and updating the desired fields.
3. Delete a Blog Post: Bloggers can delete a post by specifying its index.
4. View All Blog Posts: Bloggers can view all their posts, displayed with details like date, author, time, keywords, and content.
5. Log Out: Returns to the main menu.

Reader Menu

1. Search a Blog Post: Readers can search posts by entering a keyword. Posts containing the keyword in their keywords field are displayed.
2. Log Out: Returns to the main menu.

Example Execution

//MainMenu options

-- Main Menu --

1. Sign Up
2. Log In
3. Exit

Enter your choice: 1

Enter your full name: Alyem Gul

Enter your email address: alyem@gmail.com

Enter your contact information: 85201001

Enter your username: Gul

Enter your password: 1111Aa

Are you a Blogger (y/n): y

Sign up successful.You can log in ^_^

-- Main Menu --

1. Sign Up
2. Log In
3. Exit

Enter your choice: 2

Enter your username: Gul

Enter your password: 1111Aa

//login as a blogger and its features detail

-- Blogger Menu --

1. Create a blog post
2. Edit a blog post
3. Delete a blog post
4. View all blog posts
5. Log out

Enter your choice: 1

Enter date (yyyy.mm.dd): 2020.01.08

Enter time (morning/afternoon/night): morning

Enter keywords: Kk birthday, memory

Enter content: here some content

Blog post created successfully.

-- Blogger Menu --

1. Create a blog post
2. Edit a blog post
3. Delete a blog post
4. View all blog posts
5. Log out

Enter your choice: 2

Enter index of post to edit: 4

Current date: 2020.01.08enter new date (or press enter to skip):

Current time: morningenter new time (or press enter to skip):

Current keywords: Kk birthday, memoryenter new keywords (or press enter to skip):

Current content: here some content enter new content (or press enter to skip): kk

Blog post updated successfully.

-- Blogger Menu --

1. Create a blog post
2. Edit a blog post
3. Delete a blog post
4. View all blog posts
5. Log out

Enter your choice: 3

Enter index of post to delete: 4
Blog post deleted successfully.

-- Blogger Menu --
1. Create a blog post
2. Edit a blog post
3. Delete a blog post
4. View all blog posts
5. Log out

Enter your choice: 4
Post 0:
Date: 2024.01.08
Author: Alyem
Time: morning
Keywords: It was good
Content: kkkkkk

Post 1:
Date: 2025.01.08
Author: A
Time: nighth
Keywords: kk
Content: kkk

Post 2:
Date: 2024.01.08
Author: A
Time: morning
Keywords: Birthday, party
Content: it was good day

Post 3:
Date: 2021.01.08
Author: v
Time: nighth
Keywords: birthday
Content: here some content

-- Blogger Menu --
1. Create a blog post
2. Edit a blog post
3. Delete a blog post
4. View all blog posts
5. Log out
Enter your choice: 5

-- Main Menu --
1. Sign Up
2. Log In
3. Exit
Enter your choice: 2
Enter your username: v
Enter your password: v

-- Blogger Menu --
1. Create a blog post
2. Edit a blog post
3. Delete a blog post
4. View all blog posts
5. Log out
Enter your choice: 5

-- Main Menu --
1. Sign Up
2. Log In
3. Exit
Enter your choice: 2
Enter your username: l
Enter your password: l

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-- Reader Menu --
1. Search a blog post
2. Log out
Enter your choice: 2

-- Main Menu --
1. Sign Up
2. Log In
3. Exit
Enter your choice: 2
Enter your username: l
Enter your password: l

-- Reader Menu --
1. Search a blog post
2. Log out
Enter your choice: 1
Enter keyword to search: birthdays

-- Reader Menu --
1. Search a blog post
2. Log out
Enter your choice: 1
Enter keyword to search: party
Date: 2024.01.08
Author: A
Time: morning
Keywords: Birthday, party
Content: it was good day

-- Reader Menu --
1. Search a blog post
2. Log out
Enter your choice: 2

-- Main Menu --
1. Sign Up
2. Log In
3. Exit
Enter your choice: 3
Exiting the program.
```

Process returned 1000 (0x3E8) execution time : 201.020 s

Input and Output

Input Files: users.txt, blog_posts.txt

Output Files: users.txt, blog_posts.txt

Program Structure

Overview

The program is structured into six main classes:

Vector: Manages dynamic arrays for storing data.

Post: Represents a blog post with attributes like date, author, time, keywords, and content.

User: An abstract base class for all users, handling common attributes and methods.

Blogger: Inherits from User, with additional functionalities for creating, editing, deleting, and viewing posts.

Reader: Inherits from User, allowing users to search for posts by keywords.

BlogSystem: Manages users, posts, and the overall program flow, including loading/saving data and user authentication.

Classes and Methods

Vector Class

Constructor, Destructor

Methods: clear(), erase(), at(), insert(), operator=, operator[], size()

Post Class

Attributes: date, author, time, keywords, content

Constructor

User Class (Abstract)

Attributes: name, email, contactInfo, username, password

Methods: displayMenu(), getUsername(), getPassword(), getName(), getEmail(), getContactInfo()

Blogger Class (Inherits from User)

Methods: createPost(), editPost(), deletePost(), viewAllPosts(), displayMenu()

Reader Class (Inherits from User)

Methods: searchPost(), displayMenu()

BlogSystem Class

Attributes: users, posts

Methods: loadUsers(), loadPosts(), saveUsers(), savePosts(), signUp(), login(), mainMenu()

Examples (Optional)

When using the main menu, blogger, and reader menus, users should enter only integers for choices. Entering invalid data types may cause unexpected behavior.

Testing and Verification

Testing was creating and managing multiple user accounts and blog posts to ensure all functionalities worked correctly as shown in execution above. The program was tested for proper data handling, user authentication, and menu navigation. Edge cases, such as invalid inputs and file I/O errors, were also tested.(and included on examples part)

Improvements and Extensions

Future improvements could be a more sophisticated user authentication system like hashing the passwords, my program's weakness is I am saving user information on text files, so anyone could access it. Enhanced post formatting, and a graphical user interface. Additional features such as comment sections, multimedia attachments, and advanced search filters etc...

Difficulties Encountered

First of all I was going to use a vector library for memory and it was much easier but after consultation with the lab conductor I decided to use a dynamic memory management Vector class. Also, ensuring proper file I/O operations, and implementing a user-friendly interface was difficult.. Some planned features were omitted due to time pressure, such as implementing a more secure authentication system.

Conclusion

This project provided valuable experience in object-oriented programming and software development. It was a great time. The simple blogging console application demonstrates the ability to manage users and their posts effectively. Future enhancements could further improve the usability of the application.

References

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