

Web Programming Lab / Fall 2025

SNS Web Application Project

Due: Wed. December. 24, 11:59PM

1 Introduction

This project requires you to build a basic SNS (Social Networking Service) web application using Node.js, Express, MongoDB, and EJS templates. The application should allow users to register and log in, and after successful authentication, users will be able to view a feed of posts shared by themselves and others. Additionally, users should have the ability to create new posts.

By the end of this project, your web application should include:

- **Authentication:** Secure user login and registration functionality.
- **Session Management:** Persistent user sessions during active usage.
- **Database Management:** Proper storage of user and post data using MongoDB.
- **Responsive Design:** Clean, functional UI using EJS templates.

2 Models

MongoDB database's name is *nodejs*. The application should define the following MongoDB collections.

2.1 Users collection

The users collection will store user account information. Fields include:

- **id :** Unique username for the user
- **password :** Hashed password using bcrypt
- **roles :** List of user roles

2.2 Posts collection

The posts collection will store user-generated content. Fields include:

- author : The id of the user who created the post
- content : The text content of the post
- likes : The number of post's likes
- createdAt : Timestamp when the post was created

3 Views

You are required to implement the following EJS-based pages for the web application:

3.1 Login page (login.ejs)

- Allows existing users to log in.
- Fields: Username, Password.
- Displays error messages for invalid credentials.

3.2 Signup page (signup.ejs)

- Allows new users to register.
- Fields: Username, Password, Confirm Password.
- Displays validation errors if passwords do not match or username is already taken.

3.3 Main page (main.ejs)

- Displays user's username at the top of the page.
- Displays a list of posts from all users, sorted by creation time (newest first).
- Shows the author and content of each post.
- Provides a link or button to create a new post.
- Provides a button to like the post.
- Provides *delete* button to admin for all posts and author for his/her post.

3.4 Newpost page (newpost.ejs)

- Allows logged-in users to create a new post.
- Field: Post Content (Text area).
- Redirects to the main feed page after a successful post submission.

4 Controllers

The server should include the following controller functions:

4.1 Authentication Controllers

signupUser(req, res)

- Handles user registration.
- Hashes the password before saving to the users collection.
- Validates that the username is unique.

loginUser(req, res)

- Handles user login.
- Validates credentials against stored hashed passwords.
- Initializes a session upon successful login.

logoutUser(req, res) Handles user logout by destroying the session.

4.2 Post Controllers

createPost(req, res)

- Handles new post creation.
- Stores the post content and author in the posts collection.
- Ensures the user is authenticated.

getPosts(req, res)

- Fetches and returns all posts from the posts collection.
- Displays them on the main.ejs page.

deletePost(req, res)

- Validates that the user is authenticated and is the author of the post or admin.
- Removes the specified post from the posts collection.
- Redirects back to the main.ejs page after successful deletion.

5 Grading Criteria

Database design 20pt, Proper implementation of the users and posts collections with correct field types and structure.

Authentication 20pt, Secure user login and signup functionality with hashed passwords and session management.

EJS templates 20pt, Clean and functional implementation of the login, signup, main, and newpost pages.

Post management 30pt, Correct handling of post creation and retrieval, ensuring posts are displayed in the feed.

Page design 10pt, Clean, readable, and well-documented page following best practices.

6 Deliverables

Submit the completed project as a ZIP file containing all source code, dependencies and **brief report with pdf file**. Ensure the project is fully functional and can be run using the command:

npm install && npm start