MAJOR PROJECT II

Software Requirement Specifications

BlogSphere: A Blogging Platform

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1. Introduction

1.1 Purpose of the Project

The purpose of this blogging platform is to provide users with a seamless interface to create, publish, edit, and manage blogs. It will support user registration, content categorization, comment systems, and search functionality. The platform will serve both content creators and readers, with features tailored for engagement, content sharing, and community building.

1.2 Target Beneficiary

- Content writers, bloggers, and freelance writers
- Educational content creators and instructors
- News publishers and small businesses
- Readers and communities interested in digital content

1.3 Project Scope

This project involves developing a full-stack blogging platform using the MERN stack (MongoDB, Express.js, React.js, Node.js). It will feature user authentication, blog publishing tools, categorization, comments, likes, search functionality, and secure user data management. Deployment will be cloud-based for scalability.

1.4 References

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2. Project Description

2.1 Reference Algorithm

- Search & Filter Algorithm: Custom Regex-based search and filter on blog titles, categories, and tags.
- Pagination Algorithm: for handling blog listings with page-based navigation.
- Comment Sorting Algorithm: Date-based sorting algorithm to display comments in newest-first order.

2.2 Data/Data Structures

- User Data: (username, email, password hash, role)
- Blog Post Data: (title, content, author ID, createdAt, updatedAt, categories, tags, imageURL)
- Comments Data: (comment text, user ID, blog ID, timestamp)
- Likes Data: (user ID, blog ID)

2.3 SWOT Analysis

Strengths:

- Scalable MERN stack architecture.
- Easy blog creation and management.

Weaknesses:

- Requires constant internet connectivity.
- Complex full-stack development and integration.

Opportunities:

- Build content-sharing communities.
- Add premium features and ad services.

Threats:

- Evolving cyber threats.
- Competition from platforms like Medium and WordPress.

2.4 Project Features

- User registration and login
- Create, edit, delete, and publish blogs
- Category and tag-based content management

- Comment and like system
- Blog search and filtering
- User profiles
- Admin panel for content moderation

2.5 User Classes and Characteristics

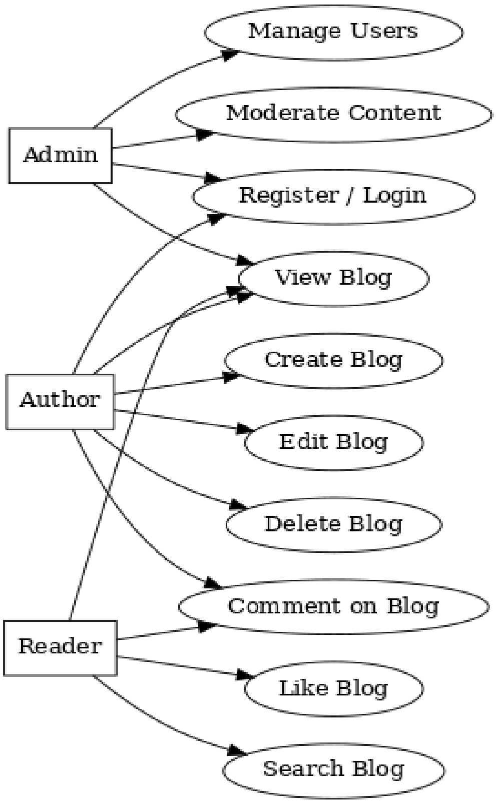
- Admin: Manages content, users, and site policies
- Author: Can write, edit, and publish blogs
- Reader/Visitor: Can view blogs, comment, and like content

2.6 Design and Implementation Constraints

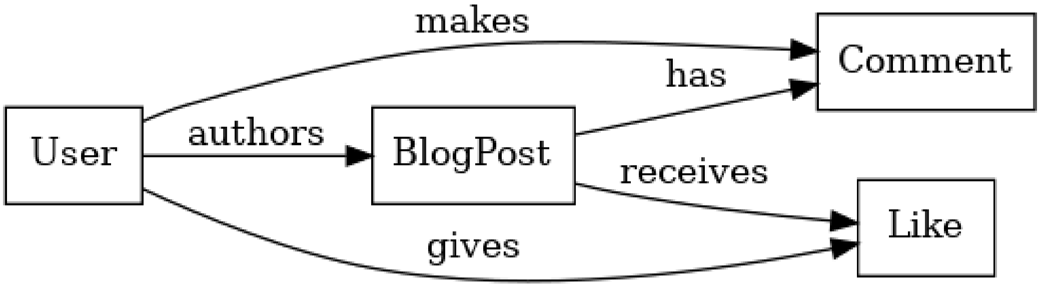
- Responsive design for mobile and desktop
- Database connection security (using environment variables)

2.7 Design Diagrams

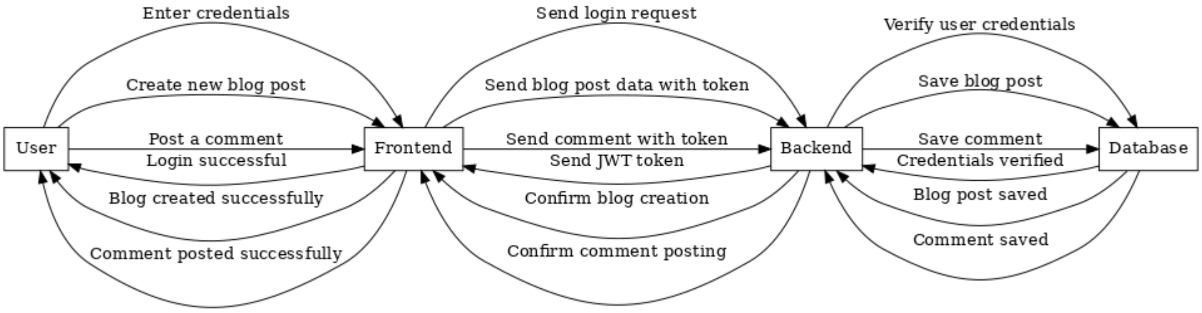
- **Use Case Diagram**



- **ER Diagram for database structure**



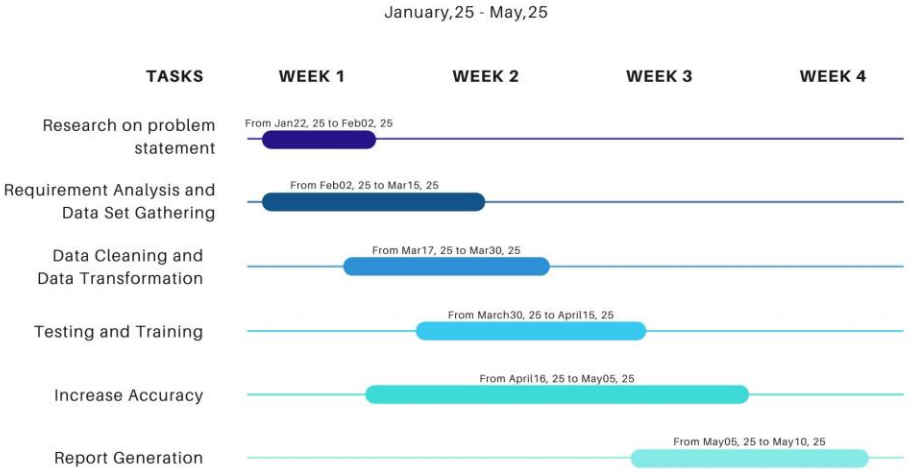
- **Sequence Diagram** (User login → Blog creation → Comment posting)



2.8 Assumption and Dependencies

- Users have stable internet access
- The platform will be used on modern browsers
- MongoDB Atlas and deployment services are available and accessible

2.9 PERT Chart



3. System Requirements

3.1 User Interface

- Frontend built with React.js
- Responsive design using Tailwind CSS
- Simple navigation, search bar, and user dashboards

3.2 Software Interface

- Node.js & Express.js backend API
- MongoDB database connectivity

3.3 Database Interface

- MongoDB collections for user, blog posts, comments, and categories
- Queries performed
- Connection through environment-secured strings

3.4 Protocols

- HTTP/HTTPS for client-server communication
- JWT for authentication protocol
- REST API standards for endpoint design

4. Non-Functional Requirement

4.1 Security Requirements

- User authentication and password hashing with bcrypt
- Role-based access control

4.2 Software Quality Attributes

- Reliability: Scalable hosting, cloud deployment
- Usability: Clean, responsive UI for all devices
- Maintainability: Clean codebase with modular design
- Portability: Accessible via multiple browsers and devices

5. Other Requirements

- Integration with email services for password reset
- Social media share buttons
- Dark mode UI toggle
- SEO optimization for blog content

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