

HobbyHub Social Platform Project Report

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1 GitHub Link

HobbyHub GitHub Repository

2 Project Overview

HobbyHub is a specialized social platform designed for hobbyists to share their passions, connect with like-minded enthusiasts, and explore new interests. The platform solves the problem of finding dedicated communities for specific hobbies by creating a centralized ecosystem where passion-driven individuals can connect, share knowledge, and inspire each other's creative pursuits.

The main objectives of this project include:

- Enabling hobbyists to showcase their projects and creative journey
- Facilitating connections between people with similar interests
- Supporting engagement through constructive feedback and discussions
- Providing a discovery mechanism for exploring new hobbies and techniques

3 Feature Description

3.1 User Authentication and Management

- **Local Authentication:** Username/email and password registration and login
- **OAuth Integration:** Google authentication for simplified sign-in
- **Hobby-Focused Profiles:** Ability to edit profile information, and upload profile pictures
- **Follow System:** Users can follow/unfollow other hobbyists with similar interests

3.2 Content Creation and Management

- **Project Showcases:** Users can create posts documenting their hobby projects
- **Multimedia Support:** Posts can include various media files (images, videos, audio) to demonstrate techniques or results
- **Post Editing:** Users can modify their existing showcases
- **Post Deletion:** Ability to remove posts with automatic cleanup of associated media

3.3 Social Interactions

- **Appreciation System:** Users can express support for projects through likes
- **Feedback System:** Full-featured comment system with constructive feedback and threaded replies
- **Comment Management:** Delete, and like functionality for comments
- **Interest-Based Feed:** Customized feed showing posts from followed users.

3.4 Hobby Discovery

- **User Search:** Search functionality to find other hobbyists by username or email
- **Profile Viewing:** Access to other users' hobby collections and projects
- **Follower/Following Lists:** View connections between hobbyists

4 Navigation

4.1 Authentication Flow

1. Users arrive at the login page or can navigate to the registration page
2. Upon successful authentication, users are redirected to their personalized feed
3. Users can log out at any time, returning to the login page

4.2 Content Interaction Flow

1. Users can view their personalized feed showing projects from followed hobbyists
2. From the feed, users can:
 - Create new project showcases
 - Interact with existing projects (like, comment)
 - Navigate to project detail pages
 - Access user profiles

4.3 Hobbyist Connection Flow

1. Users can search for other hobbyists through the search functionality
2. On a user's profile, they can:
 - View the user's hobby projects
 - Follow/unfollow the hobbyist
 - View shared content

4.4 Content Management Flow

1. Users can access their own projects from their profile
2. For each project showcase, owners can:
 - Edit content and media
 - Update progress status
 - Remove specific media files
 - Delete the entire project post
3. Similar management options exist for comments

5 Tools and Technology

5.1 Backend

- **Node.js**: Core runtime environment
- **Express.js**: Web application framework
- **MongoDB**: NoSQL database for data storage
- **Mongoose**: MongoDB object modeling for Node.js

5.2 Authentication

- **Passport.js**: Authentication middleware
- **bcryptjs**: Password hashing
- **Google OAuth 2.0**: Third-party authentication

5.3 File Management

- **Multer**: Middleware for handling file uploads
- **fs**: File system operations for media management

5.4 Frontend

- **Express Templates**: Server-side rendering using EJS
- **EJS, HTML, CSS, JavaScript**: Core frontend technologies

5.5 Development Tools

- **Environment Variables:** For configuration management
- **Error Handling:** Comprehensive error handling with flash messages

6 API Design

6.1 Authentication Endpoints

- GET /login: Render login page
- GET /register: Render registration page
- POST /register: Create new user account
- POST /login: Authenticate user
- GET /logout: End user session
- GET /auth/google: Initiate Google OAuth flow
- GET /auth/google/callback: Handle Google OAuth response

6.2 Project Post Endpoints

- GET /feed: Retrieve personalized project feed
- GET /posts/create: Render project creation form
- POST /posts/create: Create new project showcase
- GET /posts/:id: View single project
- GET /posts/edit/:id: Render project edit form
- PUT/POST /posts/edit/:id: Update existing project showcase
- DELETE /posts/:id: Delete project
- POST /posts/:id/like: Like a project
- DELETE /posts/:postId/media/:fileName: Remove media from project showcase

6.3 Comment Endpoints

- POST /posts/:id/comments: Add comment to project
- GET /posts/:id/comments: Get comments for project
- PUT /posts/comments/:commentId: Update comment
- DELETE /posts/comments/:commentId: Delete comment
- POST /posts/comments/:commentId/like: Like comment

6.4 User Endpoints

- GET /users/profile/:id: View hobbyist profile
- GET /users/edit-profile: Render profile edit form
- POST /users/edit-profile: Update user profile and hobby information
- POST /users/follow/:id: Follow hobbyist
- POST /users/unfollow/:id: Unfollow hobbyist
- GET /users/search: Search for hobbyists
- GET /users/:id/following: View user's following list
- GET /users/:id/followers: View user's followers list

7 Use Case Scenarios

7.1 Scenario 1: New Hobbyist Registration and Onboarding

1. User visits HobbyHub and creates a new account via registration form
2. After successful registration, user logs in and is directed to the feed
3. User completes their profile by adding a bio, and uploading a profile picture
4. User searches for fellow enthusiasts and follows several accounts
5. User's feed populates with content from followed hobbyists

7.2 Scenario 2: Project Showcase and Feedback

1. User creates a new post documenting their latest painting project with text description and progress photos
2. User's followers see the project in their feeds
3. Fellow painters interact by liking the project and adding comments with constructive feedback
4. The original user responds to comments, creating a discussion about techniques

7.3 Scenario 3: Project Journey Documentation

1. User starts a multi-part woodworking project
2. User creates initial post outlining the project goals
3. User adds subsequent posts showing progress at different stages
4. User links related posts together to create a cohesive project journey
5. Community members follow along, providing encouragement and suggestions throughout the process

8 Challenges & Solutions

8.1 Challenge 1: Authentication System Integration

Problem: Integrating two different authentication systems seamlessly within the platform.

Solution: Implemented Passport.js middleware to handle both local authentication and Google OAuth 2.0 with a unified user model. Created a strategy pattern to maintain consistent user sessions regardless of authentication method, with proper error handling and security protocols.

8.2 Challenge 2: Like Functionality Implementation

Problem: Encountering ID reference errors when implementing the like functionality across posts and comments.

Solution: Restructured the database schema to properly handle references between users and liked content. Implemented proper MongoDB ObjectID handling and verification to ensure likes were correctly associated with both content and users, preventing duplicate likes and ensuring accurate counts.

8.3 Challenge 3: Database Schema Design

Problem: Designing an efficient and scalable database schema that accommodates diverse user relationships, and content interactions.

Solution: Created a normalized MongoDB schema with proper relationships between collections. Implemented embedded documents for frequently accessed data while maintaining references for scalable relationships. Designed indexes to optimize common queries and ensure efficient data retrieval patterns for feed generation.

9 Future Improvements

9.1 Specialized Hobby Tools

- Integrate specific tools for different hobbies (e.g., music players for musicians, step-by-step tutorials for crafters)
- Add hobby-specific metrics and achievement tracking
- Create specialized templates for different types of hobby documentation

9.2 Community Enhancement

- Implement hobby-specific groups and forums for deeper discussions
- Add virtual meetups and live sessions for skill sharing
- Create collaborative project spaces for joint hobby ventures

9.3 Learning Pathways

- Develop structured learning paths for beginners in various hobbies
- Create mentor/mentee matching for skill development
- Implement achievement badges and skill verification

9.4 Content Discoverability

- Implement AI-powered recommendations based on skill level and interests
- Create trending sections for innovative hobby projects
- Add seasonal challenges and themed content collections

9.5 Technical Improvements

- Develop mobile apps for on-the-go hobby documentation
- Implement advanced media handling for specialized hobby needs
- Create accessibility features for inclusive hobby sharing

10 Conclusion

HobbyHub successfully creates a dedicated social platform for hobby enthusiasts to connect, share, and grow their skills. The project demonstrates effective integration of social networking principles with the specific needs of creative and passion-driven communities.

Key learnings from this project include:

- Handling an entire project independently, from planning to deployment
- Debugging efficiently by analyzing errors and carefully reviewing the entire codebase
- Managing various types of media files effectively
- Developing feedback systems that encourage constructive interaction

The modular architecture of the application allows for future expansion into more specialized hobby tools and community features. The focus on hobby-specific interactions creates a more meaningful connection between users than general social media platforms.