

# Sri Lanka Institute of Information Technology

## Programming Applications and Frameworks (IT3030)

Continuous Assignment – 2025, Semester 2

### Initial Report

GROUP ID: Y3S2-WE-04



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## **Project Description**

The aim of the project is to develop a dynamic and engaging platform for skill sharing and learning where users can communicate, exchange knowledge, and learn new abilities in a variety of fields, including DIY crafts, cooking, coding, and photography. With the help of this platform, people who are enthusiastic about teaching and learning will be able to upload lessons, discuss their own experiences, and offer others useful resources.

With the help of structured plans, users can monitor their learning progress, set goals, and interact with information by leaving comments, likes, and conversations. To keep up with other users' latest activities and content, they can also follow them. By providing feedback, support, and encouragement to one another in their learning journeys, members will develop an impression of community through this collaborative environment. In order to provide each user with an interesting and unique experience, the platform will also include elements like progress monitoring, multimedia content sharing (text, photos, and videos), and profile personalization.

## **Functions that are related to our web application**

- **Skill Sharing Posts**

Users can create and share posts related to their skills or learning experiences. Each post can include three pictures or a brief video (no more than 30 seconds) and a description that explains the common talent or gives context.

- **Learning Progress Updates**

Using pre-made templates for organized updates, users may record their educational path. They may add text, photos, or videos to their updates and select from a variety of styles, including milestones, accomplishments, or difficulties encountered. Followers can get these updates to encourage engagement, comments, and community involvement.

- **Learning Plan Sharing**

Users can monitor their progress over time by creating structured learning plans. They can provide a clear roadmap by defining objectives, outlining learning steps, and establishing expected periods. Users can mark finished sections, make changes and add reflections to their plans as they progress. Visual progress indicators help track achievements and build momentum in their learning path, which keeps people motivated.

- **Interactivity & Engagement**

Shared posts allow users to interact and build a cooperative learning environment. They can ask questions to improve conversations, comment to offer feedback or discuss topics and like posts to express gratitude. With

the ability to remove or report offensive comments as well as enable or disable commenting as necessary, users also have control over how they interact with posts.

- **User Profiles & Social Features**

Every user has a public profile that shows their abilities and educational pursuits. Along with a history of shared skill posts and progress updates, it also has a profile picture and bio. Additionally, users can interact with similar people and create a learning community by connecting with others via the following features.

- **Notifications**

Notifications are sent to users to keep them informed about their engagements and conversations. These notifications include mentions when they are tagged in posts or comments, likes and comments on their posts, new followers, and replies to their posts. In the learning community, this keeps people involved and connected.

- **Authentication**

OAuth 2.0 powers authentication to deliver a safe and smooth login experience. Social networking accounts including Google and Facebook can be used to log in. User data is protected by token-based authentication, which ensures session security. For further control over their login settings, users can also revoke access or log out of connected accounts at any moment.

# **Functional requirements**

## **Rest Api**

- User Authentication: Implement OAuth 2.0 login.
- Post Management: CRUD operations for skill-sharing posts.
- Learning Progress Updates: Endpoints for tracking progress.
- User Engagement: APIs for likes, comments, and notifications.
- User Profiles: CRUD operations for user profile management.

## **Client Web Application**

- User Login: Social media authentication for seamless access.
- Media Upload: Interface for uploading images/videos.
- Post Creation: UI for creating posts with structured data.
- Interactivity: UI elements for liking, commenting, and notifications.
- Profile Management: Display user activities and allow profile customization.

# **Non-functional Requirements**

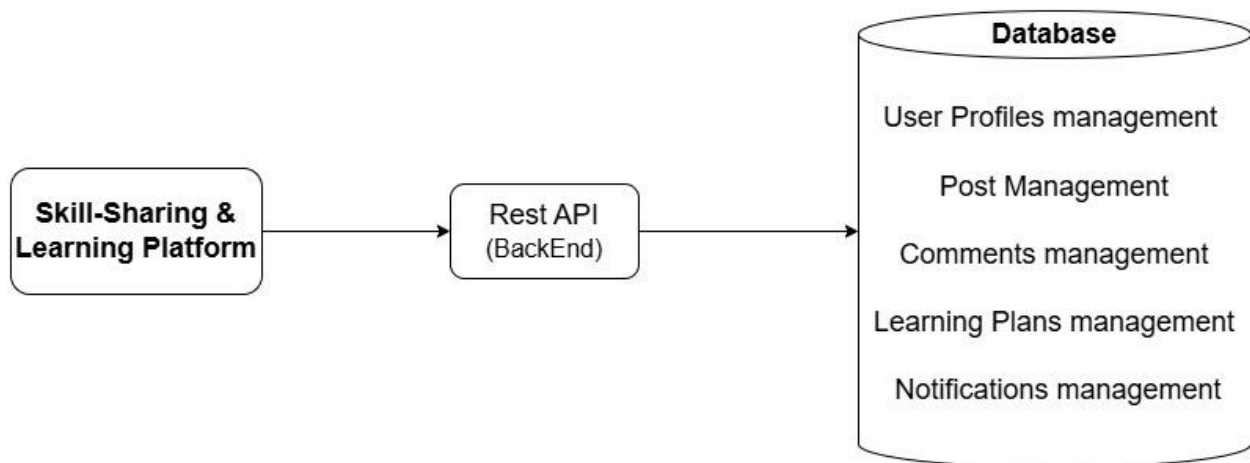
## **Rest Api**

- Performance: Fast response times.
- Scalability: Support high traffic.
- Security: Data encryption, and input validation.
- Reliability: High availability with fault tolerance.
- Maintainability: Modular design, logging, and API versioning.

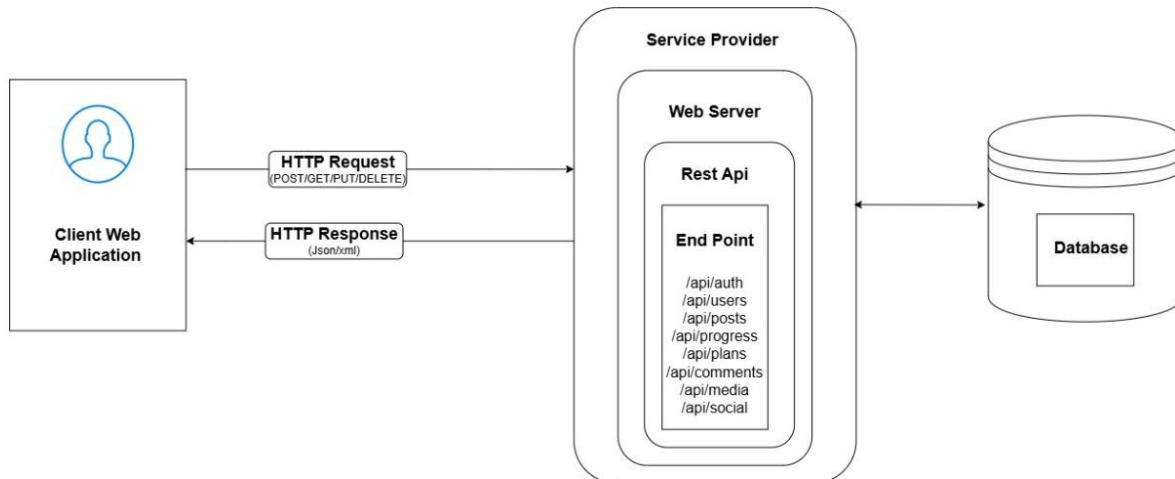
## **Client Web Application**

- Performance: Fast loading with responsive UI.
- Usability: Intuitive navigation and accessibility compliance.
- Security: Secure data handling and HTTPS enforcement.
- Maintainability: Modular code with React best practices.

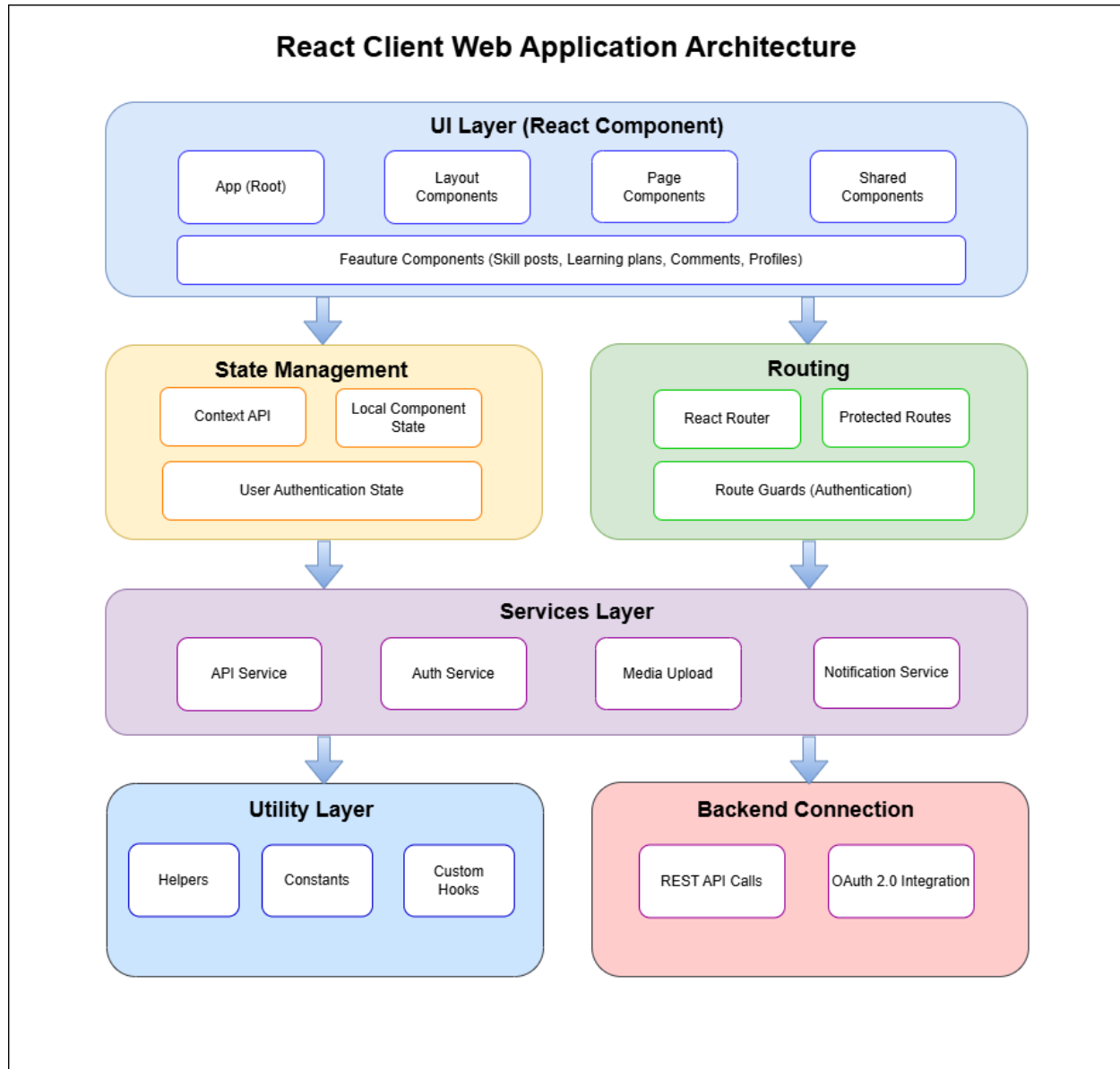
## Overall system architecture diagram



## Detailed REST API architecture diagram



## Detailed front-end architecture diagram





## Work Distribution

Student ID	Function Name	Distributions
IT22307330	Learning Management System	<p><b>Backend</b></p> <ul style="list-style-type: none"> <li>Develop <b>Learning Plans API</b> with: <ul style="list-style-type: none"> <li><b>GET</b>: Fetch all learning plans</li> <li><b>POST</b>: Create a new learning plan</li> <li><b>PUT</b>: Update progress in a plan</li> <li><b>DELETE</b>: Remove a learning plan</li> </ul> </li> <li>Handle course enrollment and completion tracking.</li> </ul> <p><b>Frontend</b></p> <ul style="list-style-type: none"> <li>Implement UI for creating, viewing, and managing learning plans.</li> <li>Allow users to track progress and follow learning plans.</li> <li>Add a rating system for feedback on learning plans.</li> </ul>
IT22922984	User Management	<p><b>Backend</b></p> <ul style="list-style-type: none"> <li>Develop <b>User Management API</b> with: <ul style="list-style-type: none"> <li><b>GET</b>: Retrieve user profile</li> <li><b>POST</b>: Register a new user</li> <li><b>PUT</b>: Follow/unfollow users</li> <li><b>DELETE</b>: Remove a user profile</li> </ul> </li> <li>Implement OAuth 2.0 authentication for Google/Facebook login.</li> </ul> <p><b>Frontend</b></p> <ul style="list-style-type: none"> <li>Implement UI for user registration, login, and profile management.</li> <li>Display user information, skill management, and activities.</li> <li>Add follow/unfollow functionality for users.</li> </ul>
IT22355614	Post Management	<p><b>Backend</b></p> <ul style="list-style-type: none"> <li>Develop <b>Post Management API</b> with: <ul style="list-style-type: none"> <li><b>GET</b>: Retrieve all posts</li> <li><b>POST</b>: Create a new post</li> <li><b>PUT</b>: Edit an existing post</li> <li><b>DELETE</b>: Remove a post</li> </ul> </li> <li>Enable users to upload images and videos.</li> <li>Store media files in cloud storage.</li> </ul>

		<b>Frontend</b> <ul style="list-style-type: none"> <li>• Implement UI for creating, editing, and deleting posts.</li> <li>• Create a user-friendly layout for post display.</li> <li>• Allow users to manage post visibility settings.</li> </ul>
IT22900272	Comments and Notifications Management	<b>Backend</b> <ul style="list-style-type: none"> <li>• Develop <b>Engagement API</b> for likes/comments: <ul style="list-style-type: none"> <li>◦ <b>GET</b>: Fetch comments for a post</li> <li>◦ <b>POST</b>: Add a comment</li> <li>◦ <b>PUT</b>: Edit a comment</li> <li>◦ <b>DELETE</b>: Remove a comment</li> </ul> </li> <li>• Implement a notification system for user interactions.</li> </ul> <b>Frontend</b> <ul style="list-style-type: none"> <li>• Implement UI for adding, editing, and deleting comments.</li> <li>• Enable like/unlike functionality for posts and comments.</li> <li>• Develop a real-time notification system for user interactions.</li> </ul>

#### Shared Responsibilities (All Members)

- GitHub & Version Control (Branching, Pull Requests, Workflow).
- System Architecture Design (Diagrams & Planning).
- Testing (Postman for API, UI testing).

## Gantt chart

Tasks	03-11	03-17	03-20	03-24	04-01	04-07	04-12	04-20	04-23	04-28	05-01
Initial Research & Requirement Analysis											
Initial Document Preparation											
Database Design											
API Development & UI Design											
Backend Testing & Debugging											
Implement Core Features											
Integrate with Backend											
Progress Review & Adjustments											
Final Testing & Bug Fixes											
Final Documentation Preparation											