**Climbing Route Planner and Tracker App - Requirement Document**

1. Project Overview:

* **Purpose**: To develop a social and interactive platform specifically for climbers, focusing on gym and outdoor climbing activities.
* **Objectives**:
  + Create a community-centric space for climbers to share experiences and route videos.
  + Provide a platform for climbers to plan, visualize, and discuss climbing routes.

2. Target User Base:

* **Primary Users**: Indoor gym climbers and outdoor climbers.
* **Needs and Characteristics**:
  + A dedicated platform for sharing climbing experiences.
  + Tools for understanding and strategizing climbing routes.
  + A social community for discussing climbing techniques and achievements.

3. Functional Requirements:

* **Must Have**:
  + User Account Management: Registration, login, profile management.
  + Route Database and Information: Details about climbing routes.
  + Route Visualization: 2D representation of climbing routes.
  + Basic Social Interaction: Likes and comments on routes and videos.
* **Should Have**:
  + Follow Functionality: Ability to follow other climbers.
  + Route Rating and Review System.
  + Search and Filter Functionality: Based on location, difficulty, etc.
  + Enhanced Social Interaction: Detailed profiles, feed customization.
* **Could Have**:
  + Chatting Functionality.
  + Educational Content and Tips.
  + Notifications and Alerts.
  + Climbing Progress Tracker.
* **Wont Have Initially**:
  + 3D Route Visualization.
  + AR Integration.

4. Non-Functional Requirements:

* **Performance**: Quick response times and efficient loading.
* **Scalability**: Capable of handling an increasing number of users and data.
* **Security**: Secure handling of user data and strong authentication.
* **Usability**: Intuitive design for a diverse user base.
* **Reliability**: Consistent availability and robust error handling.
* **Maintainability**: Easy to update and maintain.
* **Compliance**: Adherence to legal standards for data privacy.
* **Compatibility**: Cross-platform support, especially for future mobile app development.

5. User Interface and User Experience (UI/UX) Design:

* **Theme**: Modern and minimalistic with a climbing-focused aesthetic.
* **Key Screens**:
  + Home Screen: Search functionality and route details.
  + Route Detail View: Interactive visualization and user-uploaded videos.
  + Community Screen: Social feed similar to TikTok.
  + Profile Screen: User stats, media gallery, and settings.
* **User Flows**: Defined for uploading videos, searching routes, and community interaction.
* **Accessibility**: Features ensuring inclusivity and ease of use.

6. Technology Stack:

* **Front-End**: Vue.js for its user-friendly nature.
* **Back-End**: Spring Boot, known for its robustness and versatility.
* **Database**: MySQL for reliable data management.

7. Constraints and Limitations:

* **Technical**: Initial limitation on 3D and AR capabilities.
* **Real-Life**: Dependency on climbing gyms for route data.
* **Time**: Project to be completed within the current semester.
* **Budget**: Limited budget, initially

running the app locally or within a local network, with considerations for future cloud hosting.

8. Timeline and Milestones:

* **Overall Duration**: Three months.
* **Sprint Duration**: One-week sprints.
* **Month 1**:
  + Finalize UI/UX design mockups.
  + Develop and test backend APIs and database schema.
* **Month 2**:
  + Begin front-end development with Vue.js.
  + Implement core pages: Home, Route Detail, Community, Profile.
* **Month 3**:
  + Complete front-end development.
  + Conduct full integration and user acceptance testing.
  + Refine features, fix bugs, and prepare for initial deployment.