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.