

React To Spring Forums Vision Document

Version 2.0

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

Revision History

Date	Version	Description	Author
21/10/2024	1.0	Initial draft	React To Spring Team
23/11/2024	2.0	Revised version: Added React feature to product features, including create, update, and delete reactions on posts. Reason: To ensure the product has full functionality for interacting with posts. Removed report comment feature in the comment section. Reason: To streamline the features and meet the schedule.	React To Spring Team

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

Table of Contents

1.	Introduction	5
1.1	Purpose	5
1.2	Scope	5
1.3	References	5
2.	Positioning	5
2.1	Problem Statement	5
2.2	Product Position Statement	6
3.	Stakeholder and User Descriptions	6
3.1	Stakeholder Summary	6
3.2	User Summary	6
3.3	User Environment	7
3.4	Summary of Key Stakeholder or User Needs	7
3.5	Alternatives and Competition	8
4.	Product Overview	8
4.1	Product Perspective	8
4.2	Assumptions and Dependencies	9
4.3	Cost and Pricing	9
4.4	Licensing and Installation	10
	4.4.1 Licensing	10
	4.4.2 Installation	10
5.	Product Features	10
5.1	Account Registration	10
5.2	Login	10
5.3	Logout	10
5.4	Friend Request	10
5.5	Messaging	10
5.6	User Search	10
5.7	Post	11
	Create Post	11
	Edit Post	11
	Delete Post	11
	Report Post	11
5.8	Comment	11
	Post Comment	11
	Edit Comment	11
	Delete Comment	11
	Report Comment	11
5.9	User	11
5.10	Admin	11
	Manage posts, comments, and users.	11
	Grant User Permissions	11
6.	Non-Functional Requirements	12

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

Vision (Small Project)

1. Introduction

1.1 Purpose

The purpose of this document is to gather, analyze, and identify the needs and general features of the React To Spring forum. The document focuses on the needs of stakeholders and users, while also explaining why these needs exist.

1.2 Scope

This document applies to the React To Spring Forums project, which will be developed by the React To Spring Team.

React To Spring Forums will allow users from around the world to participate in discussions on the latest and trending topics. Users can share knowledge, experiences, and ask questions. Additionally, the forum supports features like friend requests and chatting to help people connect more easily.

1.3 References

- [Video Guide on Writing a Vision Document](#)
- Mẫu báo cáo Vision Document (Small Project)
- [What Is Three-Tier Architecture? | IBM](#)

2. Positioning

2.1 Problem Statement

The problem of	Currently, forums are not yet popular and strongly developed in Vietnam. Although many online forums have been developed worldwide, they have not focused on the goal of connecting and building communities.
affects	Young people, students, groups, and individuals who need to discuss or engage in group communication...
the impact of which is	<ul style="list-style-type: none"> - Communities are difficult to grow. - Forums are limited to discussion features, not contributing to fostering connections.
a successful solution would be	The goal is to build a forum where users can create their own communities and connect with people who share the same passions. It will also support jobs or tasks that require group discussions and communication.

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

2.2 Product Position Statement

For	Everyone of all age Working professionals Groups
Who	People with shared passions can come together to discuss and connect. Tasks that require group communication can also be carried out on the forum.
The (product name)	Is a Web App
That	Q&A, Discussion: Allows users to post to discuss a certain topic. Group creation, chatting: Allows creating chat groups or individual chats. Friendship: Enhances connectivity and keeps users updated with the latest posts from people they are interested in by adding friends.
Unlike	Current forums lack dynamic interfaces and the ability to connect and sustain communities.
Our product	A youthful, dynamic interface that can connect people and support the development and maintenance of communities.

3. Stakeholder and User Descriptions

3.1 Stakeholder Summary

Name	Description	Responsibilities
Nguyễn Thị Minh Tuyền	Supervisor	Supervise the project's development process and evaluate the quality of the project.
React To Spring Team	Development team	Plan, develop, and complete the project.
Phan Tấn Phát Nguyễn Minh Khang	Students	Participate in the experience to ensure the project meets the needs of students.
Trần Bảo Trân	Office worker	Experience the group creation and work discussion features to provide feedback for feature improvement.
Huỳnh Trần Ty Nguyễn Trường Vũ	US Wibu Group Members	Experience the ability to maintain and develop the community.

3.2 User Summary

Name	Description	Responsibilities	Stakeholder
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React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

Admin	Admin	<ul style="list-style-type: none"> - Manage user accounts and activities. - Grant permissions to users. - Warn or block accounts exhibiting inappropriate behavior. - Have all the functions of a user. 	React To Spring Team
Students Office worker Group members	End users	<ul style="list-style-type: none"> - Create accounts. - Posts: create, delete, and edit posts. - Comments: create, delete, and edit comments. - React to posts. - Search for posts by topic. - Search for users by name, email, etc. - Add friends. - Create chat groups and engage in personal chats. - Receive notifications for new posts, friend requests, and new messages. 	Phan Tấn Phát Nguyễn Minh Khang Trần Bảo Trân Huỳnh Trần Ty Nguyễn Trường Vũ

3.3 User Environment

The forum is aimed at users ranging from teenagers to older adults, those with the goal of building a community, discussing topics, or individuals who need to discuss and communicate in groups. Users will experience the full features of the forum on a web platform.

The forum will provide users with the opportunity to expand their network, exchange ideas, and learn from others, all within a dynamic and user-friendly interface.

3.4 Summary of Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Warning and Blocking Users with Inappropriate Behavior	High	Users who exhibit inappropriate behavior can negatively impact the community.	Currently, forums are quite lax in managing user behavior.	The admin will directly monitor user actions. In the future, as the number of users increases, a solution will be considered for the server to automatically detect behavior.
Creating Chat Groups and Personal Chats	High	Exchanging through chatting will enhance	Most current forums do not	The goal is to develop features for creating chat groups as well as personal

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

		connectivity and convenience.	support this feature.	chats.
Energetic, User-Friendly Interface	High	One of the factors contributing to the success of software is its interface and user experience.	Some forums have quite basic and difficult-to-use interfaces for newcomers.	Aiming at users of various age groups, the forum strives to create an attractive and easy-to-navigate interface for users of all ages.
Security	High	Security is always one of the top priorities.	Some forums currently do not focus on protecting user information.	Our aim is to enhance security as much as possible: Send confirmation emails when registering accounts, changing passwords, changing email, etc.

3.5 Alternatives and Competition

Famous Forums:

- Reddit: This can be said to be one of the most famous and popular forums in the world, featuring a wide range of topics for discussion and a full set of prominent features such as messaging, community creation, and topic discussions.
- Voz: This forum is likely well-known among Vietnamese programmers, as it is a place where they frequently discuss technology, companies, and more. Voz also has messaging and discussion features, but its interface is not very appealing.
- Tinh Tế: A forum specialized in technology, it targets users who are passionate about tech. Users can follow, message, and discuss various topics...

4. Product Overview

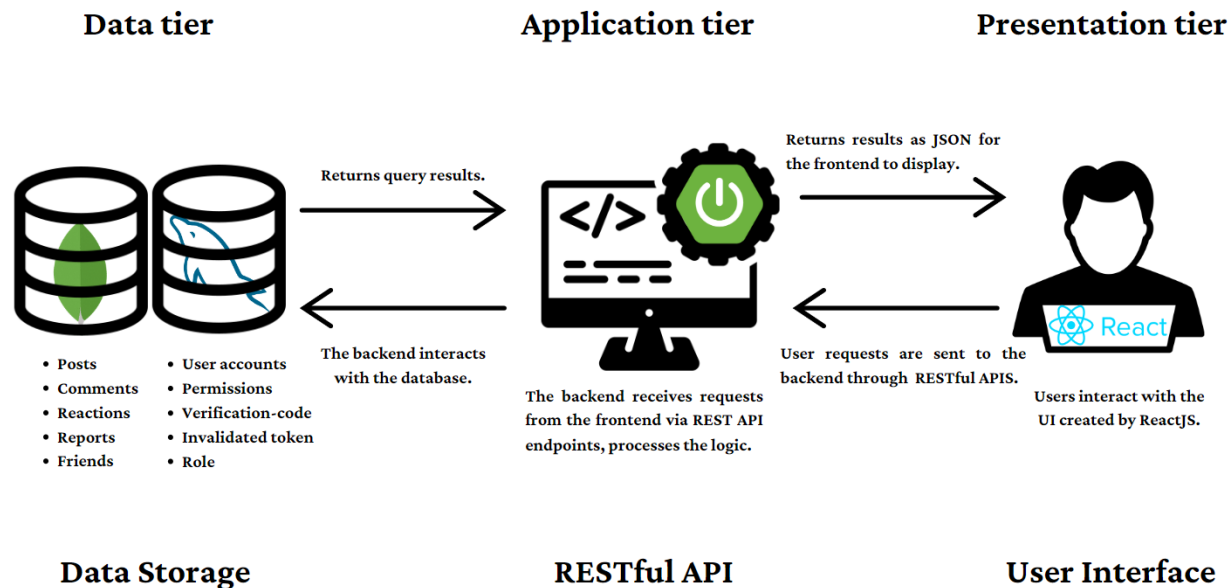
4.1 Product Perspective

The architecture of this system follows the 3-tier architecture model with three main components: Presentation tier (ReactJS), Application tier (Java Spring Boot), and Data tier (MongoDB, MySQL). This is a common and effective approach to building complex web applications, ensuring the system is manageable and scalable.

- **Presentation tier:**
 - **Technology:** ReactJS.
 - **Main functions:**
 - + Responsible for rendering the user interface (UI).
 - + Communicates with the backend via API, retrieves data, and dynamically displays information.
 - + Implements interactive features such as registration, login, friend requests, chatting, post, and comment management.
 - + Utilizes modern techniques like SPA (Single Page Application) to improve performance and user experience.
- **Application tier:**
 - **Technology:** Java Spring (Spring Boot).
 - **Main functions:**
 - + Handles the business logic of the system.
 - + Authenticates users, manages sessions, and ensures security.
 - + Receives requests from the frontend, processes them, and interacts with the database to return results to the client.
 - + Builds RESTful APIs to communicate with the frontend.

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

- + Manages connections to databases (MongoDB, MySQL), optimizes queries, and processes data.
- **Data tier:**
 - **Technology:** MongoDB and MySQL
 - **Main functions:**
 - + MySQL: Used for relational data, such as managing user accounts, permissions, verification-code, invalidated token, role, and structured information.
 - + MongoDB: Used for non-relational (NoSQL) data, especially dynamic content like friends, posts, comments, reactions and reports.



4.2 Assumptions and Dependencies

- The system can serve a moderate number of users simultaneously (possibly ranging from dozens to hundreds of users).
- Utilize caching mechanisms to reduce the load on the database and increase query speed.
- The system integrates both SQL and NoSQL databases for information storage, with data being stored in the database that is most suitable for the type of data.
- The system must have measures to prevent common attacks such as XSS, SQL injection, and CSRF.
- The system uses APIs, so protective measures are needed to restrict access and prevent abuse.
- The interface must be compatible with various devices, including desktop computers and mobile phones.
- The system can integrate with external services such as Google login, Facebook, or image/video hosting services.

4.3 Cost and Pricing

Since this is a course project, the system will primarily use community versions of frameworks and free deployment services such as Vercel and Railway. Thus, the cost for the product will be \$0. However, when the system requires infrastructure development, the following costs may be considered:

- Database costs (MongoDB and MySQL): \$50 to \$500 per month.

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

- Bandwidth costs: \$10 to \$50 per month.
- Domain name costs: \$1 to \$5 per month.
- Server costs: \$10 to \$100 per month.

4.4 Licensing and Installation

4.4.1 Licensing

- Database:
 - + MySQL Community Edition Free and open source, licensed under the GPL (General Public License).
 - + MongoDB: Open source, using the Server-Side Public License (SSPL), free for personal and commercial use.
- Frontend:
 - + ReactJS, Redux, and other libraries: Open source and free under the MIT License.
- Backend:
 - + Spring Framework: Open source and free, licensed under the Apache License 2.0.

4.4.2 Installation

- Connect the frontend to the backend, configure the API, and facilitate communication between components.
- Connect the system to MySQL and MongoDB databases.

5. Product Features

5.1 Account Registration

Users can create a new account by providing personal information such as name, email, and password. After successful registration, users can log in to the system to access other features. The system requires email verification to activate the account.

5.2 Login

Users can log into the system using the registered email and password. If the login information is valid, the system will grant access to the personal account. The system provides an Authentication and Authorization mechanism using JWT, which includes a refresh token feature to enhance user experience. Additionally, there is a "Forgot Password" feature to help users recover their accounts.

5.3 Logout

Users can log out of their accounts by clicking the logout button, ensuring that the current session is closed. This helps protect information, especially when users are logged in on public devices.

5.4 Friend Request

Users can send friend requests to other users and wait for acceptance. After successfully becoming friends, both users can message each other, interact, and follow each other's posts. Users can cancel friend requests.

5.5 Messaging

Users can send direct messages to friends or other users within the system. The system ensures real-time communication and provides notifications for received messages.

5.6 User Search

Users can search for other users in the system by entering names or emails. The search can return the public profile of the user for viewing information.

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

5.7 Post

Create Post

Users can create new posts containing text, images, or links to share with the community.

Edit Post

Users can modify the content of their posts after publishing to correct errors or update information.

Delete Post

Users have the right to delete their posts from the system if they no longer wish to share that content.

Report Post

Users can report posts that violate regulations for administrators to review and address.

5.8 Comment

Post Comment

Users can post comments under posts to respond or discuss the content shared.

Edit Comment

Users can modify the content of their comments if they need to add information or correct mistakes.

Delete Comment

Users can delete their comments if they no longer want them to appear under the post handle.

5.9 React

Create reaction

Users can create a reaction on posts to express their impression about the posts.

Update reaction

Users can change the type of their reaction.

Delete reaction

Users can delete the reaction that they have created on a post before.

5.10 User

Users can create accounts, log in, and use features such as posting, commenting, making friends, and messaging. Users can customize their personal profiles and participate in community activities.

5.11 Admin

Manage posts, comments, and users.

Administrators can delete, edit, or hide content that violates regulations, ensuring that the system operates according to the established rules. They can ban users from logging into their accounts if there are signs of violations or even delete the user's account.

Grant User Permissions

Admins have the ability to assign roles and responsibilities to other individuals for management tasks.

React To Spring Forums	Version: 2.0
Vision (Small Project)	Date: 23/11/2024
02	

6. Non-Functional Requirements

- **Response Time:** The system needs to respond quickly, especially when users are browsing posts, creating posts, and searching for information. The response time should not exceed 2 seconds for common operations.
- **Data Encryption:** Important data such as passwords and personal information must be encrypted using strong algorithms (like bcrypt for passwords).
- **Good User Experience:** The system should provide a seamless user experience, with elements such as readable fonts, good mobile interface, and easy access to important features.