

Corporate Knowledge Base (Q&A Hub)

1. Introduction

1.1 Purpose

The purpose of this system is to provide a centralized Q&A platform for employees, similar to Stack Overflow but tailored for corporate needs. It will promote knowledge sharing, collaboration, and reduce repetitive communication across emails and chat. The platform supports role-based access where new/guest users have limited visibility, and logged-in employees can fully participate.

1.2 Scope

The system will:

- Allow employees to post, edit, and delete questions and answers.
- Enable search and filtering by category and tags (HR, IT, Finance, Mortgage, Title Insurance, Development, etc.).
- Support comments, nested replies, and voting (upvote/downvote).
- Provide real-time notifications when someone comments or answers.
- Support attachments (images, code snippets) with syntax highlighting.
- Ensure role-based access control (RBAC) with Guest, Non-Premium, Premium.

Benefits:

- Reduce dependency on repetitive IT/HR email chains.
- Encourage collaboration between departments.
- Preserve organizational knowledge.
- Enhance employee productivity.

1.3 Definitions, Acronyms, and Abbreviations

- RBAC: Role-Based Access Control
 - FAQ: Frequently Asked Questions
 - Post: A question, guide, or announcement
 - Premium User: Employee with extended privileges (e.g., posting code snippets, subscribing to tags)
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2. Overall Description

2.1 Product Perspective

This product is a web application with:

- **Frontend:** Angular/React (user interface, rich interactions)
- **Backend:** ASP.NET Core WebAPI with Entity Framework Core
- **Database:** SQL Server with Full-Text Search
- **Authentication:** ASP.NET Identity with JWT for API security
- **Real-Time Updates:** SignalR for notifications
- **Hosting:** On-premises or Azure Cloud (scalable deployment)

2.2 User Characteristics

- **Guest User:** Can view limited posts, must log in for full access.
- **Registered Non-Premium User:** Can post, comment, vote, but with daily limits.
- **Premium User:** Full access, including code snippets, tag subscriptions, and unlimited posts
- **Admin:** Can manage categories, tags, users, and moderate content.

2.3 Constraints

- Project must be completed in 10 days.
- Must integrate with corporate authentication (SSO/LDAP if required).
- Must be accessible via web browsers (Chrome, Edge).
- Scalability to handle at least 500 concurrent users.

2.4 Assumptions and Dependencies

- Employees have valid company credentials for signup/login.
- Internet/intranet connectivity is required.
- Integration with company email for notifications

3. Functional Requirements

3.1 User Management

- Register new users, verify email.
- Login/logout functionality.
- Role-based permissions.

3.2 Posts Management

- Create, edit, delete questions/answers.
- Attach images or code snippets.

- Categorize and tag posts.
- Mark answers as “Accepted”.

3.3 Search & Filtering

- Search posts by keywords (Full-Text Search / Lucene.NET).
- Filter by category and tags.
- Sort results by popularity (upvotes, comments).

3.4 Comments & Voting

- Nested/threaded comments.
- Upvote/downvote posts and answers.

3.5 Notifications

- Real-time notifications (SignalR).
- Email alerts for new answers or comments.

3.6 Subscriptions (Premium Feature)

- Subscribe to tags/categories.
- Get notified of new posts matching subscription.

3.7 Limits & Access Control

- Guest users → can only view limited posts.
- Non-premium users → limited daily posting.

4. Non-Functional Requirements

4.1 Performance

- Search queries should return results in < 2 seconds.
- System should support 500+ concurrent users.

4.2 Security

- Role-based access control.
- Secure password storage (ASP.NET Identity + hashing).
- JWT for API authentication.

4.3 Reliability & Availability

- 99.9% uptime on corporate network.
- Regular backups of database.

4.4 Usability

- Code snippets with syntax highlighting and copy option.
- Simple and intuitive navigation.

